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African Women's Report (AWR)
Digital Finance Ecosystems – Pathways to Women's Economic Empowerment in Africa

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Gender Equality and Women's Empowerment Section (GEWES)

of the

Gender, Poverty, and Social Development Division (GPSPD)

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Foreword

In 2020, we celebrate the 75th anniversary of the establishment of the United Nations. It coincides with a year of immense global challenges, with turmoil and difficulty being experienced by many, as countries, communities and families grapple with the effects of a global health pandemic and its lasting impacts. 2020 also marks the reaffirmation of the Sustainable Development Goals, through the Decade of Action, leaving us with 10 years to achieve its goals and targets. This juncture presents us with an opportune moment to rethink the strategies and policies we have in place to address poverty, reduce inequality and further global development. In all these decades of supporting the design and implementation of international development initiatives, and promoting regional co-operation and equality for all, where are we with regards to women's empowerment and gender equality, as the United Nations and as a global community? I believe that significant progress has been made towards achieving gender equality, when looking retrospectively across this timeline and in the modern era. However, there are still many areas of concern and persisting challenges remain, in empowering women and girls around the world, especially across Africa. Despite progress, many countries in Africa are still considered as being the furthest behind in their policies, strategies and development indicators for gender equality.

Women's economic empowerment is not an elusive goal but an achievable outcome, which is becoming a tangible reality and is no longer something we simply envision but something we can act towards. Digital innovations, if properly embraced, can also help us to leapfrog hurdles in achieving our development targets and goals, especially towards the Sustainable Development Goal 5 on achieving gender equality. Some innovations are in their infancy in the Africa region, such as artificial intelligence, machine learning and robotics, while others, such as mobile connectivity, online applications and digital identity, have been around for some time and are simply underutilized. Digital platforms and solutions, if properly harnessed, can revolutionize the socio-economic prospects of women across the continent and can address the shortfalls in areas in which the region lags behind in comparison to the rest of the world – in our collective pursuit towards achieving gender equality.

Digital finance is transforming the livelihoods of many people who are excluded from traditional financial institutions, especially for women and girls. While opportunities in digital finance are being led by private sector initiatives and financial institutions, limited analysis has been undertaken on the impacts of digital finance in Africa, and specifically on the economic and social prospects of women. Gaps exist in knowledge and understanding of what constitutes digital finance, what is required in order for the industry to flourish and how to ensure that women equitably benefit from digital finance initiatives. ECA has taken a holistic approach in looking at digital finance from a systems perspective, as an ecosystem of interconnected and interdependent components. Similar to many other technology-driven initiatives, digital finance has been analyzed in a systematic way in order to better understand each of its components and how they relate to women in terms of equality and empowerment.

Enabling environment for digital connectivity

The analysis shows while the continent lacks a sufficiently enabling environment for digital connectivity infrastructure and has a lower rate of mobile and internet usage, in comparison to other regions of the world, mobile money services are far more common in Africa than anywhere else around the globe. However, African women still lack access to digital services and digital gender gaps remain persistent. Countries with the lowest mobile ownership and internet usage rates have the widest gender gaps in the region. Africa not only has the lowest number of people using the internet globally, but the gendered gap in usage has increased from 20.7 per cent in 2013 to 33.0 per cent in 2019. The most significant barriers to mobile ownership are in rural areas where

limitations persist and range from affordability to literacy, digital skills and restrictive social norms. Although only 48 per cent of women across the globe use mobile internet, the same figure stands at 29 per cent for Africa, excluding North Africa.

Prerequisite skills in digital and financial literacy

Considerable gains are being made in improving digital finance skills across the region, where, for example, the proportion of women with digital finance skills has doubled from 12.5 per cent in 2014 to 25.7 per cent in 2018 in North Africa, surpassing the global average of 20.6 per cent. However, Africa, as a continent, is still lagging behind with approximately 12 per cent of women possessing digital finance-related ICT skills. This stands below the global average, reflecting a clear need for capacity development programmes to enhance digital finance literacy and skills. Globally, only one in three adults are financially literate. The gap in financial knowledge widens for women, poor individuals and those with lower levels of education. Therefore, improving financial literacy, through financial knowledge, attitudes and behaviour, is critical to the financial inclusion of women in many African countries, in addition to addressing the pace, reach and impact of such programmes.

Risks to financial inclusion and credit

Globally, an estimated 1.7 billion people are excluded from conventional financial systems, exacerbating their vulnerability and marginalization from productive sectors and formal employment. In Africa, 43 per cent of men have a formal financial account, while only 33 per cent of women have a formal account. The low proportion of women in formal employment, especially in Africa, coupled with limited access to productive assets, compared with men, are among the many factors which exclude women from conventional financial institutions and products. Therefore, it is imperative that policymakers remain mindful of corporations making credit available without thorough credit control or credit reference checks, and ensuring appropriate levels of due diligence combined with a duty of care, especially to those already in vulnerable situations. Furthermore, there is growing evidence across several African countries that large proportions of digital borrowers repay late or default. Despite its risks, digital finance has the potential to disproportionately benefit African women in reducing time-poverty and increasing decision-making power within households. For example, in Kenya, when women-headed houses adopted mobile money accounts, poverty dropped, savings rose, and 185,000 women left agricultural jobs for more reliable and higher-paying positions in business or retail.

Barriers to accessing financial products and services

While digital finance has the potential to facilitate women's economic empowerment through improved financial inclusion, barriers persist, especially in the form of social and cultural norms. Inherent biases within financial practices, products and services can obstruct women's empowerment, therefore, practices, processes, products and services need to be evaluated and assessed through a gendered lens. As an example, African countries have seen the highest growth in terms of the use of credit reporting systems over the last decade, in comparison to the decade before that. These systems are used to assess the viability of borrowing and lending to potential customers. However, some countries have less than 8 per cent of adults covered in such systems. At the same time, credit scoring, as well as the algorithms used to determine the financial feasibility of individuals, can have an inherent bias, due to design limitations and lack of foresight in programming, with regards to gender and financial inclusion. Although some African countries are making great strides in capturing financial data. There is a greater need for African countries to capture sex-disaggregated financial data, which can be further analyzed to support digital finance initiatives, as well as address potential gender bias.

Opportunities in addressing representation, regulation and rights

Despite the many benefits of digital finance, systemic challenges and barriers cannot be fully addressed until women are equally represented in relevant decision-making bodies across the digital and financial sectors and related institutions. Gender inequality gaps continue to exist in the Science, Technology, Engineering and Mathematics fields. For example, the proportion of women researchers employed in Research and Development (R&D) is 30 per cent in Africa, compared with 47 per cent in Central Asia. High-level political representation, in the form of ministerial positions and portfolios, is also an integral aspect in mainstreaming gendered perspectives into the digital and financial sectors. In this context, the number of portfolios held by women ministers across Africa, relevant to the digital finance ecosystem, saw an increase between 2010 and 2020. This progress provides positive indications for the future digital finance policy and regulatory environment, particularly in promoting a more equal and gendered perspective in decision-making. However, it is critical to ensure that regulation matches the pace of development of digital products, and particularly those in the financial sector, where technological innovations can often outpace regulatory development. This would require co-operation across sectors and borders on levels that have not been seen before, raising the need for seamless interface services, such as digital identification. However, in some African countries, men are up to 9 per cent more likely than women to have formal identification, with the same gap being twice as large in some economies. In addition to regulatory concerns, there is a need for all individuals to have adequate recourse to the consumer protection processes that protect their rights, which also have the potential to be digitally embedded.

The way forward

[Based on the outcomes of the January 2021 meeting. To summarise digitial finance has the potential…10 addtional points page 56]

Vera Songwe
Under Secretary-General of the United Nations
Executive Secretary, Economic Commission for Africa

Acronyms and abbreviations

AWR	African Women's Report
CGAP	Consultative Group to Assist the Poor
DF	Digital Finance
EAC	The East African Community
FinTech	Financial Technology
G20	The Group of Twenty
GPFI	Global Partnership for Financial Inclusion
GSMA	Global System for Mobile Communications
ICT	Information and Communication Technology
IFC	International Finance Corporation
INFE	International Network on Financial Education
IPU	International Parliamentary Union
ITU	International Telecommunications Union
MENA	Middle East and North Africa
NISSA	National Information Systems for Social Assistance
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
R&D	Research and Development
S&P	Standard & Poor
SADC	Southern Africa Development Community
SDG	Sustainable Development Goal
STEM	Science, Technology, Engineering and Mathematics
STI	Science, Technology and Innovation
UNESCO	United Nations Educational, Scientific and Cultural Organization

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1. INTRODUCTION

1.1. Women's economic empowerment and digital finance

Women's economic empowerment is arguably one of the most important processes that reduces gender inequalities. It includes women's improved ability to participate equally in societies; their improved access to and control over productive resources, access to decent work, control over their own time, lives and bodies, as well as increased voice, agency and meaningful participation in economic decision-making. [1] Women's economic empowerment is not only the right thing to do from a human rights perspective but also the economically smart thing to do. [2]

Digital finance has a critical role to play in women's economic empowerment. Technologies and platforms can provide low-cost, immediate and smooth pathways for women to access and utilize financial resources to leverage technological opportunities, improve social circumstances and advance economic prospects. This can create increased entrepreneurial activities, enhanced household financial management, a decreased burden of daily care work or off-loading of tedious and administrative financial tasks through more efficient financial processes and platforms. The potential of digital finance can also boost the entire economy - increasing productivity, supporting national development and facilitating progress towards achieving the 2030 Agenda for Sustainable Development.

Digital finance refers to digital forms of credit, savings, insurance and financial transfers. In this report, the term 'digital' refers to computing and telecommunication processes that may or may not be internet-based. For example, a digital account that enables processing of services is a digital finance platform. However, a mobile money account that does not need internet access is also considered a digital finance platform. Mckinsey & Company defines digital finance in the broadest terms as:

> *Digital finance is "…..financial services delivered over digital infrastructure—including mobile and internet—with low use of cash and traditional bank branches. Mobile phones, computers, or cards used over point-of-sale devices connect individuals and businesses to a digitized national payments infrastructure, enabling seamless transactions across all parties."* [3]

1.1.1. The benefits and risks of digital finance

The widespread use of mobile phones and other information and communication technologies (ICTs) has the potential to bring financial services within everyone's reach. However, large differences exist between high-income countries, where the internet is the most common channel to facilitate financial services, compared to Africa where 45 countries provided mobile money services in 2018.[4]

Digital finance is revolutionising monetary exchange, especially among those who are not serviced by commercial financial institutions,[5] **and has the potential to lift people out of poverty and reduce inequalities across society.** For example, in Kenya, mobile money system

[1] ECA 2017a

[2] Gender equality has long been established as a key factor in producing higher levels of economic growth across Africa (Blackden et al 2007). International Monetary Fund (IMF, 2018), conclude that closing the gender gap in economies could boost national GDP from 4 to 32 per cent annually, depending on the extent of the gender gap.. IMF (2018)

[3] McKinsey & Company (2016) digital finance for all: powering inclusive growth in emerging economies.

[4] (GSMA 2019a)

[5] World Bank (2016) World Development Report 2019: Digital Dividends, Washington D.C: USA

M-PESA lifted 194,000 households, or 2 per cent of all Kenyan households, out of poverty by increasing their consumption levels.[6] Female-headed households, in particular, were found to have increased financial resilience and saving, while labour market was impacted by women moving out of agriculture into business - all of which was found to be correlated with improved consumption levels.

Digital financial services can lower the cost associated with receiving social benefits and government processing. In Niger, it was found that switching the monthly payment of government social benefits from cash to mobile phones saved the recipients an average of 20 hours of travel and waiting time to obtain payments, while bringing supply saving efficiencies for the government. Hence, mobile money services have the potential to boost essential logistical processes, in addition to being a vital part of improving fiscal efficiency in the delivery of services. [7]

However, there is growing evidence that ease of access to credit through digitalization can increasingly result in unsustainable debt patterns, fraud and increased consumption. The Consultative Group to Assist the Poor (CGAP) found evidence of debt cycling in Tanzania, with late-payers returning to lender for high-cost, short-term loans that incur high penalty fees. [8] In Kenya, four million mobile money users said they were victims of fraud last year. [9] However, increasing evidence suggests that the majority of digital money is used for domestic consumption, including airtime (15 per cent in Kenya, 37 per cent in Tanzania) and personal or household goods (10 per cent in Kenya, 22 per cent in Tanzania). About 33 per cent of digital borrowers report using financial credit for business purposes. Wage-employees are among the most likely to use digital credit for regular household consumption. This could indicate a payday loan type of function in which digital credit provide funds while awaiting the next income transfer. [10]

1.2. Digitalization across Africa

Digitalization, particularly relating to the financial sector, has the potential to provide the critical backbone for economic and social transformation by, for example, contributing to and enhancing women's inclusion, participation, communication, economic interactions, business transactions, operations and other financial and administrative tasks, while making the whole acitivity smoother, more affordable and more efficient. Research from McKinsey & Company suggests that the digital economy in Africa is expected to reach more than $300 billion by 2025 - primarily as a result of a five-fold growth in digitalization and internet usage. [11] The African Union Commission proclaimed that digital transformation should be one of the top priorities of African Union Agenda 2063, which requires the involvement of women in Science, Technology and Innovation (STI), where women are often underrepresented.

Regional organizations in Africa have taken steps to promote women's participation in science. The East African Community (EAC), for example, has adopted Gender and STI Frameworks that promote gender mainstreaming and gender equity in STI, entrepreneurship, training and education. Similarly, the Southern Africa Development Community's (SADC) gender policy supports equal access for girls and boys to study science and mathematics, as well as promotes women and girls' access to tertiary education in non-traditional subjects.

[6] Suri and Jack (2016)
[7] (Aker, et al 2016
[8] CGAP 2018
[9] CGAP 2019
[10] CGAP 2018
[11] McKinsey & Company (2013)

Whilst digitalization brings prospects of job creation, it can also lead to job losses. As organizations embrace new and innovative methods in refining operations and processes through automation, it is necessary to adopt a forward-looking approach to identify the type of jobs that will be needed in a future digital economy. Simultaneously, we must assess how competition in different sectors can affect the landscape of the future digital economy. [12]

1.3. How digital finance can lead to women's economic empowerment in Africa

Digitalization is critical to all components of women's empowerment. From the perspective of the economics literature indicators of women's empowerment may be reflected through resource-based approaches (i.e. women's access to economic resources such as public transfers and welfare receipts, income shares of women, unearned income, assets brought into the marriage or current assets, employment, yield by gender from farm plots, etc.).[13] Meanwhile, the human development literature has tended to focus on, what Sen refers to as, capabilities/achievement perspectives – health, education and income (Sen, 1999) – that can be reflected as both enablers or constraints (Figure 1). That is, women's empowerment is typically focused on gender-based differences in access to economic resources and/or capabilities/achievement. A major challenge with such an approach is that it ignores the circumstances under which women have access to resources or achievement.

Figure 1: Women's Economic Empowerment: Enablers and Constraints

Source: ODI (2016)

Gendered divides exist in access to basic services and decent work through infrastructure (rural, urban) and social norms that can provide the basis of accentuating the gender gap. For example, Goldstein and Udry (2008) indicate that yield differences between male and female

[12] Sy 2019
[13] Abekah-Nkrumah, G and D. Lawson (2020) "Women's Empowerment and Impact on Child Nutrition in Sub-Saharan Africa", Lawson et al. (2020), "What Works for Africa's Poorest Children: From Measurement to Action", Practical Action, UK.

plots in Ghana are due to constraints faced by women, which are deemed to be rooted in power relations of social groupings and positions held in such social hierarchies.[14] However, the role of digitization plays, in overcoming such issues, has commonly been overlooked.

Digitization can empower women indirectly if there is less involvement of intermediaries. This can be particularly true for digital finance as women may gain direct access to (financial, education and other) services or decent work at lower direct financial costs. In addition to facing less intermediary discrimination in service access, they gain improved access to formal credit and create the potential for increased business margins with financial tools, improving inventory, stock rotation and the access to social protection.

However, it is vital that digital finance considers women's empowerment in the context of the 'ecosystems' that surround enablers and constraints. Hence, an expanded view of women's economic empowerment is required – from infrastructure to equal access to the protection of rights – where other dimensions of digitalization are encompassed throughout the expansion of digital finance to ensure women's empowerment. Consideration of fiscal space, for example, is particularly important to gendered budgeting, and the legal and regulatory frameworks that underpin gendered rights and access to basic services, employment, and a minimum standard of living through social protection are critical.

1.4. Gendered framework for the digital finance ecosystem

Creating an appropriate framework to consider the gendered component of a digital finance ecosystem requires the inclusion of various elements of both digitalization and finance. Economic and social dimensions to banking, as well as cultural norms in handling household finance and money, when considering digital finance, all of which have varying gendered connotations and impact. Many of the definitions and analysis describing digital finance look at core aspects of the digital finance ecosystem, these aspects have been grouped in this report to provide a conceptual framework when analyzing digital finance for women's economic empowerment as shown in Figure 2.

This report considers a gendered analysis of digital finance concepts across the following dimensions. Enablers (green) – Digital and mobile connectivity, including digital finance readiness, ICT usage and online services; Prerequisites (yellow) - financial and digital literacy and skills; Risks (orange) - financial inclusion and access to credit; Barriers (red) - financial products and services and financial practices; Challenges and Opportunities (purple) - women's representation in finance and decision-making, as well as emerging gendered regulatory concerns and rights; and engendering digitalisation policies. These dimensions reflect the analytical framework and chapters outlined.

[14] Goldstein and Udry (2008) cited in Abekah-Nkrumah and Lawson (2020) who provide a review of social norms and women's economic empowerment.

Figure 2: Conceptual framework for the digital finance ecosystem for women's economic empowerment

Source: Developed by ECA, 2020

1.4.1. Aim of this report

The aim of the 2020 edition of the African Women's Report (AWR), on the theme of **'*Digital Finance Ecosystems - Pathways to Women's Economic Empowerment in Africa*'** is to explore and dissect how digital finance can contribute towards achieving the Sustainable Development Goal (SDG) 5 and its potential to promote women's economic empowerment through financial inclusion to deliver on gender equality.

The report explores the enablers, prerequisites, risks, barriers, opportunities and challenges associated with harnessing digital finance for women within the context of digital finance ecosystem. It further dissecting the components of this ecosystem including digital and mobile connectivity; digital and financial literacy and skills; financial inclusion and access to credit; financial products and services; women's representation in decision-making, technology and finance sectors and rights and regulatory concerns.

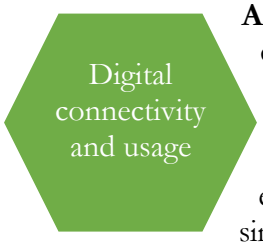
1.5. Report structure

The structure of this report is based on the conceptual framework presented in the previous section with each chapter exploring an individual component of the framework, commencing with an introduction to the topic in chapter one. Figure 3 provides an overview of the analytical framework and the structuring of chapters, and themes, in relation to the conceptual framework of this report.

Figure 3: Analytical framework of the report in relation to the conceptual framework

Chapter two focuses on key enablers of digital finance and covers digital and mobile connectivity, digital finance readiness and ICT usage and online services. Chapter three highlights the prerequisite financial and digital literacy and skills, which form the foundation of digitalization and having a critical mass of digitally and financially literate women who can subsequently utilize digital finance tools and platforms. Chapter four considers risks such as financial exclusion and lack of access to credit, including the risks associated with digital finance solutions and financial inclusion. Chapter five highlights the potential barriers, such as biases in financial products and services, and disparities in financial practices and norms, all of which, whether rooted in social or cultural norms, may present barriers to women in embracing digital finance to take advantage of its many benefits. Chapter six considers representation, regulation and rights, which may perpetuate many of the barriers and disadvantages for women. The report concludes with chapter seven, providing some policy recommendations for the issues discussed in previous chapters, in line with the conceptual framework, to enhance digital connectivity and ensure adequate digital and financial skills; to address social and cultural challenges and lower the barriers of access to financial products and services; and to harness gendered opportunities and address gendered regulatory concerns.

2. ENABLING DIGITAL FINANCE THROUGH MOBILE CONNECTIVITY



Africa is at an important inflection point of demand and support for digital transformation. [15] Digitalization promises huge dividends in terms of inclusive growth, innovation, job creation, service delivery and poverty reduction across Africa. It could increase annual per capita income by 1.5 per cent and reduce the poverty headcount by 0.7 per cent per year. [16] These effects have the potential to be accentuated due to the COVID-19 pandemic, similarly, if coupled with stronger investments in education, the development impact could be doubled. This could be further enhanced if policies and regulations create a vibrant business climate, skills that allow workers to access the jobs of the future, and accountable institutions that use the internet to empower people.

Digitalization, and its related digital and mobile connectivity infrastructure, is essential in providing an enabling environment for the platforms, tools and services of digital finance. Access to the internet, alongside mobile subscriptions, telephony and ownership of digital devices, can provide an indicator of digital finance readiness, uptake and usage. Digital infrastructure can vastly vary from rural to urban settings, this can have additional impacts on the utilization of digital finance, the usage of online applications, as well as basic ICT access, as proxy indicators.

The gendered global digital divide is increasing with the pace of digitalization, Africa has the lowest number of people using the internet at 28.2 per cent as of 2019, compared to a global average of 53.6 per cent. 17 This can exacerbate existing inequalities in wealth, income, opportunity, education and health. 18 Women are further impacted by a gendered digital divide. With the global internet user gender gap having increased from 11 per cent in 2013 to 17 per cent in 2019, in Africa, the gap was 20.7 per cent in 2013 and 33 per cent in 2019. 19 Often those who lack safe and affordable access to digital technologies are also the already marginalized: including women, the elderly, persons with disabilities, people from indigenous groups and those who live in poor, remote or rural areas.

Gender digital divides appear to persist irrespective of a country's ICT access levels, economic performance, income levels or geographic location. Cultural and institutional constraints further shape the manifestations of the gender digital divide. As technologies become more sophisticated, the gender digital divide is expected to widen despite ICTs enabling digital transformation in use and impacts. 20 This gender digital divide can also impact access to and use of digital finance tools, platforms and services which rely on such digital and mobile connectivity infrastructure as the foundations of access and use of such digital technologies.

Examples of national initiatives indicate the attempts being made to try and address the gender digital divide. For example, in Burundi, the country established the National Information and Communication Technologies Development Policy with a strategic pillar focusing on ICT and social development on bridging the digital divide. [21]

[15] World Bank (2019a)
[16] Ibid.
[17] Ibid.
[18] (United Nations 2019)
[19] ITU (2019), Measuring digital development, Facts and figures 2019
[20] UN University et al. (2019) Taking stock: Data and evidence on gender equality in digital access, skills and leadership
[21] Burundi's country report (2019) for the Beijing +25 review, submitted to ECA in November 2019

2.1. Digital and mobile connectivity as foundations in accessing digital finance

2.1.1. Basic access to ICTs

Across all measures of basic ICT access, African women have lower access than men (Table 1). Basic access to ICT commonly refers to access to and use of devices, such as a computer, a laptop or a mobile phone, with indicators including the proportion of individuals using a computer, the internet or mobile cellular telephone; and who own mobile phones. Table 1 provides a gendered overview of basic access to ICTs in Africa, taken from a global sample of 78 countries. There is limited data for African countries, nonetheless, the data can provide some indication of basic access relative to gender across the region. [22]

Table 1: Basic ICT access indicators for Africa

	Number of reporting economies	% Women	% Men
Use of a computer	6	30.2	34.3
Use of the internet	9	28.2	32.4
Use of a mobile phone	4	81.7	84.25
Mobile phone ownership	6	64.7	71.2

Source: ITU WITD Database, 2017.

Data from six African countries suggests that as overall smartphone ownership increased, the gender gap narrowed. Smartphones are one of the key means of accessing digital finance platforms, tools and services. Country-level data for smartphone ownership in Algeria suggest the gender gap is only 3 per cent, with smartphone ownership surpassing 60 per cent for both men and women. While in Mozambique smartphone ownership stands at 19 per cent for men and only 11 per cent for women, representing a gender gap of 42 per cent (see Figure 4).

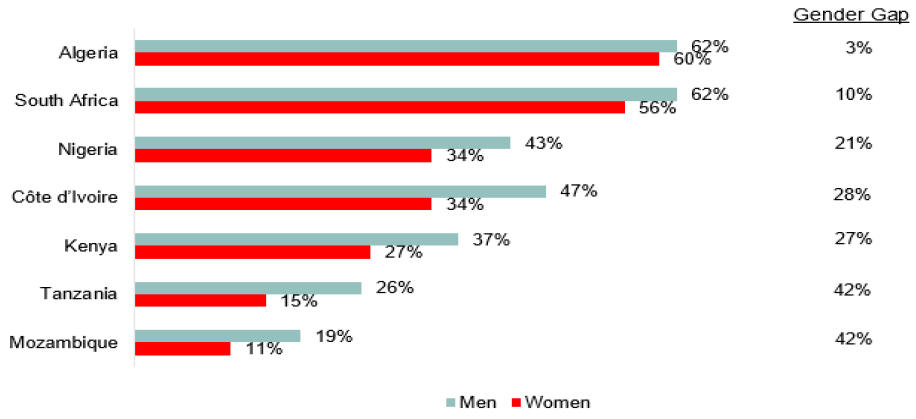


Figure 4: Male and female smartphone ownership

Source: GSMA (2019), Connected Women - The Mobile Gender Gap Report

2.1.2. Mobile internet

A market gap of 1.1 billion women globally, including 200 million women in Africa excluding North Africa (see Figure 5), do not have access to mobile internet. About 48 per cent of women globally use mobile internet, whilst in Africa, it is only 29 per cent, excluding North Africa. Furthermore, research suggests while some women may have mobile phones, they are less likely to access the internet on their phones.

[22] African countries included in the study are Botswana, Burundi, Cape Verde, Egypt, Mauritius, Morocco, Niger, Sudan and Zimbabwe

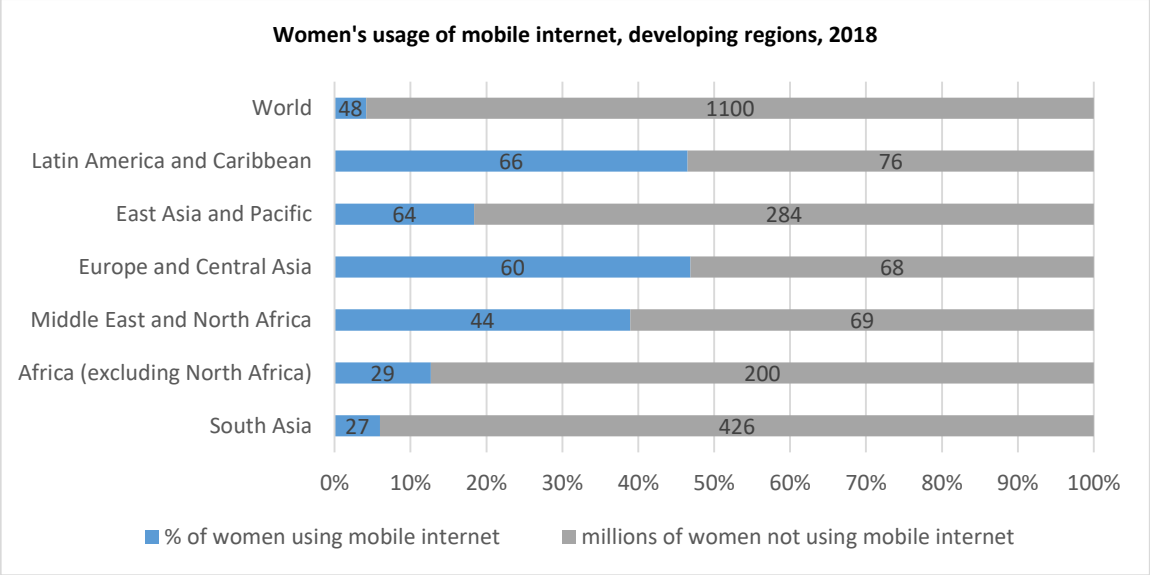


Figure 5: Women's usage of mobile internet, developing regions, 2018

Source: GSMA (2019), Connected Women - The Mobile Gender Gap Report

Despite limited data, it appears that mobile ownership and usage penetration are the lowest in countries where gender gaps are also the widest. [23] In low and middle-income countries, women are 10 per cent less likely than men to own a mobile phone and 23 per cent less likely to use mobile internet. These gaps are second-largest in Africa, excluding North Africa, where 69 per cent of women are estimated to own a mobile phone in 2018, compared to 80 per cent for men. This represents incredible progress compared to the previous five years when 40 per cent of African women had mobile phone ownership. The gender gap in Africa, excluding North Africa, is 15 per cent for mobile phone ownership and 41 per cent for mobile internet (see Figure 6).

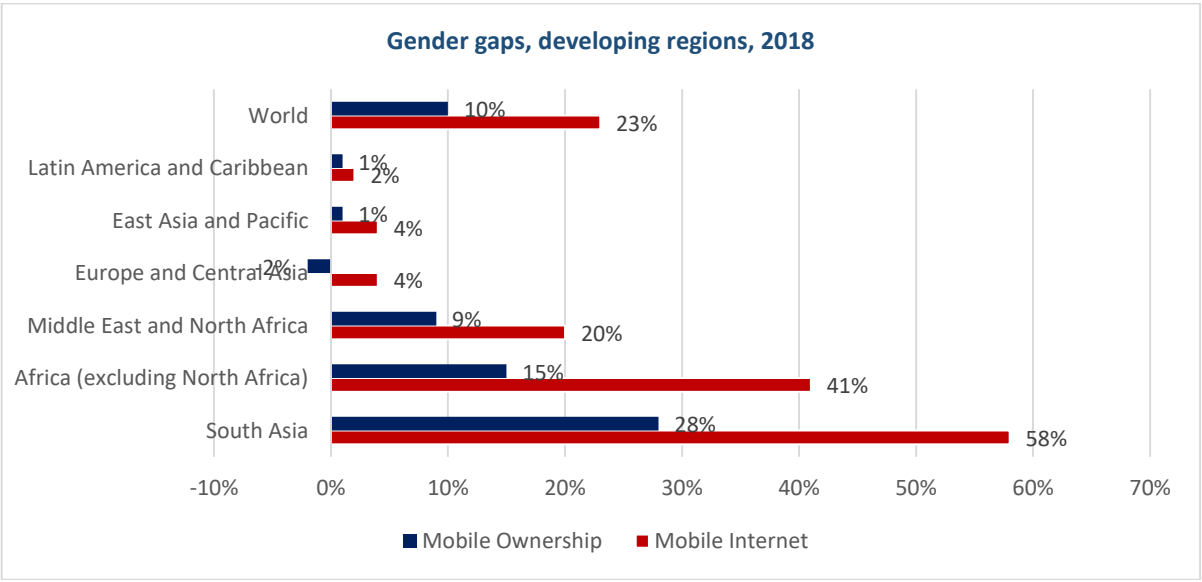


Figure 6: Gender gaps (%), developing regions, 2018

Source: GSMA (2019), Connected Women - The Mobile Gender Gap Report

[23] GSMA (2019), Connected Women - The Mobile Gender Gap Report

Gender disaggregated data is relatively limited on mobile phone ownership and mobile internet usage at the country level. The Global System for Mobile Communications (GSMA) depicts the situation in six African countries where the main barriers to mobile internet usage were identified (ranked in descending order) notably as: literacy and skills; affordability; relevance to one's needs; and safety and security. This rank is equal for both men and women in Africa, and relatively similar for other adults in low and middle-income countries. However, in four out of six African countries, affordability was the greatest barrier for women. [24]

A significant number of women and men also stated that they were not aware of the existence of mobile internet. Being unaware is also a barrier to digital finance and subsequent financial inclusion. The diversity of responses were large among the five surveyed African countries, ranging from Algeria, where only about 11 per cent of women were unaware, to Mozambique where 56 per cent of women were unaware. In all African countries, more women than men showed a lack of awareness of mobile internet. [25]

2.1.3. Rural versus urban connectivity

There are large disparities in women's mobile ownership in Africa across urban-rural settings. Apart from South Africa, five other African countries displayed greater gender gaps in mobile ownership in rural settings. The diversity is large, ranging from only 1 per cent in Algeria, to 25 per cent in Mozambique, while South Africa showcased a 4 per cent gender gap in favour of rural areas (see Figure 7). Sierra Leone provides an example of high rural-urban disparities with a 64.6 per cent and 97.4 per cent rural-urban areas split. [26]

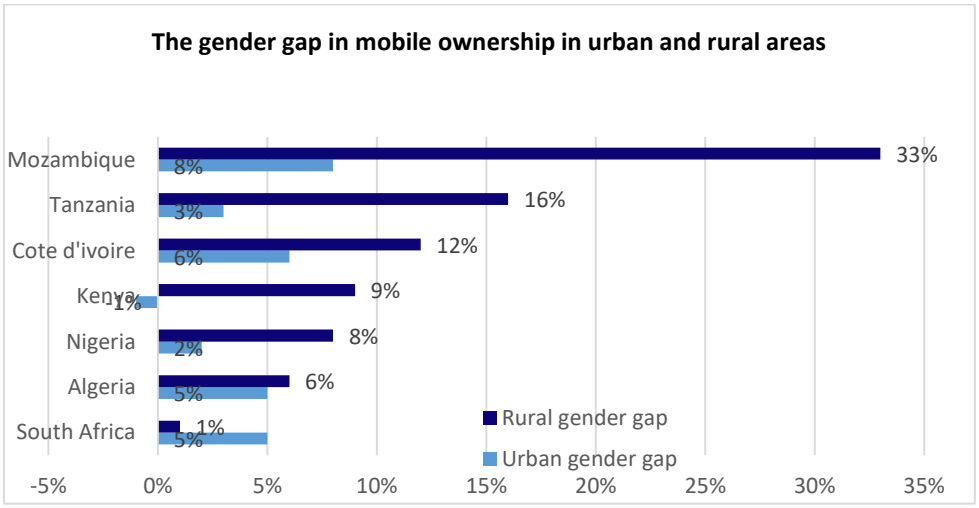


Figure 7: The gender gap in mobile ownership in urban and rural areas

Source: GSMA (2019), Connected Women - The Mobile Gender Gap Report

The most significant barriers to mobile ownership in rural areas were the limitations in terms of affordability, literacy, digital skills, as well as restrictive social norms and lack of awareness of the benefits of using the internet. These barriers are of greater relevance to women, who are most often in lower-income brackets, with lower education levels, and are occupied with greater domestic burdens, at the household level, compared to men. [27]

[24] GSMA (2019), Connected Women - The Mobile Gender Gap Report
[25] GSMA (2018), GSMA Intelligence Consumer Survey.
[26] Sierra Leone Integrated household survey report 2018
[27] GSMA (2019), Connected Women - The Mobile Gender Gap Report

2.2. ICT operations relevant in digital finance uptake and usage

2.2.1. Access and use of digital financial services

ICTs can enhance financial inclusion to include the unbanked and underbanked in formal financial systems. The World Bank's Financial Inclusion Database, the Global Findex, provides gender-disaggregated data on access and use of formal and informal financial services. Indicators relating to access and use of digital financial services monitor individuals who have: used a mobile phone or the internet to access an account; used the internet to pay bills or buy something online, made or received digital payments in the last year; and used a mobile money service in the past 12 months. Table 2 provides a breakdown of these indicators for women and men in Africa.

Table 2: Indicators on Access and use of digital financial services in Africa

	Number of reporting economies	% Women	% Men
Use of mobile phone/internet to access an account	40	15.3	19.6
Use of the internet to pay bills or make purchases online	40	6.0	9.8
Made or received digital payments	40	28.5	38.5
Use of mobile money Services	36	19.6	25.5

Source: World Bank Global Findex Database 2017.

Africa, on average, has the lowest score against the majority of indicators for access and use of digital financial services. Gender disparities can be observed across all the aforementioned indicators, on access and use of digital financial services. These disparities, in the gender digital divide, are far more prominent than gender disparities in basic access to ICT, while usage of digital financial services, in general, is much lower as an overall percentage for both women and men than basic access to ICTs.

2.2.2. Online account services

The global gender gap of digitally accessing a financial account is estimated to 4 percentage points (27 per cent for men and 23 per cent for women). In Africa, excluding North Africa, this gender gap is 5.4 percentage points, second highest after the Middle East and North Africa (MENA) region, with 7 percentage points. The lowest gender gap is in North America with 1.5 percentage points (see Figure 8). Gender gaps by region are somewhat related to the overall level of digital access to financial accounts, as developed regions, with higher levels of digital infrastructure and access, display the lowest gender gaps.

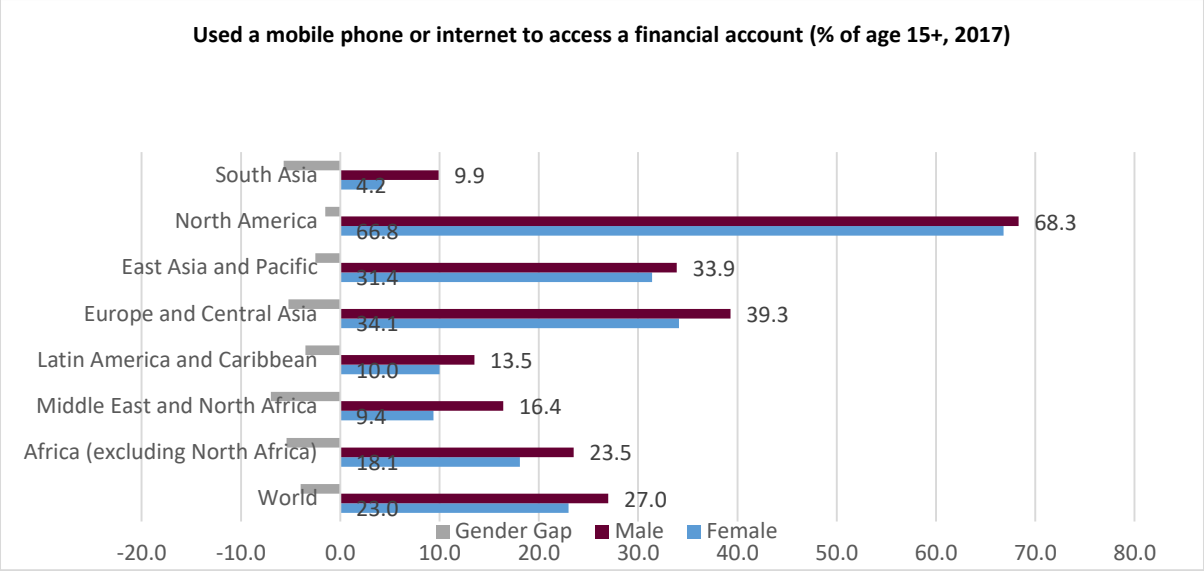


Figure 8: Percentage who used a mobile phone or the internet to access a financial account by sex (% of age 15+), 2017

Source : Demirguc-Kunt et al 2018

2.2.3. Digital payments

Digital payments data suggest that in every region across the globe, both men and women make more mobile money payments than they receive (Table 3). Most regions exhibit higher gender gaps relating to receiving payments (Table 4), with gender gaps having widened, across most regions to 2017 (see Tables 3 and 4). In Africa, excluding North Africa, these gender gaps increased by 2.2 per cent and 2.3 per cent for making and receiving digital payments respectively. These changes imply additional challenges and barriers in the ability of women to make or receive digital payments, relative to men.

Table 3: Made digital payments in the past year (% age 15+)

	2014			2017			Change
	Female	Male	Gender Gap	Female	Male	Gender Gap	Change Gender Gap
WORLD	34.0	39.3	-5.3	41.5	48.7	-7.2	-1.9
Africa, excluding North Africa	19.4	26.3	-6.8	24.6	33.7	-9.1	-2.2
Middle East & North Africa				21.1	34.1	-13.0	
Latin America & Caribbean	29.7	38.8	-9.1	32.2	40.7	-8.6	0.5
Europe & Central Asia	60.3	65.5	-5.3	69.2	74.2	-5.0	0.3
East Asia & Pacific	37.3	38.5	-1.2	52.8	56.5	-3.7	-2.5
North America	91.3	86.6	4.7	89.1	90.6	-1.5	-6.2
South Asia	6.7	20.1	-13.5	13.0	27.1	-14.1	-0.7

Source: World Bank 2019b Global Financial Inclusion Dataset

Table 4: Received digital payments in the past year (% age 15+)

	2014			2017			Change
	Female	Male	Gender Gap	Female	Male	Gender Gap	Change Gender Gap
WORLD	31.1	35.5	-4.5	31.7	37.0	-5.3	-0.8
Africa, excluding North Africa	18.4	23.4	-5.0	21.2	28.5	-7.3	-2.3
Middle East & North Africa	..	..		21.0	34.4		
Latin America & Caribbean	27.5	32.7	-5.2	28.5	32.4	-4.0	1.2
Europe & Central Asia	52.8	61.0	-8.2	57.8	60.7	-2.9	5.3
East Asia & Pacific	34.7	37.8	-3.2	34.1	39.9	-5.8	-2.7
North America	78.8	78.4	0.4	68.0	64.7	3.4	3.0
South Asia	7.2	13.0	-5.9	11.8	19.0	-7.1	-1.3

Source: World Bank 2019b Global Financial Inclusion Dataset

2.2.4. Growth of mobile money services in Africa

Mobile money services are most common in the African region in comparison to other regions of the world. The first mobile money service was launched in Russia (2002), then in the Philippines and Thailand (2004), and Bangladesh (2006). The service reached Africa in 2007, through Kenya and the well-known service called M-Pesa. Thereafter, it spread fast in developing economies, and especially in Africa. [28] By the end of 2018, about half of all operators, i.e. 133 out of 272, were in Africa, excluding North Africa (see Figure 9). In fact, by July 2019, nine additional operators launched their services, out of which two were in South Sudan and two more in Botswana. [29]

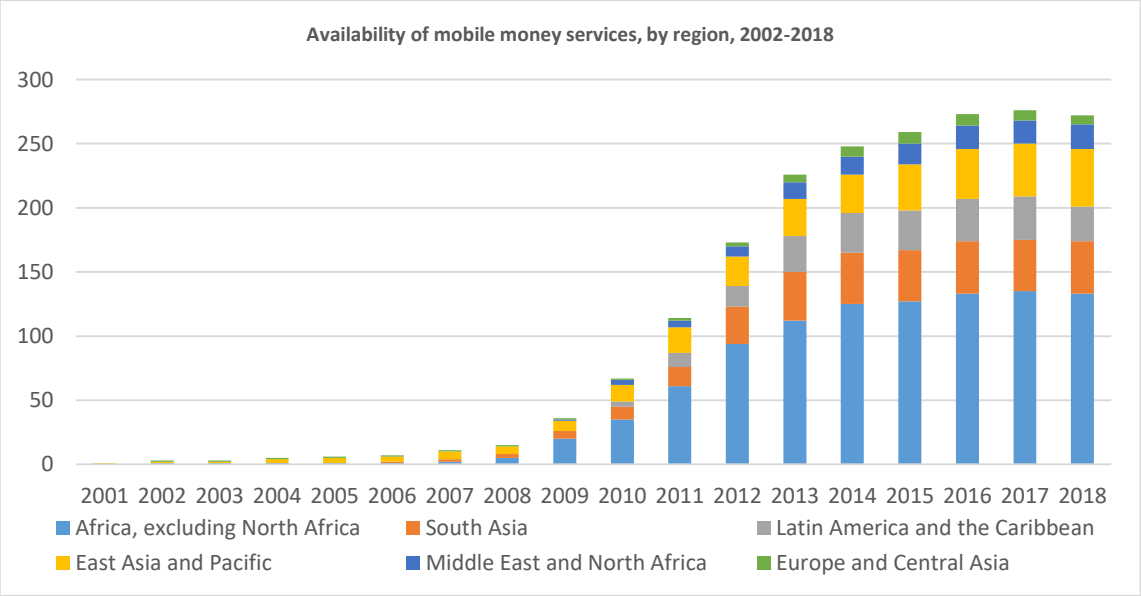


Figure 9: Availability of mobile money services, by region, 2002-2018

Source: GSMA 2019c

[28] GSMA 2019c
[29] GSMA 2019c

African countries are advancing their regulatory environment for mobile money services. The GSMA Mobile Money Regulatory Index shows all African countries, except Mauritania, score higher than 57 out of 100, for their regulatory environment for mobile money. [30] Seven African countries score over 80 on this index (see Figure 10).

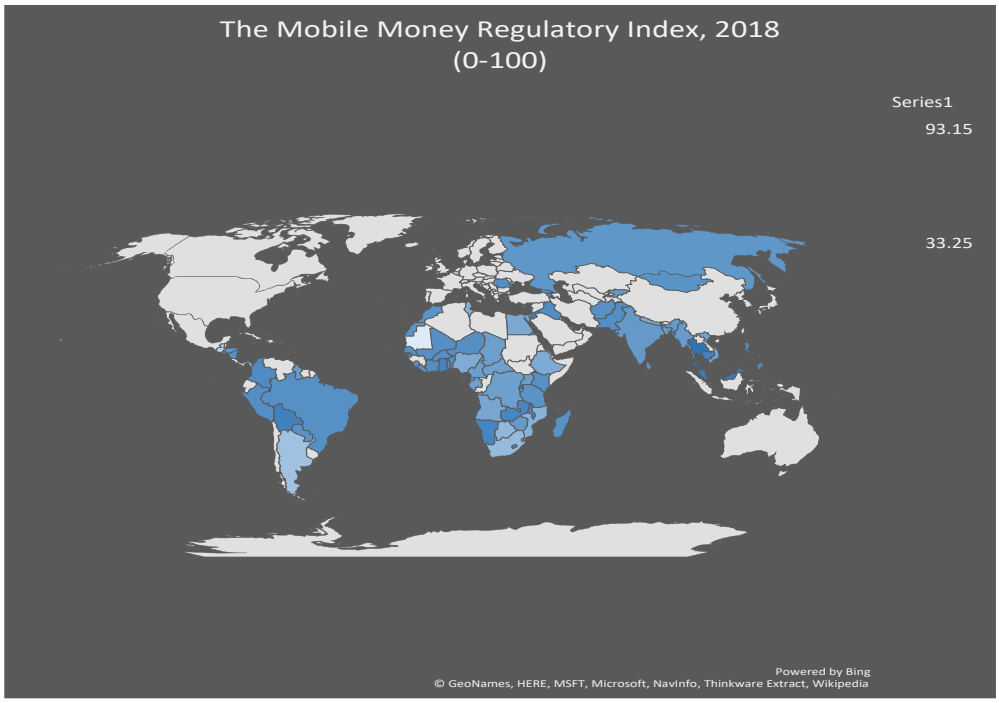


Figure 10: Mobile money regulatory index, 2018 (0-100)

Source: GSMA Mobile money regulatory index 2018
Disclaimer: the boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

When considering mobile money accounts at the country level, and disaggregating by gender, a diverse picture emerges (see Figure 11 below). The difference in gender gaps across African countries varies between -18.2 percentage points (Burkina Faso) to 6.5 percentage points (Lesotho) in favour of women when it comes to having mobile money accounts. [31] The variation between these countries is extensive, but not necessarily related to the levels of mobile money accounts.

[30] GSMA (2018)
[31] World Bank 2019b

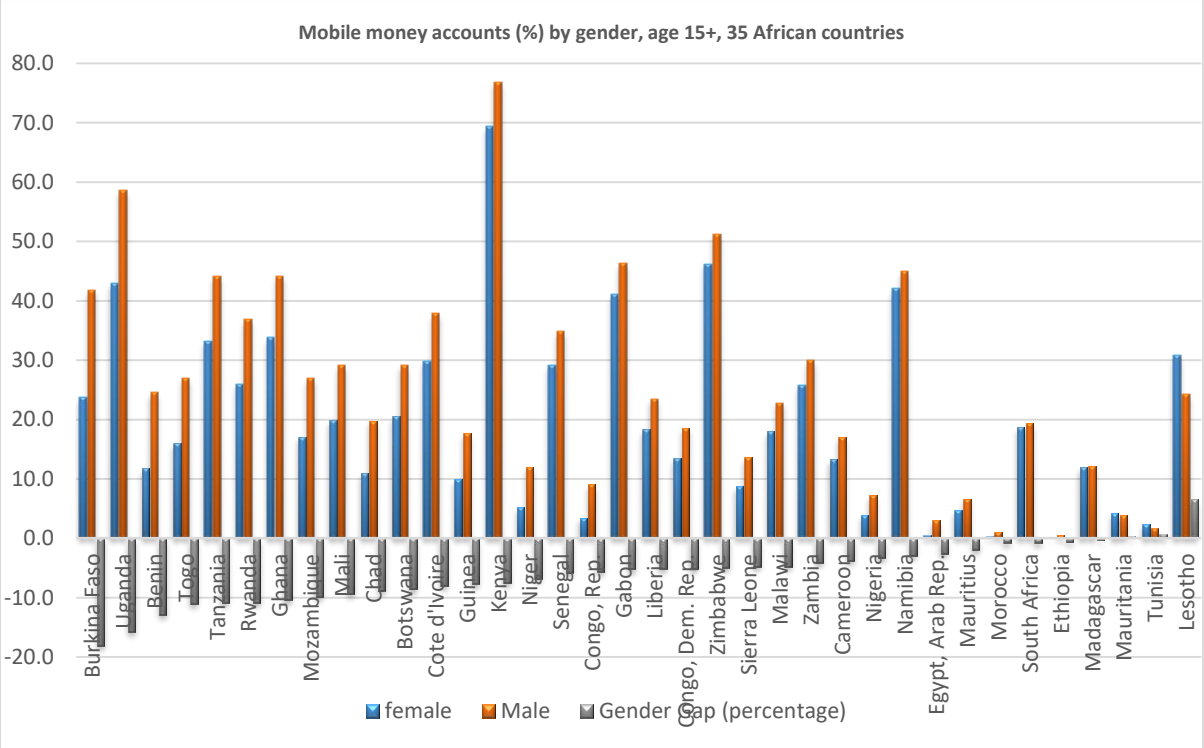


Figure 11: Mobile money accounts (%) by gender, age 15+, 35 African countries

Source: World Bank 2019b Global Financial Inclusion Dataset

As the overall percentage of adults with mobile money accounts increases, the larger the gender gap (see Figures 12 and 13 below). This is an indication that men's uptake of mobile money accounts is at higher levels across countries. This is supported by the worsening gender gaps evidenced in previous sections. This could be a lag-effect, where women's uptake is slower than men's in the initial phases, but then a catch-up effect takes place at later stages.

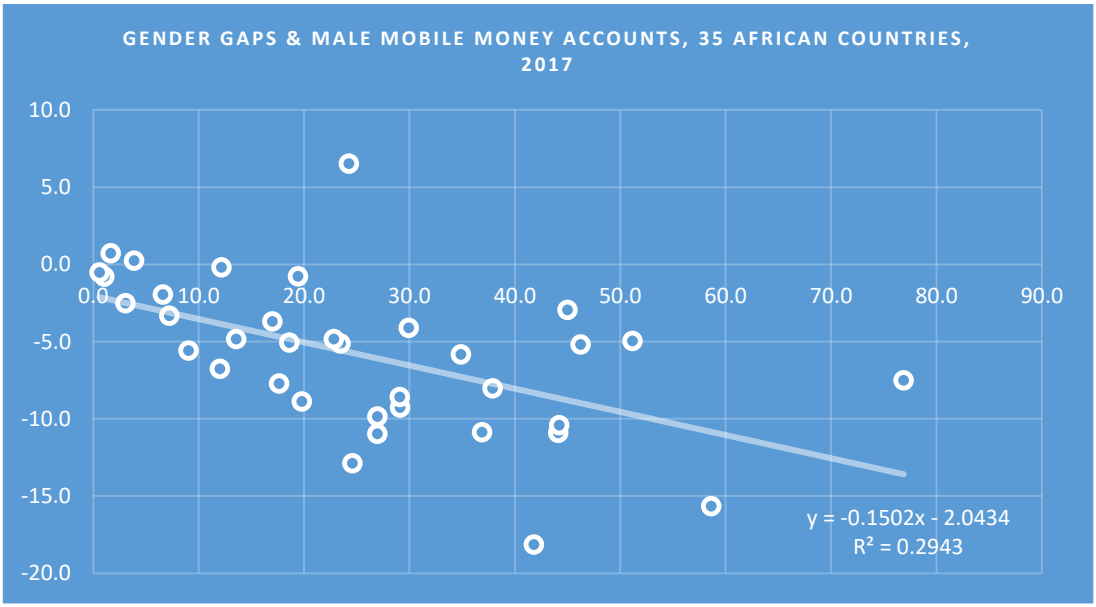


Figure 12: Gender gaps and male mobile money accounts, 35 African countries, 2017

Source: World Bank 2019b Global Financial Inclusion Dataset

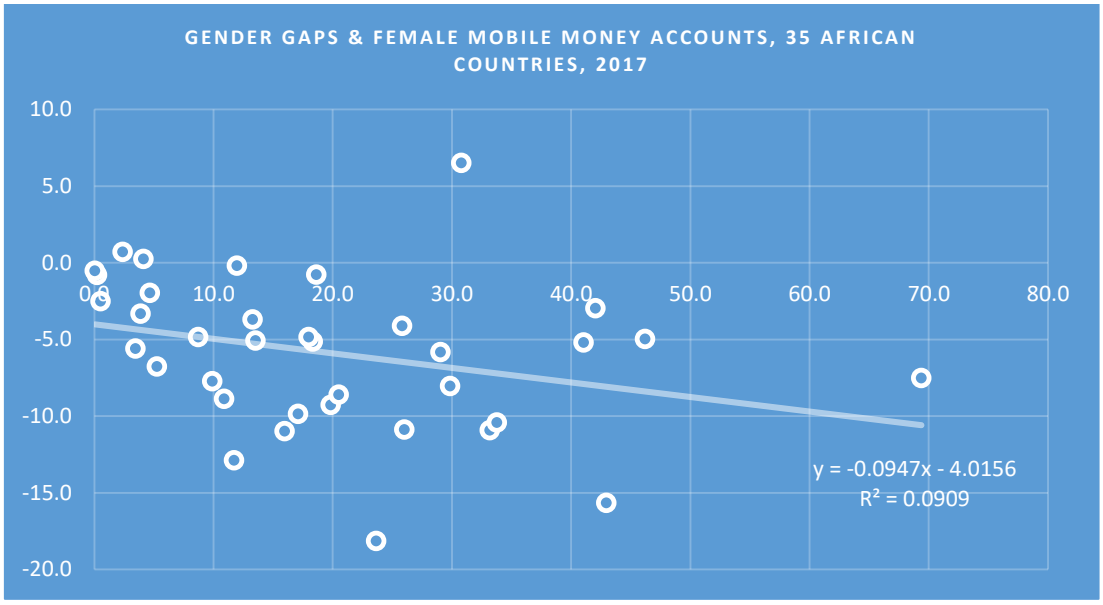


Figure 13: Gender gaps and female mobile money accounts, 35 African countries, 2017

Source: World Bank 2019b Global Financial Inclusion Dataset

Mobile money, compared to formal banking, exhibits lower gender inequalities than formal accounts with financial institutions, in many African countries. Comparing formal financial accounts to mobile money accounts shows that gender gaps are higher for formal financial accounts in 24 out of 34 African countries in 2014 and 24 out of 36 countries in 2017. [32]

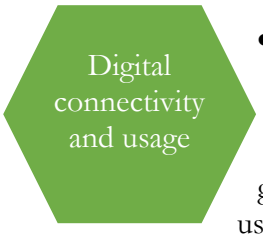
[32] World Bank 2019b Global Financial Inclusion Dataset

2.3. SUMMARY – ENABLERS

Digital and mobile connectivity, digital finance readiness and ICT usage, and online services are all key components to the enabling factors associated with a gendered dimension of digital finance, and are essential enabling factors in establishing the foundation of closing the digital gender gap.

- Africa has the lowest number of people using the internet globally, and the gendered gap in usage has increased for Africa from 20.7 per cent in 2013 to 33 per cent in 2019.
- There is a market gap of 1.1 billion women globally, including 200 million women in Africa excluding North Africa, who do not have access to mobile internet.
- The most significant barriers to mobile phone ownership are in rural areas where the limitations affordability, literacy, digital skills, as well as restrictive social norms persist.
- Digital mobile ownership and usage penetration are the lowest in countries where gender gaps are also the widest.
- Although mobile money services are most common in the African region in comparison to other regions of the world, 29 per cent women in Africa use mobile internet excluding North Africa, which is below the global average of 48 per cent.

2.4. POLICY PERSPECTIVES: DIGITAL CONNECTIVITY AND USAGE



- National development policies should contain strategic pillars, focusing on ICT and social development, which provide policy frameworks that embed closing the gender gap.
- For national ICT policies to be appropriately designed, a priority must be given to ensuring gender-disaggregated data, relating to ownership, internet usage, payments, etc.
- Establishing the regulatory environment for mobile money services is critical to underpinning policy frameworks and ensuring knowledge awareness which in turn can assist in increasing female uptake of mobile money services and subsequent closing of gender gaps.

3. PREREQUISITE SKILLS IN DIGITAL AND FINANCIAL LITERACY

While gender gaps have been observed in digital connectivity and digital access, divides can translate into digital illiteracy and skill disparities, that can exist along the entire digitalization continuum. Science, Technology, Engineering and Mathematics (STEM) subjects form the cornerstone of digitalization and the subsequent uptake and usage of digital finance tools, platforms and services.

Skills learned in the digital and financial areas are relevant to digital finance, and significantly influence and reflect competencies and behaviours. Furthermore, with regard to STEM subjects, the application of knowledge is crucial, especially relating to critical thinking, problem-solving and other skills that require interpretation, logic, translation and adaptation of technical ideas and concepts. Similarly, with digitalization and digital finance, subject areas which are rooted in STEM principles, it is important to understand the capacity of men and women to apply digital and financial knowledge and experience in order to fully understand the literacy and skills challenges.

Digital and financial literacy and skills are two essential elements of digital finance uptake and usage. Digital literacy and skills facilitate the digitalization aspects of digital finance, where online tools can be accessed and navigated through platforms and services, and assist the understanding and intuitive nature of digital applications, the familiarity of software and programming logic. Financial literacy and skills enable understanding of the financial aspects, where women can access financial content; dissect, distill, choose and select relevant financial products and services; and perform finance-related transactions via such tools, platforms and services, all of which add to the empowerment process.

The majority of African countries' populations have relatively low financial literacy levels. According to Standard and Poor's 2015 Global Financial Literacy Survey, African countries score lower in terms of financial literacy, compared with the rest of the world. The most financial literate African country is Botswana with 51 per cent of its population financially literate and the least is Somalia at 15 per cent, according to the survey. [33]

3.1. Digital skills and the application of digital knowledge

In order to fully utilize digital finance, a minimum level of digital and technical literacy and skills are required to enable and maximize the returns of digital usage. This includes understanding digital hardware and software - enabling the set-up, use and maintenance of digital finance tools, platforms and services. Such skills are relevant to all, as both as consumers and clients, of digital finance tools, platforms and services, including as designers and developers of digital finance technologies.

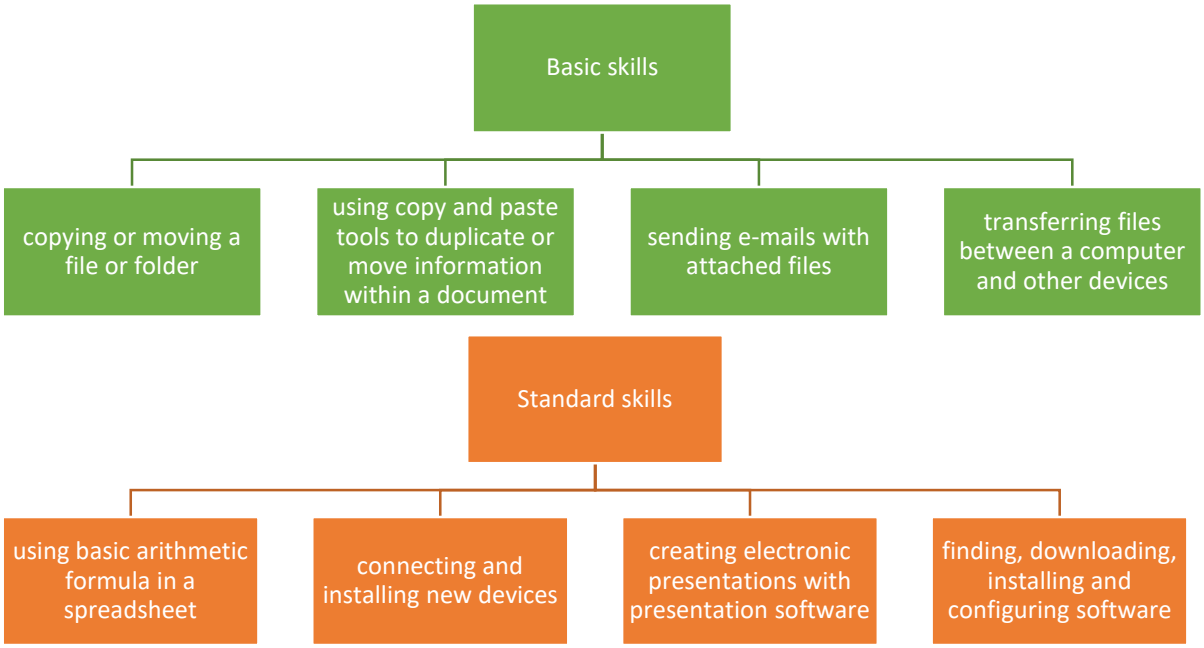
3.1.1. ICT skill types

Digital skills are often discussed in terms of basic, standard and advanced skills, where specific ICT operations, activities and tasks are used to further define such skills (see Figure 14). There is a general consensus on the definitions of basic digital skills, but with the standard or intermediate digital skills and more advanced programming skills, there is a lack of global consensus on agreed definitions. [34] The ITU has attempted to define ICT skills into these

[33] S&P Global FinLit Survey (2015)
[34] UN University et al. (2019) Taking stock: Data and evidence on gender equality in digital access, skills and leadership

three categories, which are also used when monitoring the SDG 4, indicator 4.4.1, measuring the proportion of youth and adults with ICT skills, by type of skills. [35] They have further categorized computer-based activities to define those skills specifically, where the value for basic skills are measured as the highest value among: copying or moving a file or folder, using copy and paste tools to duplicate or move information within a document, sending e-mails with attached files, and transferring files between a computer and other devices. The value for standard skills is measured as the highest value among: using a basic arithmetic formula in a spreadsheet; connecting and installing new devices; creating electronic presentations with presentation software; and finding, downloading, installing and configuring software. While the value for advanced skills is measured as the value for writing a computer program using a specialized programming language. [36]

For the purposes of harnessing digital finance-related technologies, the necessary level of ICT skills needed to adequately navigate the relevant digital technologies can consider a combination of both basic and standard skills. Advanced skills, though not necessary for everyday use of digital finance-related technologies, are relevant in the sense that women would be more likely to form a part of the team developing digital finance-related technologies. This skillset would not necessarily compose the large majority of digital finance clients and consumers, as in the case of everyday usage, but rather those designing, developing and delivering digital finance tools, platforms and services. Here, the focus on basic and standards skills, with some insights into advanced skills, is crucial to include women in developing appropriate digital finance-related technologies, in order to fully promote digital finance for women's economic empowerment.



[35] ITU (2020) The ITU ICT SDG indicators, [online] see: https://www.itu.int/en/ITU-D/Statistics/Pages/SDGs-ITU-ICT-indicators.aspx
[36] ITU (2020), Lack of ICT skills a barrier to effective Internet use. [online] please see: https://itu.foleon.com/itu/measuring-digital-development/ict-skills/

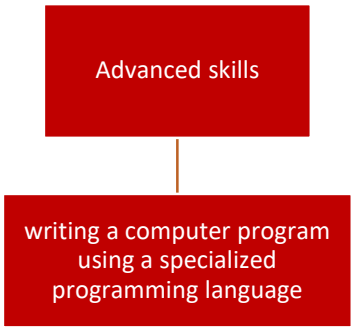


Figure 14 - ICT Skill types and skills, as defined by ITU

Source: ITU (2020)

Notes: The value for measuring skills is the highest value among its subsequent computer-based activities. [37]

ICT skills gap

Global data indicates that the gender skills gap has decreased for all basic, standard and advanced ICT skills since 2015, with reported skills among men and women appearing to be similar in 2019. Figure 15 displays International Telecommunications Union (ITU) data on ICT skills for men and women, from 2014 to 2018, by skill type, where the figures for 2019 included: basic skills at 50 per cent for men and 49 per cent for women; standard skills at 32 per cent (men) and 32 per cent (women); and advanced skills at 6 per cent (men) and 3 per cent (women), respectively.

However, these global trends are not echoed at the regional levels, with the number of women and men with basic and standard ICT skills in North Africa having increased significantly, whilst those with advanced ICT skills have largely remained the same. Considering gender-based ICT skills gaps for Africa (excluding North Africa), the number of women and men in all ICT skill types has significantly decreased, with gender gaps remaining in favour of men. This raises concerns for Africa both in terms of decreasing gender parity, as in the case of North Africa, or increasing the proportion of women with ICT skills, as is also the case in the rest of Africa. **This seems to clearly indicate that African countries need to address the issues of establishing a critical mass of people, and women specifically, with relevant ICT skills to harness digital finance.**

[37] Please see: https://itu.foleon.com/itu/measuring-digital-development/ict-skills/

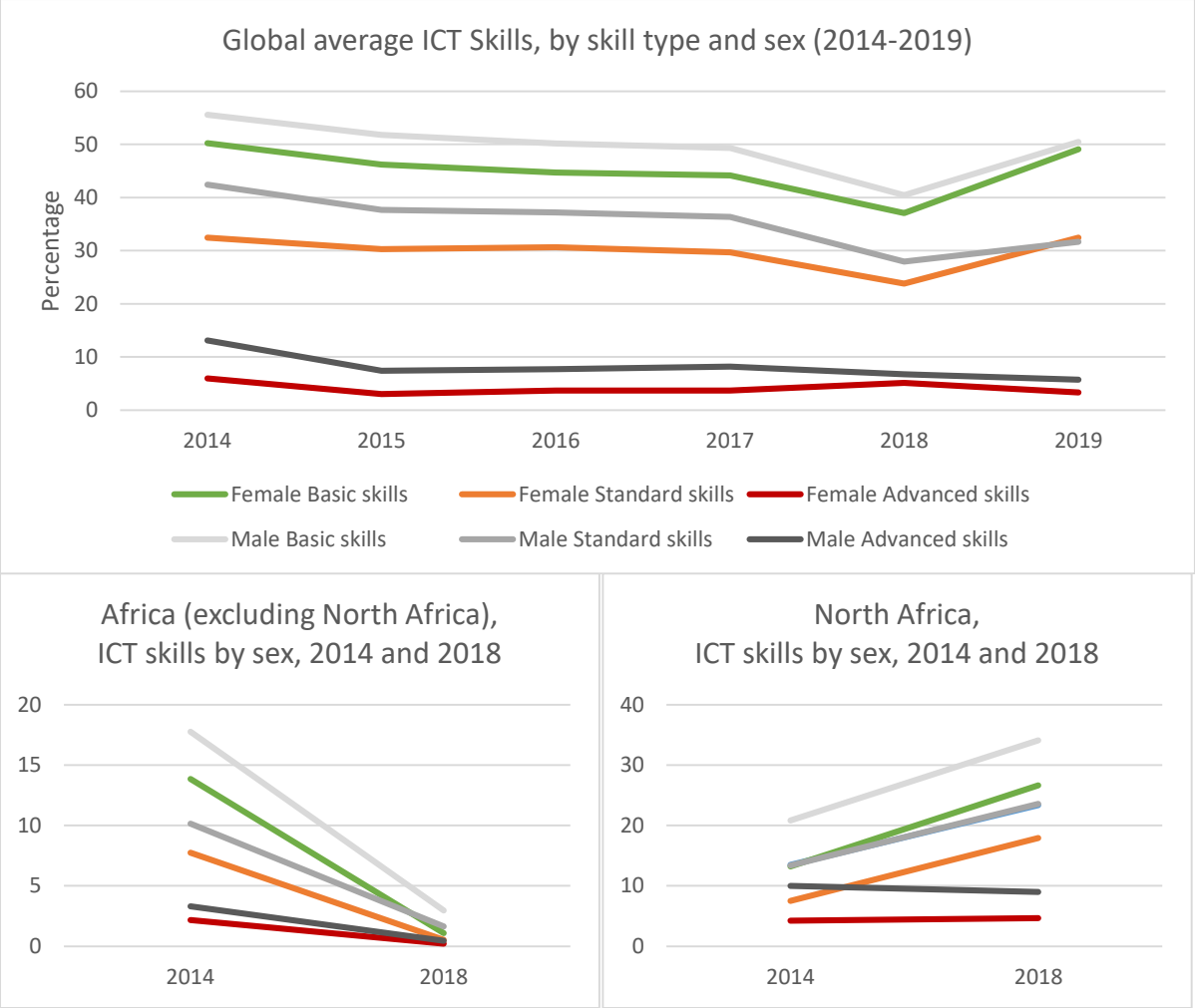


Figure 15: ICT skills by type and sex, global and Africa (2014-2018)

Source: ITU ICT SDG indicators (2020)

Notes: Data is not available for North America which has the highest proportion of skilled women and men and lowest gender skills gaps, according to ITU data, from previous years. The 2019 data for Africa is unavailable, which may suggest the increase in global average skills in 2019, and the increased closing of the global gender skills gaps.

Digital finance related skills

Significant improvements have been made in some parts of the world with regards to ICT skills that are essential for digital finance, where the global average rose from 18.1 per cent in 2014 to 24.2 per cent in 2018 (Figure 16). These skills can be considered as a combination of basic and standard ICT skills, excluding the computer-based activity 'creating electronic presentations with presentation software'. All regions displayed some increase, in digital finance-related skills for women, from 2014 to 2018, with the exception of Europe, which showed a decline of 11 percentage points. Overall, the global average proportion of women with relevant digital finance skills is increasing, while the difference in skills across regions, in terms of those with the highest and lowest proportions, is decreasing, raising both the global average and narrowing the regional skills gap of skilled women in relation to other regions.

The proportion of women in North Africa with the aforementioned digital finance skills has doubled from 12.5 per cent in 2014 to 25.7 per cent in 2018, surpassing the global average of 20.6 per cent. This represents the highest growth rate across all global regions where data was available. The growth displayed in North Africa, from 2014 to 2018, has taken the

proportion of skilled local women above that of the global average, including that of Latin America and the Caribean.

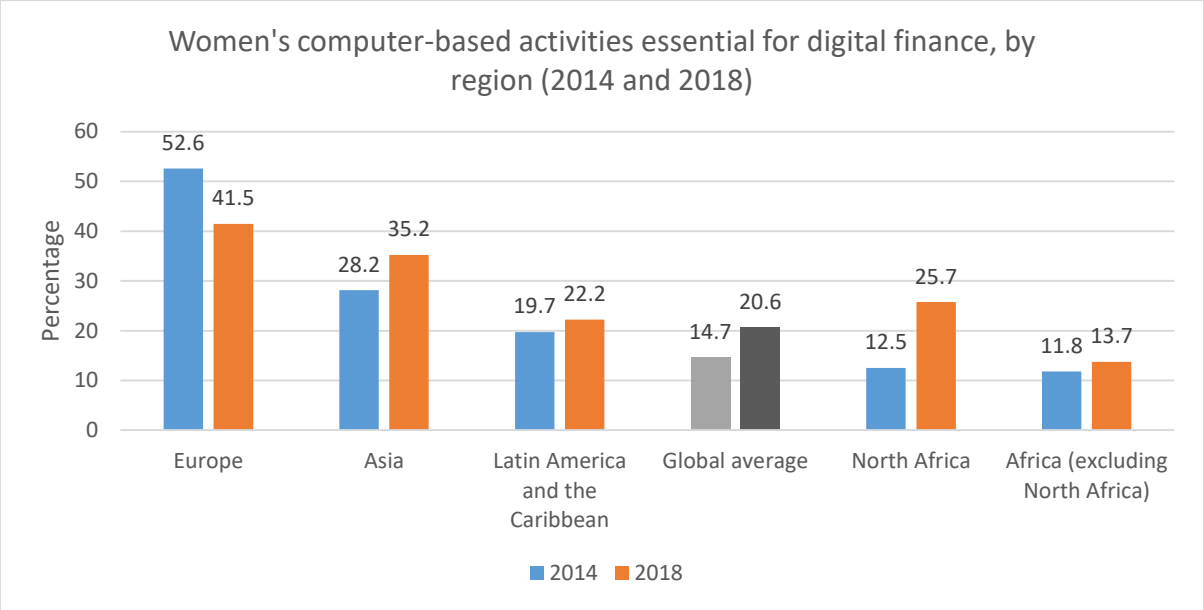


Figure 16 - Global comparison of women's ICT skills relevant to digital finance (2014 and 2018)

Source: ITU ICT SDG indicators (2020)

Notes: ICT skills essential for digital finance have been classified as all activities related to basic and standard ICT skills, excluding the computer-based activity 'creating electronic presentations with presentation software'. From 84 countries for which data are available, excludes North America. Geographical classification based on the United Nations Statistics Division 'Standard Country or Area Codes for Statistical Use'.

In 2014, approximately 12 per cent of skilled women, in Africa, had ICT skills related to digital finance, below the global average. However, significant differences across regions existed in 2018. Countries in Africa (excluding North Africa) have not progressed as much in relation to those in North Africa, and have remained below the global average. In general, Africa (excluding North Africa) remains the lowest region comparatively on the proportion of skilled women in digital finance-related ICT skills.

There is a clear need to develop capacity development programmes for digital finance skills in many African countries, in addition to addressing the pace and intensity of such programmes and their impacts. This can be facilitated by identifying the specific computer-based activities that are lacking, in each of the skill types, and by providing targeted country-specific interventions to address the essential skills gaps with regard to digital finance.

Application of digital finance knowledge and skills

North Africa has a much higher proportion of skilled women with the necessary related skills for digital finance (Figure 17). Some of the most important computer-based activities (application of skills) required to harness digital finance tools, platforms and services are lacking, where the overall level of capacity is still higher in North Africa, compared to the rest of Africa. Of the computer-based activities essential to digital finance, shown in figure 17, four of these can be considered the most important (highlighted in red), in terms of harnessing digital finance, yet in the whole region, they are the lowest when it comes to the application of women's digital finance-related ICT skills.

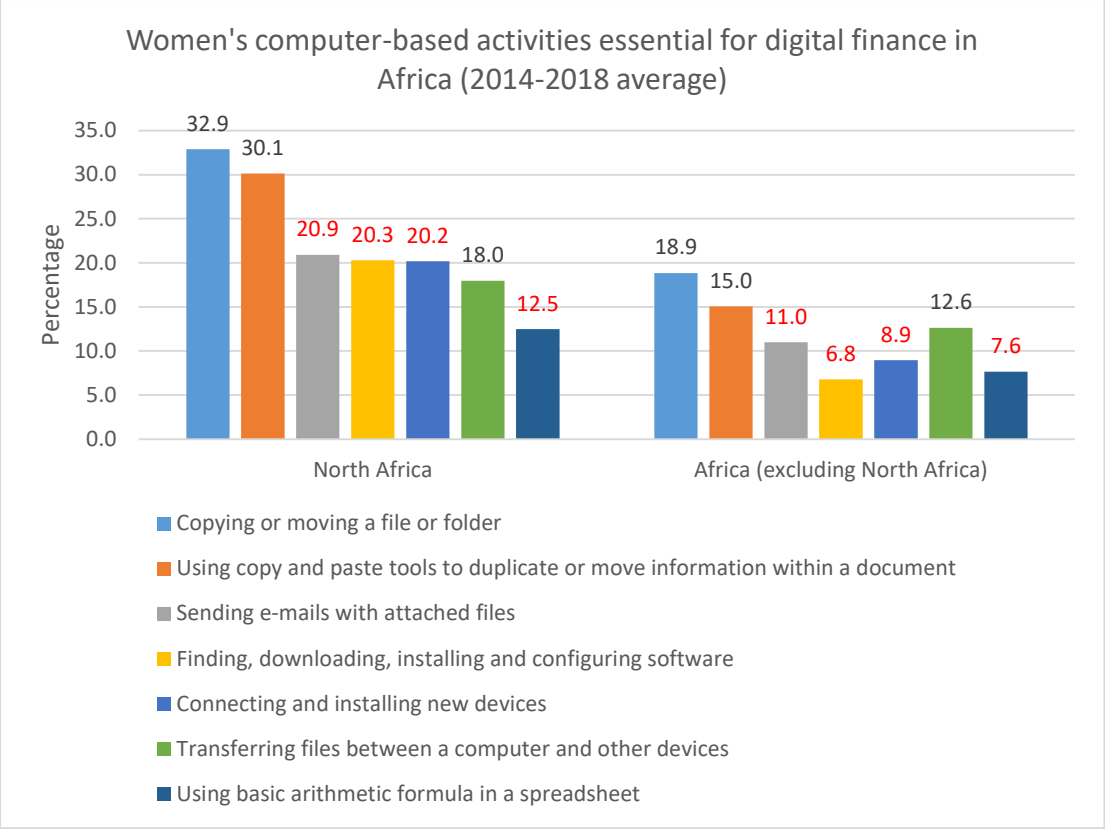


Figure 17: Proportion of skilled women with capacity in computer-based activities related to digital finance in Africa

Source: ITU ICT SDG indicators (2020)

Notes: Includes all computer-based activities related to basic and standard ICT skills, excluding the computer-based activity 'creating electronic presentations with presentation software'. Excludes computer-based activities related to advanced ICT skills.

Ranking these computer-based activities, in order of lowest capacity for Africa, include 'finding, downloading, installing and configuring software' (6.8 per cent), which is required for accessing online applications and mobile applications, related to digital finance tools; 'using a basic arithmetic formula in a spreadsheet' (7.6 per cent), which is required for personal financial management and accounting of income and expenditure; 'connecting and installing new devices' (8.9 per cent), necessary for setting up the hardware to support digital finance platforms; as well as 'sending emails with attached files' (11 per cent), which is required when applying for financial products and services, offered as part of digital finance services. All of these computer-based activities can be considered essential, with regard to the application of relevant ICT knowledge and skills, when using digital finance technologies. Capacity development efforts to improve digital finance skills for women in Africa should also focus on these computer-based activities as part of targeted interventions to promote digital finance and further integrate women into the digital finance ecosystem.

3.2. Financial literacy and knowledge

3.2.1. Measuring financial literacy

Financial literacy is vital to ensuring financial inclusion. Financial knowledge provides the basis for understanding technical financial terminology, such as interest rates, return on investment and other fundamental financial concepts which underpin personal financial management and the evaluation of financial products and services, based on one's personal financial situation. However,

comparative global data on financial literacy is limited. While some surveys have been conducted over time, these are both irregular and tend to be for selected countries. Therefore, directly analyzing financial literacy for African countries, in comparison to a global baseline, for example, is somewhat difficult. However, existing surveys can provide an indication of what is necessary in terms of measuring digital literacy across Africa, as well as some indication of performance measures and the current status of women's financial literacy in other countries and regions of the world.

The OECD International Network on Financial Education's (OECD/INFE) National Financial Literacy and Inclusion Survey is one such data source on financial literacy that assesses financial literacy based on combined scores for knowledge, attitudes and behaviour, where the overall levels of financial literacy for these three indicators were found to be relatively low across all participating countries. Data from the 2016 survey suggests that the global **financial literacy** average score was 13.2 (63 per cent), out of a possible score of 21, for women and men combined. [38] The international study included 30 countries - 17 of which were Organisation for Economic Co-operation and Development (OECD) countries. However, the survey largely excluded specific analysis for the African countries. It classifies financial knowledge, attitudes and behaviour based on the understanding of a number of financial concepts, perspectives on financial attitudes as well as tendencies towards certain financial behaviours. Furthermore, it showed some countries, with relatively high levels of basic financial knowledge, do not necessarily display high levels of financial literacy, due to their low scores for financial behaviour.

For financial knowledge, an average of 56 per cent of adults across participating countries and economies achieved the minimum target score on financial knowledge. The OECD/INFE report indicated that many people struggle with basic concepts such as compound interest and diversification, highlighting the difficulties people face when making informed product choices. About 61 per cent of men achieved the minimum target score compared with 51 per cent of women. Further statistical analysis indicated that knowledge scores were significantly lower for women than men, after controlling for country-level differences, age and education. In addition, budgeting was not a priority for many and there was a tendency towards short-termism.

The Group of Twenty (G20) Financial Inclusion Indicators, originally developed by The Global Partnership for Financial Inclusion (GPFI) and endorsed by the G20, build on the OECD/INFE initiative. As part of measuring quality, it features financial knowledge as a category, where financial knowledge is measured as the understanding of basic financial concepts such as inflation, interest rate, compound interest, money illusion, risk diversification and the main purpose of insurance. Although data is only available for a limited number of countries, it highlights ongoing and emerging global initiatives that African countries can join to better understand the situation in their own countries, in relations to global and regional trends, when it comes to financial inclusion and financial literacy. [39]

While the global data and analysis can provide some form of high-level policy recommendations on how to address financial literacy by improving financial knowledge, attitudes and behaviour, it neither provides insights into regional challenges for the African continent, nor does it offer in-depth analysis to help identify country-specific challenges. However, the survey demonstrates practical ways to measure financial literacy, as well

[38] OECD (2016), "OECD/INFE International Survey of Adult Financial Literacy Competencies", OECD, Paris, www.oecd.org/finance/OECD-INFE-International-Survey-of-Adult-Financial-Literacy-Competencies.pdf
[39] World Bank (2020) G20 Financial Inclusion Indicators, Financial knowledge as a featured indicator. [online] See: http://datatopics.worldbank.org/g20fidata/

as provides an indication of the common challenges, that many countries are facing. This includes addressing the low levels of financial knowledge among women, both as a common national challenge and a collective global challenge. African countries can learn from such global initiatives to develop their national-level surveys to determine financial literacy, while addressing the inclusion of their countries in such global survey initiatives.

3.2.2. Financial knowledge across Africa

The Standard & Poor's Ratings Services Global Financial Literacy Survey (S&P Global FinLit Survey) also builds on the early initiatives by OECD/INFE, the World Bank's Financial Capability and Household Surveys and other national survey initiatives that collected information on financial literacy. The S&P Global FinLit Survey was based on questions added to the Gallup World Poll survey, which interviewed more than 150,000 nationally representative and randomly selected adults from more than 140 economies in 2014. Financial literacy was measured by assessing basic knowledge of four fundamental concepts in financial decision-making: knowledge of interest rates, interest compounding, inflation and risk diversification. Figure 18 shows the overall levels of financial literacy for adults across African countries, as measured in the S&P Global FinLit Survey in 2015, for both women and men. Of the 34 countries surveyed across Africa, 12 were above the global average of 37 per cent, while 19 were above the continental average of 33 per cent for financial literacy.

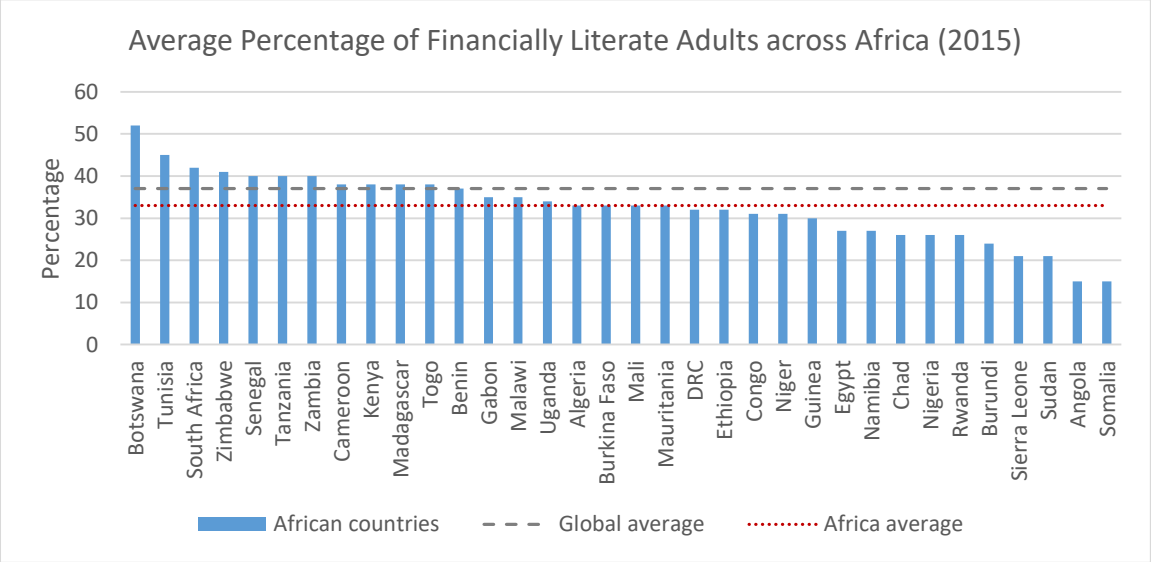


Figure 18: Average Percentage of Financially Literate Adults across Africa (2015)

Source: S&P Global FinLit Survey (2015)

Female respondents and respondents with lower levels of education and from poor backgrounds were more likely to display gaps in their financial knowledge (as per the S&P Global FinLit Survey) and only one in three adults globally were financially literate. Large variations among countries and groups existed across developing economies and those with well-developed financial markets and education and training systems. [40] Findings also suggest that regardless of country of origin, people with relatively high financial literacy tended to display common traits. For instance, adults, who used formal financial services such as bank accounts and credit cards, generally displayed higher financial knowledge, regardless of their income. Even those

[40] S&P (2015), Financial Literacy Around the World: Insights from The Standard & Poor's Ratings Services Global Financial Literacy Survey. Please see: https://gflec.org/wp-content/uploads/2015/11/3313-Finlit_Report_FINAL-5.11.16.pdf?x28148

in lower-income brackets and the poor, who had a bank account were more likely to be financially literate than poor people without a bank account. While those in higher-income brackets, who used credit, generally had better financial skills than those in the same high-income brackets who did not. Overall, the relationship between financial knowledge and financial services may exhibit dual causality - while higher financial literacy may lead to broader financial inclusion, operating an account or using credit may also deepen financial skills of consumers. [41]

In-depth surveys on financial literacy can help guide interventions as part of a broader, targeted financial literacy and skills strategy for African countries. Surveys that include gender and other demographic elements can also help to dissect specific challenges that may be faced by women, in relation to financial knowledge, attitudes and behaviour, that are innate to a country or are wide-spread across a sub-region. Such surveys also provide a baseline of measurement and indicators of performance for improving financial literacy over time, especially when addressing women's economic empowerment through digital finance as a broader objective.

3.3. Tertiary education and training in STEM as the cornerstone for literacy and skills

Individuals with a STEM background are more likely to embrace digital finance. Tertiary and specialized education in STEM can not only help those who wish to work in more advanced digital finance-related areas such as developing digital finance technologies, but also significantly enhance the digital and financial understanding of those who are consumers and clients of digital finance tools, platforms and services. While education and knowledge do not necessarily translate to behaviour and skills, both digital and financial knowledge form key pillars of overall digital and financial literacy, as has been outlined in the previous section. In the analysis of both digital and financial literacy, skills and attitudes have been based on the application of knowledge or the establishment of behaviours that contribute to overall literacy.

3.3.1. STEM education and training

Early interest in STEM leading to digital and financial literacy

Young women's interest in STEM begins between the ages of 11 and 12. [42] Although this can be considered well below the age of financial consumerism and capital ownership in many countries, such early interest and curiosity can provide a basis for more formal literacy and skills to develop over time. Increasingly, many teenagers are confronted with financial decisions and are consumers of financial services that are likely to face growing complexity and risks in the financial marketplace as they move into adulthood. [43] As improved knowledge and understanding of financial concepts and financial risks can help improve financial decision-making amongst adults and young people, financial literacy is now globally recognised as an essential life skill.

African countries need to both introduce and engage children in digital finance, from an early age, in comparison to their counterparts in other regions of the world, as financial literacy and education start at an early. Based on the OECD's Programme for International Student Assessment (PISA) [44] results in 2018, 73 per cent of 15-year-old students across OECD

[41] Ibid.

[42] Survey conducted by Microsoft in 12 European countries. Microsoft (2017) Why Europe's girls aren't studying STEM. Microsoft Philanthropies Whitepaper. Retrieved from: https://onedrive.live.com/View.aspx?resid=89F9BC9CE672FF4!108&app=WordPdf&wdLOR=&authkey=!ANK-QohgdrHsqJg

[43] OECD (2020), PISA 2018 Results (Volume IV): Are Students Smart about Money?, PISA, OECD Publishing, Paris, https://doi.org/10.1787/48ebd1ba-en.

[44] PISA measures the ability of 15-year-olds, in formal education, to use their reading, mathematics and science knowledge and skills to meet real-life challenges, by testing the knowledge and skills of students directly. To date, the

countries reported that they had bought something online (either alone or with a family member) in the 12 months prior to the PISA assessment. About 39 per cent of students reported they had made a payment using a mobile phone during that period. [45] Furthermore, boys were more likely than girls, and advantaged students were more likely than disadvantaged students, to have engaged in these digital financial activities. Confidence in using such digital financial services was associated with stronger financial literacy performance among those students overall. Around 94 per cent of students reported obtaining information about money matters from their parents, where guardians and other adult relations were the most common source of information. Furthermore, approximately four out of five students reported they could independently decide what to spend their money on. [46]

Formal literacy and specialized education in STEM

For tertiary education in STEM, as a more specialized categorized study area, we can see that there are varying prospects across the continent. Based on the United Nations Educational, Scientific and Cultural Organization (UNESCO) data on education, Figure 19 shows the percentage of both women and men graduates who graduate from STEM programmes. A notable increase can be observed in the number of graduates graduating in STEM subjects in North Africa from 2015 to 2018 (around 8 percentage points). In 2015, North Africa's average STEM graduation rate in tertiary education was 30.3 per cent, which was higher than the global average of 21.5 per cent. In 2018, the same figure of 38.7 per cent, as a sub-regional average, remained well above the global average of 22.3 per cent. This can be attributed to the immense efforts being made by individual countries. For example, in Morocco, 45.3 per cent of STEM graduates from tertiary education were women compared to 51.31 per cent of female non-STEM graduates in 2017. [47]

Africa was below the global average in both 2015 and 2018, at 15.5 per cent and 16.1 per cent respectively, as well as was experiencing a slight decline in the number of graduates graduating from STEM programmes, in the same period, when there was a slight increase globally. This does not fare well for future prospects of more advanced digital and financial literacy across Africa (excluding North Africa), where declining and low levels of specialized STEM expertise may result in a lack of uptake on digital finance, from a demand perspective of consumers and clients as well as a lack of designers and developers of digital finance technologies, in terms of supply of skilled personnel developing, delivering and innovating.

majority of Africa coutries have not participated in PISA. List of all countries and economies that have participated in PISA. See: http://www.oecd.org/pisa/aboutpisa/pisa-participants.htm

[45] OECD (2020), PISA 2018 Results (Volume IV): Are Students Smart about Money?, PISA, OECD Publishing, Paris, https://doi.org/10.1787/48ebd1ba-en.

[46] Ibid.

[47] Source: data.uis.unesco.org

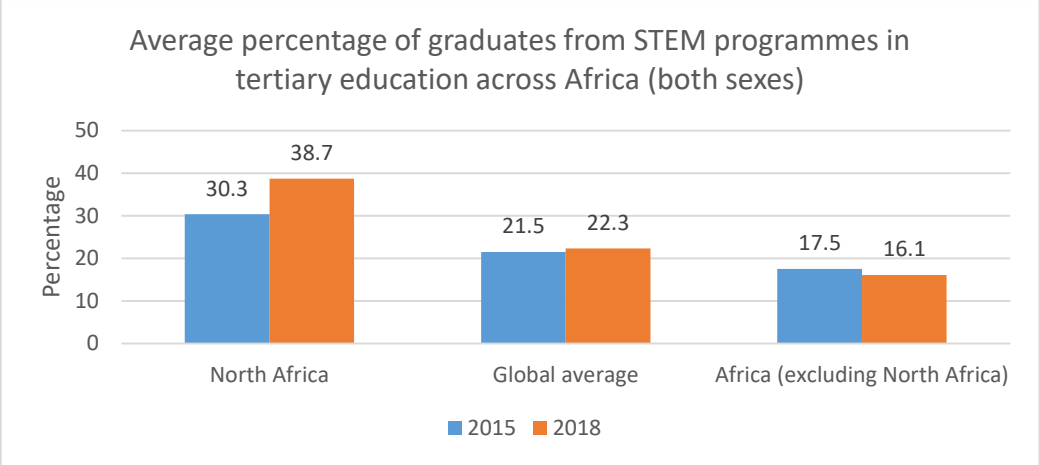


Figure 19: Percentage of graduates graduating from STEM programmes

Source: UNESCO (2020), data.uis.unesco.org based on 2015 and 2018 data

Gendered STEM graduate statistics project disparities across Africa (Figure 20). While North Africa has remained above the global average, from 49.9 per cent in 2015 to 56.8 per cent in 2018, it has also achieved and surpassed gender parity among STEM graduates, in favour of women. The rest of the continent has remained below the global average, with a slight decrease from 30.1 per cent, in 2015, to 28.1 per cent in 2018, and far from reaching gender parity among STEM graduates.

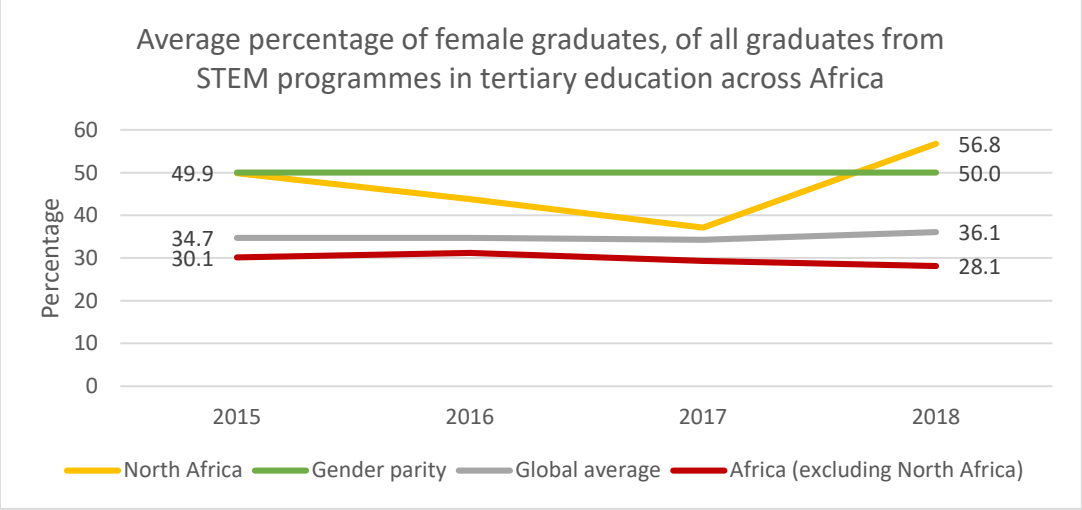


Figure 20: Percentage of female graduates graduating from STEM programs

Source: UNESCO (2020), data.uis.unesco.org

Given that data is inconsistent for each country and that some countries have incomplete time series data, analysis in Figure 20 has been shown at a regional level to aggregate numbers and show average percentages. Despite this, the variations for North Africa can be attributed to the limited number of countries where annual data exists. Nonetheless, countries in North Africa have made positive progress over the years. For example, in Algeria, the percentage of female STEM graduates in tertiary education was at 58.2 per cent in 2018, compared to 53.6 per cent in 2015. [48]

[48] UNESCO (2018) data.uis.unesco.org

3.4. SUMMARY: PREREQUISITES

Levels of prerequisite skills in digital and financial literacy are typically very low in Africa, yet they are vital in building an enabling framework for digital and ICT services. Providing both an enabling framework, as outlined in the prior chapter, and ensuring a developed skill base for financial literature are vital in closing gender gaps and empowering women.

- The proportion of women in North Africa with digital finance skills has doubled from 12.5 per cent in 2014 to 25.7 per cent in 2018, surpassing the global average of 20.6.
- However, Africa as a whole has approximately 12 per cent of skilled women with digital finance-related ICT skills - below the global average - reflecting a clear need for capacity development programmes to enhance digital finance skills.
- Globally, one in three adults are financially literate, with the poorest individuals, those with lower levels of education and women likely to display the widest gaps in their financial knowledge.
- Improving financial literacy by increased financial knowledge, attitudes and behaviour is critical along with the need for capacity development of programmes which develop digital finance skills in many African countries, in addition to addressing the pace and scope of such programmes and their impacts.
- Africa was below the global average in both 2015 and 2018, at 15.5 per cent and 16.1 per cent respectively, as well as was experiencing a slight decline in the number of graduates graduating from STEM programs, in the same period.
- However, for policy design to ensure success, there is a clear need to collect more appropriate gendered data that can be used to support and refine country-specific policy design.

3.5. POLICY PERSPECTIVES: PREREQUISITE SKILLS IN DIGITAL AND FINANCIAL LITERACY

Financial and digital literacy and skills

- National policies need to address the issues in establishing a critical mass of trained individuals, particularly women, to build their relevant ICT skills to take advantage of digital finance. Doing so will ensure each individual has the minimum level of digital and technical literacy skills that are required to maximize the returns of digital usage. ICT skills, as a core component of school curricula, are of increasing priority.
- Countries need to introduce specific STEM-focused policy initiatives aimed at increasing STEM, particularly women, graduates in tertiary education, as has been the case in some North African countries.
- Understanding the level of financial knowledge and literacy is critical for countries. National surveys to determine the existing level of financial literacy are vital, as well as the inclusion of African countries in global survey initiatives.

4. RISKS TO FINANCIAL INCLUSION AND ACCESS TO CREDIT

Financial practices can play a significant role in creating or sustaining economic and social barriers for women, where financial management, patterns of decision-making or other financial behaviours can disadvantage or hinder opportunities for women's economic empowerment. There are many barriers to women's financial inclusion that are specific to regions, countries or groupings of people, within which many women may find themselves categorized. For example, cultural and social norms play a role in financial inclusion, where some financial practices may be engrained within culture or society, this may, for instance, relate household money decisions to the male head of the household or budgeting to the female head of the household, all of which can have positive or negative impacts, when taken as context-specific practices and norms.

4.1. Financial inclusion and digital finance

Globally, an estimated 1.7 billion people are excluded from conventional financial systems, exacerbating their vulnerability and marginalization from productive sectors and formal employment. Access to finance by all segments of the population is essential to addressing poverty and inequality. It is estimated that 43 per cent of African men have a formal financial account, while only 33 per cent of African women have formal accounts. [49] Financial inclusion initiatives are addressing such gender gaps where digital finance is playing a key role in providing access to services for the 'unbanked'.

Approximately two-thirds of all unbanked adults in the world, 1.1 billion, had a mobile phone in 2017. [50] These 'unbanked' adults can manage savings, payments and access credit and insurance from their phones, availing the opportunity to better plan irregular income streams and recover from economic shocks and natural disasters, and find new ways to earn a living through their access to financial products and services. As is the case in several countries, governments are also able to utilize such services to make social security payments, customers are able to pay business operators, and employers are able to pay salaries, commissions, and other benefits. [51] Women, in particular, who are unable to access formal financial institutions and are 'unbanked', are also finding solutions to their financial needs through such digital finance initiatives as a form of financial inclusion.

4.1.1. Sensible access to reliable finance

Women's financial inclusion and digital finance

There are a number of potential benefits of digital finance (DF) that relate to women's economic empowerment, especially when compared with formal financial accounts. Firstly, DF can be a practical and affordable vehicle for financial resources that already exist. This administrative and logistical role could play a cost-effective and time-saving function, that in turn provides disproportionate benefits to the livelihoods and business operations of women. Digital finance can offer women more financial control since it can be discreet. Its transcripts could also facilitate qualifications for credit, business overview, and better confirmation on transactions for the household and the business - all of which can help expand the business, productivity and income.

[49] Demirguc-Kunt et al 2018
[50] Demirguc-Kunt et al 2018
[51] (ITU 2019)

DF also has the potential to provide and increase social and monetary benefits and returns. For example, the ability to assist women in emergencies, as friends, relatives and others can send funds quickly to cover unexpected expenses. DF could also better confirm transactions from employers and others who have legal obligations to women – who are commonly perceived to have greater levels of vulnerability to threats. Furthermore, digital finance has the potential to benefit African women in reducing, for example, geographical or time-constraint barriers and increase decision-making power within households, as found in Niger, for those in receipt of public services, such as social welfare payments, including pensions and other benefits.[52] If implemented with appropriate levels of regulation, it can often be enough to simply have a mobile phone to receive such transfers.

Sector-specific DF initiatives can benefit women and their livelihoods, and increase the number of women entering the formal workforce. For example, female farmers can benefit from the security and convenience of digital payments for agricultural sales and purchases, while digitizing agribusiness supply chains can help them build payment histories, expand access to credit and insurance, and boost small-scale farming operations. [53] Evidence from Kenya suggests that when women-headed households adopted mobile money accounts, poverty dropped, savings rose, and more than 185,000 women left agricultural jobs for more reliable, higher-paying positions in business or retail.[54]

The implementation of financial inclusion strategies is important. In Ethiopia, the annual report of the National Bank of Ethiopia for 2018-19 stated that the implementation of their financial inclusion strategy resulted in increased financial intermediation, expanding the use of digital money and new financial products. This led to further improvement in access to finance for and financial inclusion of a wider population that was outside the reach of modern financial services. [55]

Enabling an environment to ensure financial inclusion of and access to credit for women through the amendment of the Local Government Authority is equally important. In East Africa, the Government of Tanzania has passed the Financial Act of 2018. According to the Act, 10 per cent of the revenue collected is earmarked to grant interest-free loans to registered groups of women (4 per cent), youth (4 per cent) and persons with disabilities (2 per cent). [56]

Risks with digital finance access.

One of the main concerns with DF and financial inclusion is commonly associated with credit expansion to, what might be perceived or defined as, already disadvantaged and vulnerable groups in society. However, the evidence, on the impact of expanded financial access to the poorest and the associated broader socio-economic development, is mixed. [57] For example, the literature indicates that the impact of micro-credits has failed to reduce inequalities, and, in some cases, has worsened the situation for people living in poverty in developing countries. [58] This is because of vicious cycles with over-indebtedness, business turf wars, structural gender disempowerment, rising inequalities, sustained low-productivity, stagnant informality, crowding out productive small formal businesses, financial volatility or simply a lack of demand for micro-businesses.

[52] Aker et al (2016).
[53] Klapper 2019
[54] G7 Partnership for Women's Digital Financial Inclusion in Africa (2019)
[55] Annual report of the National Bank of Ethiopia, NBE (2018/19)
[56] National report for Beijing +25 review, submitted to ECA in November 2019.
[57] Mader (2018)
[58] Bateman (2019)

Evidence from Kenya and Tanzania indicates that a large proportion of digital borrowers repay late or default. CGAP analyzed more than 1,000 digital borrowers in each country, with an average loan size below US$15. About 50 per cent of digital borrowers in Kenya and 56 per cent in Tanzania repaid a loan late, with 12 per cent and 31 per cent, respectively, defaulting. In Tanzania, supply-side data of digital credit transactions show that 17 per cent of the loans granted in the sample period were in default and that at the end of the sample period, 85 per cent of active loans had not been paid within 90 days. [59]

The idea that financial inclusion could help smoothen consumption is not always applicable. For instance, 20 per cent of digital borrowers in Kenya and 9 per cent in Tanzania reported that they had to reduce food purchases to repay a loan. [60] Furthermore, less than 10 per cent use digital credits for emergencies - a finding that goes against the theoretical argument that digital finance and microcredits will smoothen liquidity in times of urgent needs. It is also relevant to note that borrowers under the age of 25 have higher-than-average default rates, even though they take smaller loans. [61]

4.1.2. Financial vulnerability

Women in informal employment

The low proportion of women in formal employment and their access to limited productive assets, compared with men, are among the many factors that exclude them from conventional financial institutions and their products. Disadvantaged and marginalized groups often have less access to these opportunities due to a number of barriers such as costs, necessary knowledge and skills and rigid social norms.

Insufficient incentives and time-poverty force some women into necessity-driven entrepreneurship in the services sector. Although African women's labour participation is higher than anywhere else in the world (approximately two-thirds of all women), only 20 per cent are in wage employment, leaving most in self-employment, unemployment, or under-employment and commonly in informal employment (75 per cent of informal workers are women). [62] This can compound existing vulnerabilities and leave many women unable to access formal financial institutions. In order to get work around these barriers and to have formal financial access, many women are obliged to seek alternative forms of financial services and credit, often informal, which can have negative consequences on their already precarious financial situations.

Predatory lending

Stakeholders must be mindful of corporations making credit available without thorough credit control or credit reference checks, and ensuring appropriate levels of due diligence combined with duty of care. Consequently, decision-makers should not necessarily see digital finance as a solution to lifting people from poverty, but rather to empower the financially excluded and broaden financial inclusion. [63]

There are challenges to digital finance, especially on the credit-side, where the poorest are attempting to meet increasingly urgent needs – particularly during the COVID-19 crisis. When credit accumulation could spiral out of control, it means greater poverty, greater hunger, ill

[59] CGAP 2018
[60] CGAP 2018
[61] CGAP 2018
[62] ECA 2017b
[63] CGAP 2018

health or even premature death. Therefore, in order to harness the digital revolution, policy-makers must design a number of policy options to halt unsustainable lending practices by digital credit providers. It should be relatively easy to compel digital credit providers to make clear and simple information available as a requirement. This information should outline the services, prices, costs, and risks associated with the service being provided, as well as state the rights of the consumer and delineate responsibilities on both sides. This would ensure due diligence in the borrowing and lending processes, as well as in using financial exchange services, in order to maintain a certain level of duty of care, while promoting new and innovative methods of financial inclusion through digital finance.

In order to design and implement future-proof and people-oriented policies, regulatory authorities must be given sufficient resources and mandates. Sufficient resources enable them to keep up with digital markets and transfers, while keeping the financial system secure. The objective with digital finance must be to identify investments, policies and regulations that maximize the social and economic returns, while minimizing potential harm to those most vulnerable. [64]

Donors can assist the development of robust digital finance sectors across Africa, assisting with the focus on methodological innovations that allow for the systematic collection of comparable contextual variables on personal financial circumstance and financial stock-taking. This would yield more valuable insights to policymakers in designing and implementing policies that are more efficient and that can improve the well-being of the poorest and most vulnerable, [65] taking into account the needs of women, and their lack of access to and ownership of traditional financial assets used as collateral.

The free and subsidized funding currently used to expand digital credit products to people in poverty should be coupled with initiatives to help regulators better monitor financial credit markets, identify opportunities and risks, and promote responsible market development. For instance, it would be useful to fund and assist regulators with tools that gather and analyze digital finance credit data at the customer, provider and market levels. This would help regulators, providers, donors and other decision-makers to better assess the opportunities and risks of digital credit. This type of data would also be useful to generate early-warning indicators on risky credit or the likelihood of credit default. Data collection for these purposes does not need to be expensive as CGAP's research in Tanzania shows that phone surveys could be affordable and could provide data that are remarkably consistent with provider data. However, additional investment may be needed to ensure the consistency, integrity and reliability of the data, [66] while provisions need to be made to ensure data is disaggregated by sex and other demographic dimensions.

4.2. Savings as a vehicle for financial inclusion

Savings have proven to be associated with higher financial inclusion in many countries, especially for women, where savings can provide greater access to credit. However, gender gaps are quite different when it comes to savings, a crucial element of financial inclusion. Figure 21 shows the number of adults, disaggregated by sex, who had savings in Africa in 2017. Gender gaps vary from -16.6 per cent in favour of men in Togo to +2.2 per cent in favour of women in Mali. There are five countries with a slightly positive gender gap, a few with low gender gaps, but about two-thirds exhibit significant gender gaps (see Figure 21).

[64] Bill & Melinda Gates Foundation 2019
[65] CGAP 2019b
[66] CGAP 2018

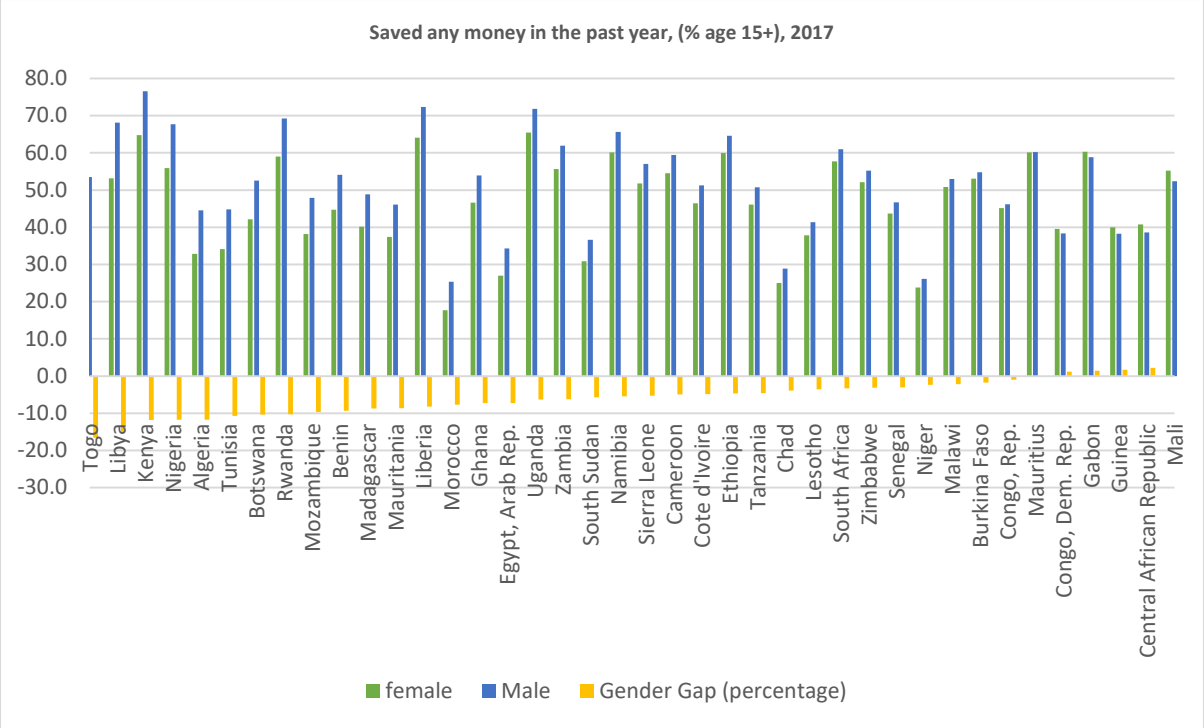


Figure 21: Saved any money in the past year, (% age 15+), 2017

Source: World Bank 2019b Global Financial Inclusion Dataset

4.2.1. Savings and gender differences

There is a negative correlation between men's savings and gender gaps – the more they save, the higher are the gender gaps. Gender-disaggregated correlations (Figure 22 and 23) indicate that the more women save, the lower are the gender gaps. Combining the figures supports the idea that women are relatively better at savings compared with other indicators analyzed above and that promoting savings could be an important policy option to reduce gender inequalities.

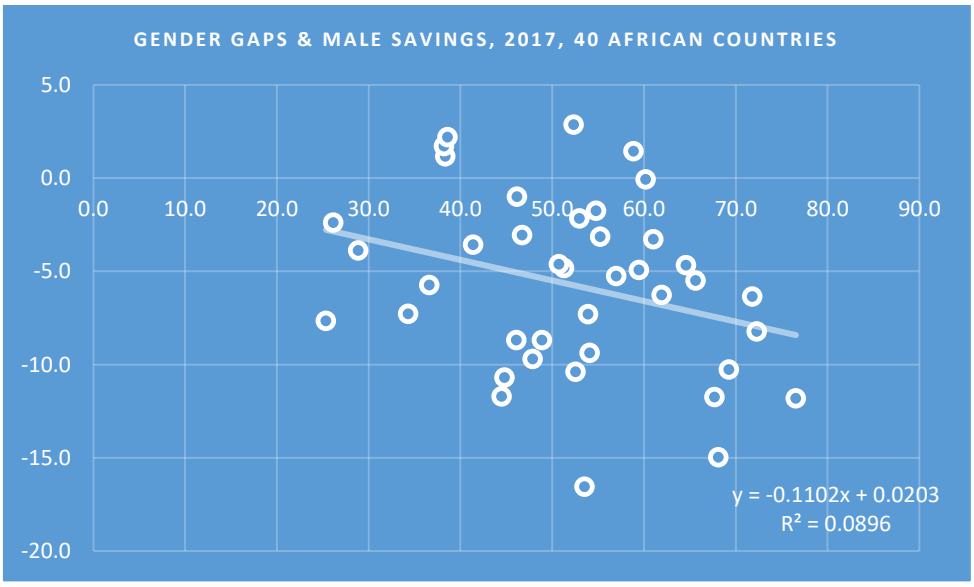


Figure 22: Gender Gaps & Male Savings, 2017, 40 African countries

Source: World Bank 2019b Global Financial Inclusion Dataset

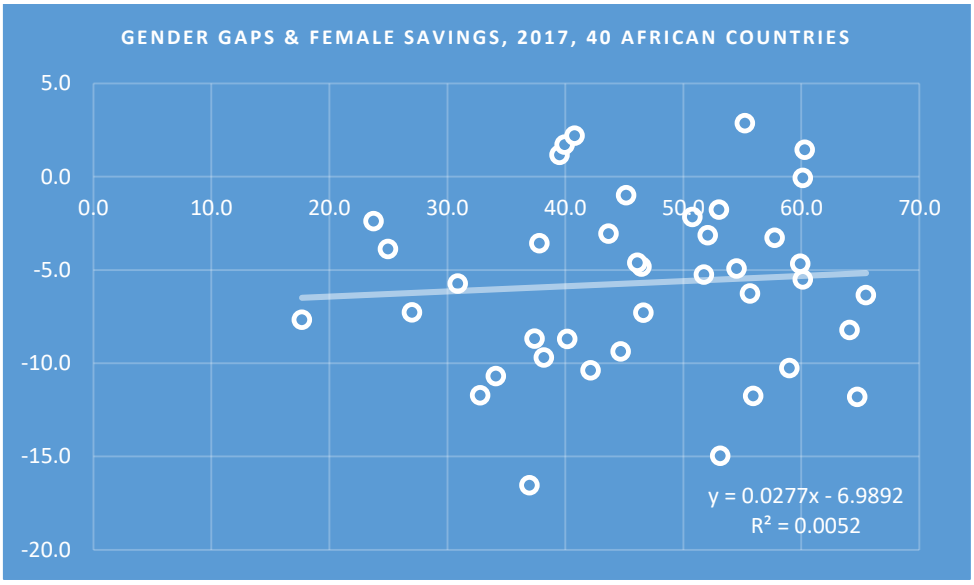


Figure 23: Gender Gaps & Female Savings, 2017, 40 African countries

Source: World Bank 2019b Global Financial Inclusion Dataset

Mobile money uptake in African countries seems to improve gender gaps when it comes to the prospect of savings. There are strong positive correlations between 'savings in the past year' and the uptake of 'mobile money accounts' across 37 African countries in 2017. This is true for both men and women, but especially for women, figures 24 and 25 show this connection, women's slope-coefficient is much higher than men's: 0.65 versus 0.35.

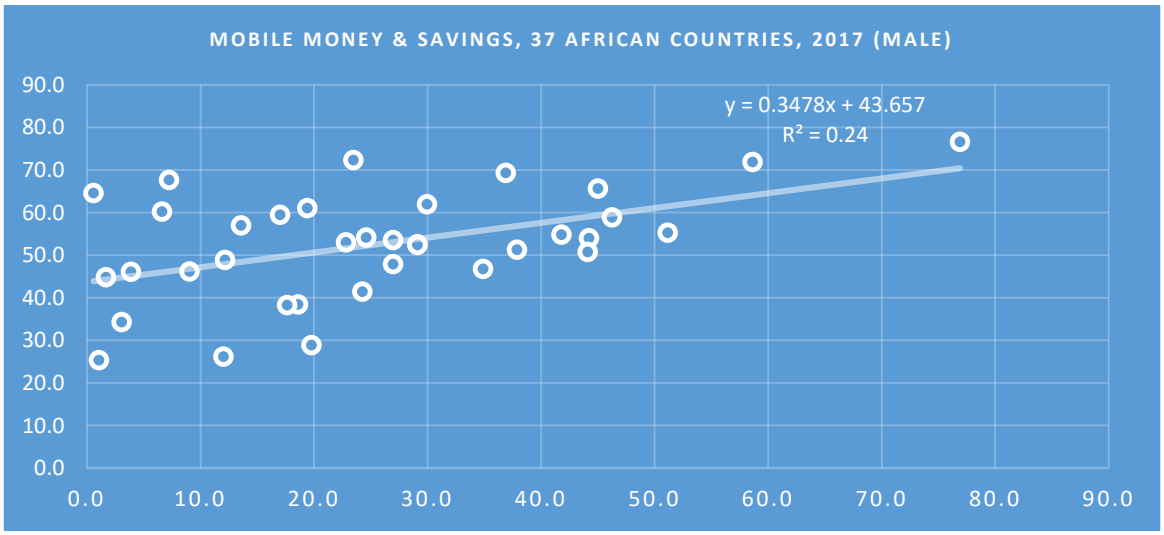


Figure 24: Mobile Money & Savings, 37 African Countries, 2017 (Male)

Source: World Bank 2019b Global Financial Inclusion Dataset

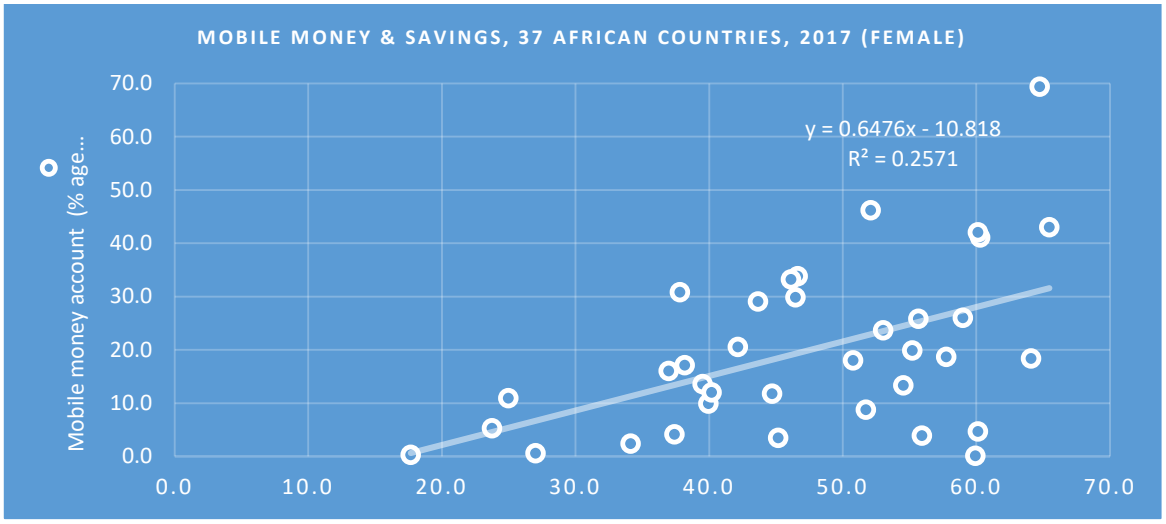


Figure 25: Mobile money & Savings, 37 African countries, 2017 (Female)

Source: World Bank 2019b Global Financial Inclusion Dataset

Gender gaps worsen when savings are formalized at financial institutions. There is a lower prevalence of formal savings among women at financial institutions. Men's savings at financial institutions were higher than women's in almost all African countries in 2017 (see Figure 26).

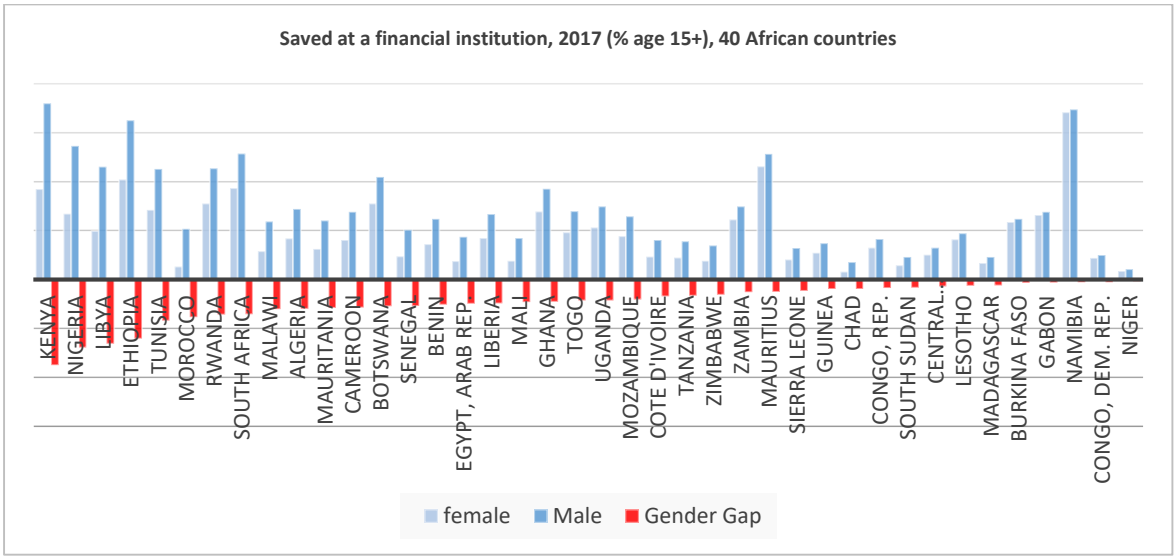


Figure 26: Saved at a financial institution, 2017 (% age 15+), 40 African countries

Source: World Bank 2019b Global Financial Inclusion Dataset

4.3. SUMMARY: RISKS

- About 43 per cent of African men have a formal financial account, while only 33 per cent of African women have formal financial accounts.
- Digital finance has the potential to disproportionately benefit African women in reducing time-poverty and increasing their decision-making power within households.
- In Kenya, when women-headed households adopted mobile money accounts, poverty dropped, savings rose and more than 185,000 women left agricultural jobs for more reliable, higher-paying positions in business or retail.
- There is growing evidence across several African countries that a large proportion of digital borrowers repay late or default.
- The low proportion of women in formal employment and their limited access to productive assets, compared with men, are among the many factors that exclude women from conventional financial institutions and their products.
- Policymakers should remain mindful of corporations making credit available without thorough credit control or credit reference checks, and ensuring appropriate levels of due diligence combined with duty of care, especially to those in already vulnerable situations.
- Across Africa, there is a negative correlation between men's savings and gender gaps – the more they save, the higher are the gender gaps.
- However, countries, with high levels of mobile money uptake in the past year, seem to narrow gender gaps when it comes to the prospect of savings.

4.4. POLICY PERSPECTIVE: FINANCIAL INCLUSION AND ACCESS TO CREDIT

Financial inclusion and access to credit

- Governments need to create frameworks that encourage and facilitate women to adopt digital finance initiatives, and that complement with work, employment and entrepreneurial training schemes.
- National financial inclusion strategies are important to ensure the inclusion of the wider population, which would otherwise be beyond the reach of modern financial services.
- The amendment of Local Government Authorities and Financial Acts can lead to minimum percentages of revenue collection being set-aside for purposes of funding interest-free loans for the registered categories. However, this needs to be adopted in line with prudent lending criteria.
- COVID-19 has the potential to create very high short-term demand for digital finance-related credit. Therefore, regulatory authorities within countries should be given sufficient resources to adequately regulate and control all forms of digital finance lending.
- With mobile money uptake positively associated with savings, particularly for women, in many African countries, governments should consider digital savings incentive strategies to propagate savings ratios.

5. BARRIERS AND DISPARITIES IN FINANCIAL PRODUCTS AND SERVICES

Negative social norms, biases and disparities can influence the supply and demand of financial products and services, where consumer demand may be low for women due to social settings. This impacts on the supply of options and choices for products and services made available to women in general, with the economics of such market forces being driven by wider negative social norms and stereotypes.

While many biases may be accidental, circumstantial or subconscious in nature or in terms of decision-making, they can be unwittingly based on economic supply and demand in terms of organizational profit and returns on investment. Nonetheless, such unconscious biases can become engrained into product and service design, marketing and profitability, and become institutionalized over time. This can result in women being disadvantaged or excluded from financial systems, in comparison to their male counterparts, such that structural and power dynamics begin to take hold with cumulative impacts that affect women more broadly, as a grouping and population.

While digital finance has the potential to facilitate women's economic empowerment through improved financial inclusion, barriers in the form of social and cultural norms persist. At the household level, Abekah-Nkrumah and Lawson (2020) reviewed the social norms literature relating to empowerment and found in Burkina Faso that resource allocation and gender differences in the household can be explained without resorting to any assumptions of innate differences in preferences or power between men and women, but rather, by differences in positions created by social norms. Hence, failure to reflect evolving community norms and social institutions in any empirical analysis of women's empowerment may make the results incomplete or misleading (Doss, 2011).[67]

As part of policy and regulatory interventions on promoting digital finance for women, it is vital to consider how financial practices, social and cultural norms, as well as financial products and services, obstruct women's empowerment so that these imbalances may be addressed through a gendered lens. This can only be achieved through the inclusion of women in all spheres of the financial sector and financial regulatory environment so that they reflect favourable market forces, while balancing financial practices and distinguishing negative social norms for the overall economic empowerment. Furthermore, digital finance has the ability to provide necessary levels of arbitration by removing intermediary interfaces for service delivery, so that individual and personal details, including gender and other potential social differences and discriminatory factors, are not front and center when it comes to interaction and engagement over the exchange of goods and services.

5.1. Financial credit reporting systems

Countries in Africa have seen the highest growth of credit reporting systems over the last decade. [68] However, 122 countries globally reported having a credit registry in 2018, Africa remains the lowest in terms of the percentage of adults covered. There are regional differences, for example, North Africa stood at 18.11 per cent, while the rest of Africa remained as low as 7.02

[67] Abridged from Abekah-Nkrumah G. and D. Lawson (2020)
[68] The World Bank Group, (2019) Credit Reporting Knowledge Guide 2019, Washington, DC. Please see: http://documents.worldbank.org/curated/en/262691559115855583/pdf/Credit-Reporting-Knowledge-Guide-2019.pdf

per cent. [69] Financial institutions depend on financial credit reporting systems that rank and rate a client's reliability in terms of borrowing and subsequently the ability to repay. These systems consider financial risks and are based on pre-determined algorithms and calculations that categorize clients in terms of their creditworthiness, considering their credit history i.e. debt borrowing and repayment history, to develop credit reference databases. The significant lack of data on credit profiling and scoring makes it difficult to fully distil the situation in African countries with regard to gender and credit scoring. However, analysis of existing credit systems and their operation may provide some insights into the challenges faced by countries, as similar systems are introduced across regions.

5.1.1. Credit scoring may lead to financial exclusion in Africa

Gender disparity in credit scores and credit decisions

Since 2012, credit bureaus in North Africa have significantly improved coverage, with increases ranging from 5 to 15 percentage points. Although only 23 of the 49 remaining African countries report having credit bureaus,[70] many others are beginning to introduce credit scoring as a value-added service to banks and other financial institutions to support their ability to assess the creditworthiness of potential borrowers.[71] The International Finance Corporation (IFC) is working with several African countries to help them establish credit bureaus and registries to support financial inclusion. [72]

Individualized credit scoring components can lead to bias against women. Calculating credit scores includes financial, residential, employment and marital status data, amongst others. TransUnion, which operates in more than 30 countries and is present in parts of Africa, combines key elements into a credit score typically ranging from 300 and 850, where a higher number means a better credit score.[73] However, the inclusion of some components can be misleading. For example, where women are married, joint account holders or financially associated with another man, they may be misrepresented as financial dependants or assumed as not being the financial head of the household.

The outcome of credit decisions are not necessarily equal for men and women and can have negative effects on women. A study by the University of Edinburgh's Business School found that including gender in credit scoring models improves women's chances of obtaining credit. [74] While the study was limited to a specific type of loan, it outlines the considerations that can be taken to address the credit gender gap across financial institutions. However, using gender in financial decision-making is prohibited by law in most countries, mainly as it can be used to discriminate. As credit bureaus are developed across Africa, specific care and consideration need

[69] World Bank 2019. Paying Taxes 2019. http://www.doingbusiness.org/en/reports/thematic-reports/payingtaxes-2019.World Bank Data. 2018. "Domestic Credit to Private Sector by Banks (% of GDP)" (database). Washington, DC: World Bank Group. https://data.worldbank.org/indicator/FD.AST.PRVT.GD.ZS?end=2016&start=2001

[70] The World Bank Group, (2019) Credit Reporting Knowledge Guide 2019, Washington, DC. Please see: http://documents.worldbank.org/curated/en/262691559115855583/pdf/Credit-Reporting-Knowledge-Guide-2019.pdf

[71] The World Bank Group, (2019) Credit Reporting Knowledge Guide 2019, Washington, DC. Please see: http://documents.worldbank.org/curated/en/262691559115855583/pdf/Credit-Reporting-Knowledge-Guide-2019.pdf

[72] https://www.ifc.org/wps/wcm/connect/REGION__EXT_Content/Regions/Sub-Saharan+Africa/Advisory+Services/AccessFinance/Credit+Bureaus+Program/

[73] TransUnion, (2020) How is my credit score calculated? [online] accessed April 2020 see: https://www.transunion.com/credit-score

[74] Galina A., Anna M. (2019) law of equal opportunities or unintended consequences?: The effect of unisex risk assessment in consumer credit. Volume182, Issue4, October 2019 see: https://rss.onlinelibrary.wiley.com/doi/full/10.1111/rssa.12494

to go into the use of existing calculation methodologies and models that may simply be imported from existing credit bureaus, especially if these models are found to inherently favour men over women.

5.1.2. Algorithm bias

The automated algorithms, that credit scoring is based on, can have an inherent bias towards gender and financial inclusion due to its design limitations and lack of foresight in programming. For example, in the United States of America, there have been reports of inherent bias in financial credit reference systems. In November 2019, a technology entrepreneur in the United States tweeted that his credit rating was 20 times higher than that of his wife when they received their 'Apple' credit cards despite filling in similar tax returns and reporting similar income and expenditure. His tweet went viral, gaining traction from regulators as well as the co-founder of Apple, Steve Wozniak, who later confirmed in a tweet that his wife had similarly lower credit than him despite her receiving a much higher credit score. [75] This led the financial regulator to open an investigation into the allegations.

Algorithm bias presents key barriers for women when calculating credit reference scores. The increasing use of artificial intelligence to sort and analyze data can introduce an inherent bias, without explicit intent, which discriminates against women or other groups. For example, the process of machine learning, which is used to train artificial intelligence systems by ingesting specific case data, has been found to introduce gender bias where the more cases used to train the system are male, which would result in the artificial intelligence system then preferring male candidates or profiles that exhibit more masculine traits. [76] For example, in October 2018, a Reuters news report found that the artificial intelligence-powered recruitment tool being used by the global online retailer, Amazon, was discriminating against female applicants by preferring selected words commonly used by men as well as selecting male profiles far more often than female profiles. [77]

Unconscious gender bias, for example through algorithm formulation, can only be fully addressed once more women are included as part of the technical teams working on such systems and algorithms. For example, of the attendees of the world's top machine-learning conferences in 2017, calculations indicate only 12 per cent of the world's leading machine-learning researchers were female. [78] This lack of representation will undoubtedly have an impact on the gender dimension of design and development of credit reporting systems and the subsequent algorithms and automation used by credit reporting service providers across Africa.

To address the challenges of bias and assumption within credit reporting system across Africa, close involvement with relevant central banks and regulatory authorities is essential in either adapting existing reporting systems or developing new systems for African countries.

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[75] https://twitter.com/stevewoz/status/1193330241478901760?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E1193330241478901760&ref_url=https%3A%2F%2Fwww.bloomberg.com%2Fnews%2Farticles%2F2019-11-09%2Fviral-tweet-about-apple-card-leads-to-probe-into-goldman-sachs

[76] UNESCO and the EQUALS Skills Coalition (2019), I'd blush if I could: closing gender divides in digital skills through education, please see: https://unesdoc.unesco.org/ark:/48223/pf0000367416.page=1

[77] Reuters, (2018) Amazon scraps secret AI recruiting tool that showed bias against women, [online] accessed March 2020, https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G

[78] Kinsella, B. 2019. Should we be kind to our smart assistants? The Verge, 6 February 2019.

5.2. Financial products and services

The Global Findex database (2017) indicates that 69 per cent of adults globally have an account, up from 51 per cent in 2011. In high-income economies, 94 per cent of adults have an account, while in developing economies 63 per cent. However, the benefits of having an account are gained through usage. About 20 per cent of these accounts are inactive and one billion adults use cash to pay utility bills. [79] Globally, only about one-fourth of adults access their accounts through digital means i.e. through the internet or a mobile phone. In Africa, excluding North Africa, this figure is around 21 per cent. This is a higher share than for other developing regions, especially South Asia, which has the lowest share at 7 per cent.

The percentage of adults that utilize digital Financial Technology (FinTech) is now 45 per cent globally and 35 per cent in Africa, excluding North Africa. These higher proportions partly reflect the disproportionate share of digital finance services relative to a traditional financial account, with the volume of mobile money accounts now surpassing traditional bank accounts. [80] While most transactions are used to send and receive domestic remittances, mobile money accounts are increasingly being used for domestic transfers such as paying utility bills, receiving wages, and paying for goods and services. Services are also being broadened into other areas, especially to provide credit services, cross-border payments, investment products and insurance services. For instance, Kenya's mobile network operators are partnering with banks to offer formal savings, loans and insurance products. [81]

There is a greater need for African countries to capture financial data which can be analyzed further to support digital finance initiatives. Such data can help not just from an institutional perspective but also based on general patterns of exchange and financial management at the national and household levels to better understand supply and demand of financial services.

Some African countries are making great strides in capturing financial data. For instance, the National Bank of Rwanda uses an electronic data warehouse to automate and streamline reporting processes for the supervision of more than 600 financial institutions, including banks, microfinance institutions, and savings and credit cooperative organizations. In South Africa, financial data can be automatically pulled every 24 hours or every 15 minutes in the case of mobile money. [82] Using such data, appropriate financial products and services can be designed with the needs of consumers in mind, as well as their financial circumstances, to provide a more responsible environment for lending and borrowing.

5.2.1. Gender disparities in borrowing

High costs and default risks associated with easy-to-acquire credit are of increasing concern across Africa. One of the ways to mitigate such consequences is to regulate for greater transparency in loan terms and conditions. This appears to be one factor contributing to borrowing patterns and high rates of late repayments and defaults. About 19 per cent of borrowers in Kenya and 27 per cent in Tanzania said that they did not fully understand the costs and fees associated with their loans, and that the lender could unexpectedly charge fees and withdraw money from their accounts. In both surveys, poor transparency is correlated with both higher delinquency and default rates. [83]

[79] Demirguc-Kunt et al 2018
[80] Demirguc-Kunt et al 2018
[81] Sy 2019
[82] Sy 2019
[83] CGAP 2018

Links between borrowing, financial inclusion and digital finance

Across Africa, gender gaps are lower when more women borrow money to start, operate, or expand a farm or a business. Figure 27 showcases the correlation across 40 African countries in 2017 and indicates there are larger gender gaps between men and women borrowing money in countries where more men have borrowed for commercial use. Figure 28 highlights when more women have borrowed money for commercial purposes, it has helped to significantly close the gender gap. **When women borrow money for farming or business, they help to reduce the gender gap. At the same time, when men borrow, they are increasing the gender gap by a greater degree.**

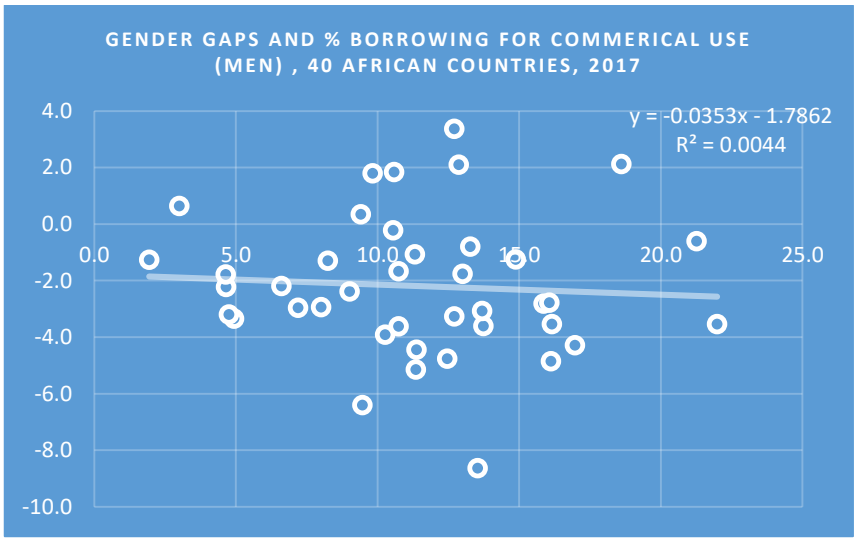


Figure 27: Gender gaps and % Borrowing for commercial use (Men), 40 African countries, 2017

Source: World Bank 2019b Global Financial Inclusion Dataset

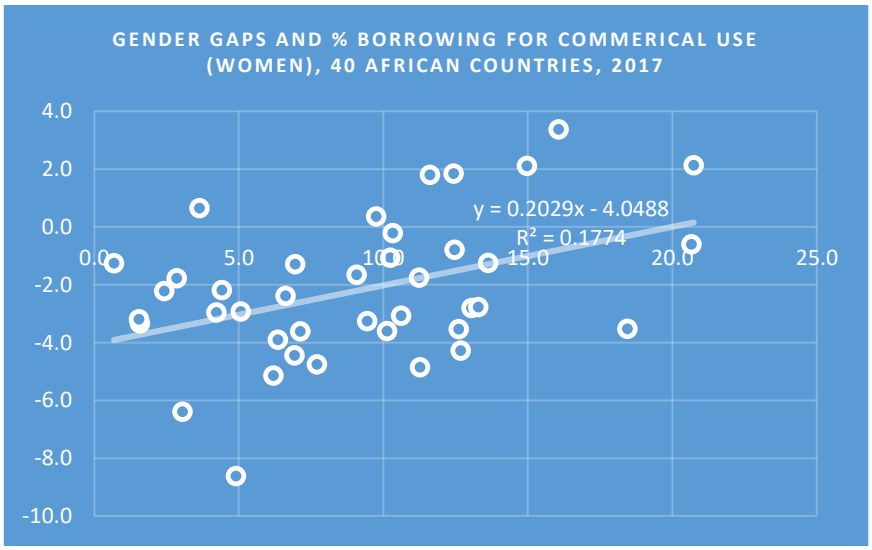


Figure 28: Gender gaps and % Borrowing for commercial use (Women), 40 African countries, 2017

Source: World Bank 2019b Global Financial Inclusion Dataset

There is a positive correlation between borrowing and mobile money uptake in African countries, both for men and women (see figures 29 and 30). This suggests that mobile money increases borrowing for commercial use, which, in turn, could be positive in terms of investing in

better incomes through farming or small business, implying that mobile money improves women's economic empowerment. While correlation does not mean causation, especially when mobile money is still at low levels in many African countries, higher commercial borrowing can be linked to a higher prevalence of mobile money accounts.

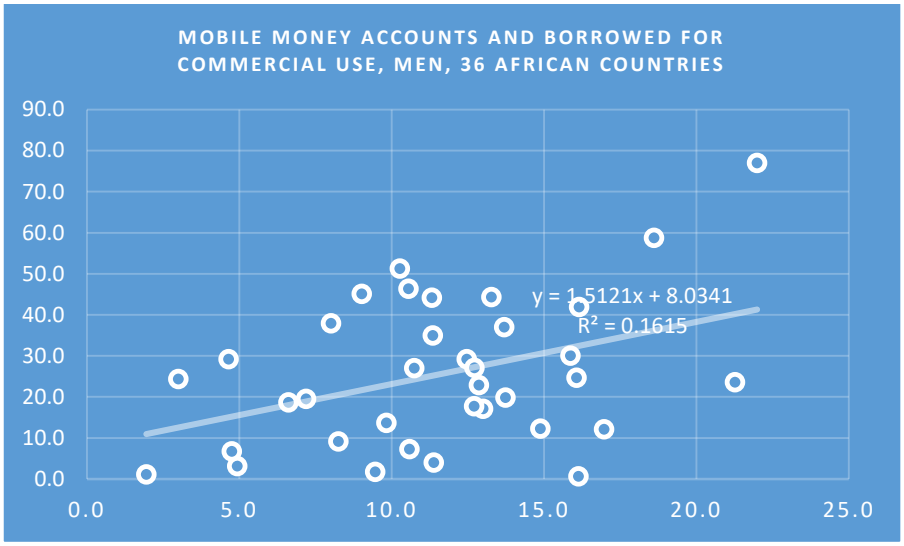


Figure 29: Mobile Money Accounts and Borrowed for commercial use, men, 36 African countries

Source: World Bank 2019b Global Financial Inclusion Dataset

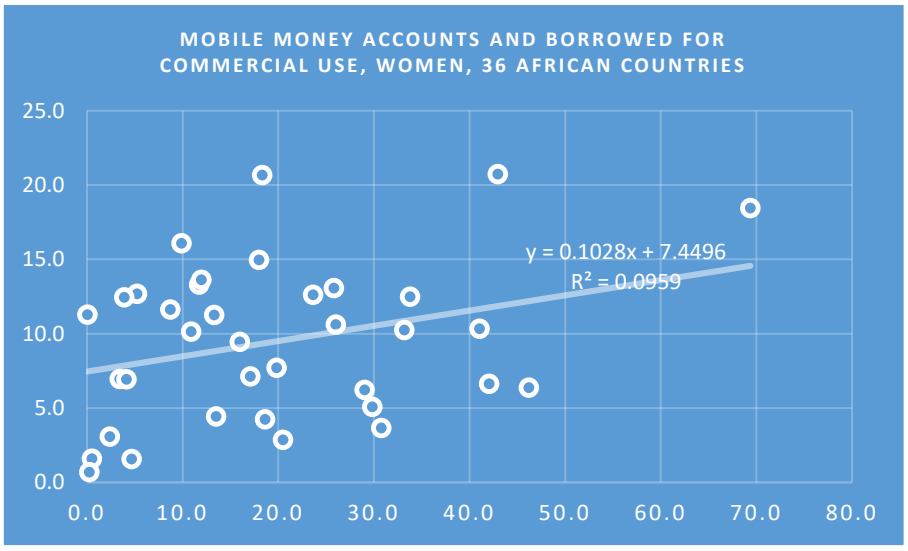


Figure 30: Mobile Money Accounts and Borrowed for commercial use, women, 36 African countries

Source: World Bank 2019b Global Financial Inclusion Dataset

5.3. SUMMARY: BARRIERS

- While digital finance has the potential to facilitate women's economic empowerment through improved financial inclusion, barriers in the form of social and cultural norms persist.
- Although African countries have seen the highest growth of credit reporting systems over the last decade, some countries have less than 8 per cent of adults covered in such systems.

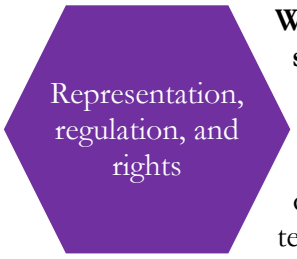
- Credit scoring can have an inherent bias towards gender and financial inclusion due to design limitations and lack of foresight in programming.
- Gender gaps across Africa for borrowing are lower when more women borrow money to start, operate, or expand a farm or a business.

5.4. POLICY PERSPECTIVES: BARRIERS AND DISPARITIES IN FINANCIAL PRODUCTS AND SERVICES

Financial products and services

- When forming policy and regulatory interventions on promoting digital finance for women, it is vital to consider how financial practices, social and cultural norms, as well as financial products and services, obstruct women's empowerment, so that these imbalances are addressed through a gendered lens.
- Countries should prioritize seeking assistance from organizations such as IFC in establishing local credit bureaus and registries to support financial inclusion of larger segments of the population.
- To address the challenges of gender biases and associated assumptions within credit reporting systems and algorithms across Africa, close involvement with relevant central banks and regulatory authorities is essential in adapting existing reporting systems and developing new systems for African countries.
- Governments need to prioritize the capturing of gender-disaggregated financial data which can be further analyzed to support digital finance initiatives.
- If African governments are keen to close gender gaps, enabling women to borrow money for farming or business-related activities should be a core policy component.

6. OPPORTUNITIES FOR ENGENDERING REPRESENTATION, REGULATION AND RIGHTS



Women's under-representation across decision-making has a significant impact on the structural transformation of economies and attainment of the SDGs. Political under-representation, restrictive participation and working practices can contribute to a lack of gender-sensitive policy and legislative frameworks. Negative cultural attitudes can also exclude and isolate women from fully embracing financial technology trends and innovations, combined with individual and household level factors such as family, social norms (e.g. women are not using the internet because of negative social perception, and lack of acceptance by family members).

The use of digital technologies has the potential to produce welfare gains and empower women, however, it is vital that an appropriately funded and adaptable regulatory framework supports the advancement and usage of digital finance, in particular. Ensuring individuals can enjoy their basic right to freedom of access to information is equally important, in addition to guaranteeing access to justice and recall to the law. For example, in countries such as Botswana, Namibia and South Africa, where a greater proportion of women own mobile phones and have potential access to services, for the percentage with internet access (as measured by service per month) - virtually every ICT 'empowering' statistic is lower for women than men. [84]

Gender inequality gaps continue to exist in STEM fields. Many African governments have expressed their commitment to implement long-term strategies that harness STI. Globally, UNESCO data indicates that only 30 per cent of researchers employed in research and development (R&D) were women, [85] while the number of women in science and engineering in Africa was less than 20 per cent of the total workforce, and the proportion of women researchers employed in R&D was 30 per cent in Sub-Saharan Africa, compared with 47 per cent in Central Asia. [86]

Major gender disparities between female and male research scientists are also evident in places of work and their levels of responsibility. For example, female scientists primarily work in academic and government institutions, while their male counterparts are engaged more in the private sector, where they enjoy better pay and opportunities. (UNESCO Institute for Statistics, 2015).

6.1. Women's representation in decision-making

In order for women to be represented within the digital finance ecosystem and for gender policies to be strengthened, there needs to be a high-level commitment and understanding of the issues facing women. The inclusion of women at the highest levels of decision-making is a fundamental component of this process. The proportion of women in ministerial level positions can, to some extent, provide one indication of the inclusion and reflection of gendered concerns into relevant areas of policy. Figure 31 shows the number of portfolios held by women ministers that are relevant to the digital finance ecosystem. Across Africa, between 2010 and 2020, the areas of public works and planning, education, employment, labour and training, science and technology, and research and development have seen the largest increases in women's representation at the ministerial level. Large scale representation reflects a key component to addressing the challenges

[84] Evidence for ICT Policy Action (2012), Policy paper 13, "Lifting the Veil on Gender interaction and ICT
[85] UNESCO (2020)
[86] WHO "Africa's Women in Science" https://www.who.int/tdr/research/gender/Women_overview_piece.pdf.

faced by women, in terms of digital infrastructure and connectivity, skills and capability development for a critical mass, labour markets as well as the design, development and utilization of digital applications, to strengthen coordination across line ministries and government agencies necessary for a national-level effort to strengthen digital finance and its related ecosystem.

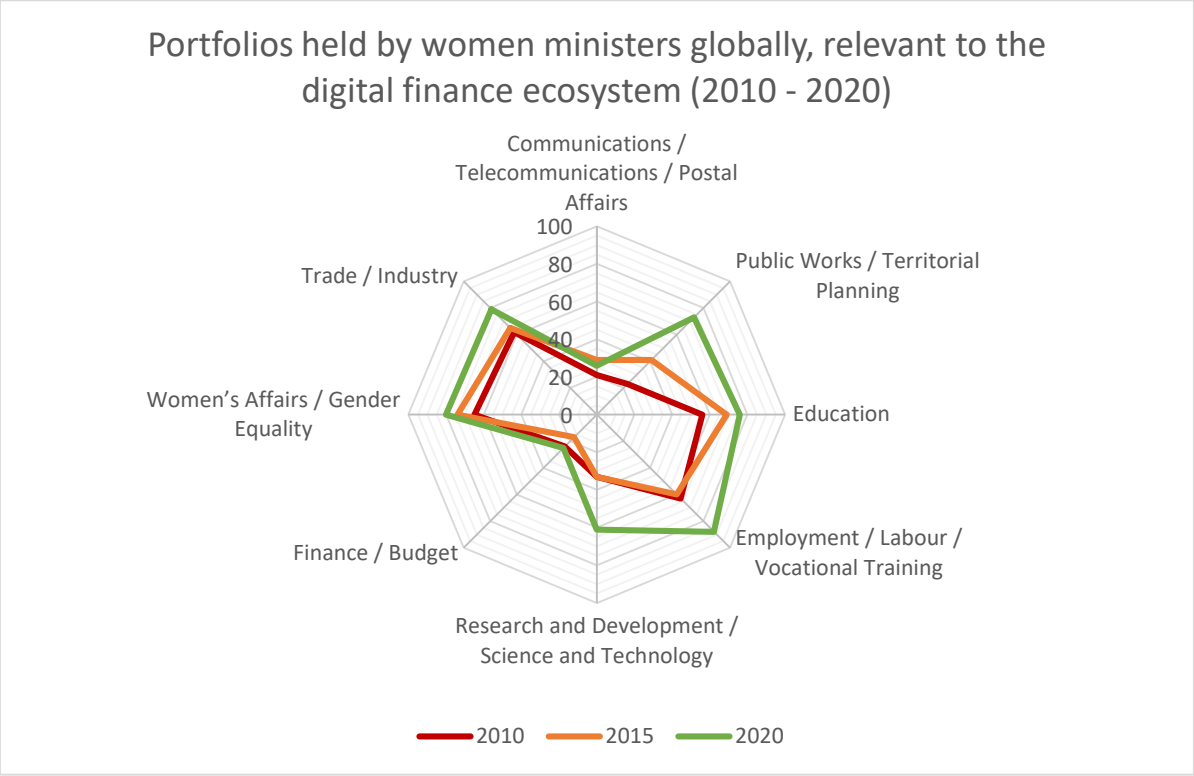


Figure 31: Portfolios held by women ministers globally, relevant to the digital finance ecosystem (2010 - 2020)

Source: IPU and UN Women data, Women in Politics Maps

Of the parliament members across Africa in 2020, 21.7 per cent are women, compared with the global average of 24.9 per cent. International Parliamentary Union (IPU) data from 167 parliamentary chambers paints a contrasting picture of women's leadership of parliamentary committees. Women currently chair 26 per cent of foreign affairs, defence, finance, human rights and gender equality committees, combined with significant variation by committee type (73 per cent for gender equality committees compared to 10 per cent of defence committees). Meanwhile, women chair one-third of human rights committees, one-fifth of foreign affairs committees and 13 per cent of finance committees. [87] At the firms level, only 10 per cent of those working on machine intelligence are female.[88] Even the content of digital news media is gendered – with women making up only 26 per cent of the people in internet news stories and media news tweets. (UN Women, 2020).[89]

While many barriers discussed in this section may be attributed to inherent discrimination and unconscious bias introduced at an indirect systemic level, as opposed to direct discrimination by individuals, one of the largest barriers to addressing these concerns is the inclusion of women in all stages and processes of financial policymaking space, financial institutions, credit reference bureaus and the legal system.

[87] IPU (2020) Women in parliament: 1995–2020 - 25 years in review
[88] Schnoebelen, T. 2016. The gender of artificial intelligence. Artificial Intelligence Resource Center Blog, 11 July 2016. San Francisco, Calif., Figure Eight.
[89] UN WOMEN (2020)

Digital transformation and its role in maximizing social and economic benefits across societies will be incomplete if women lack equal access to critical technology. [90] Stakeholders should support and fund research activities to explore the best ways to design digital financial systems that deliver digital financial services in an effort to achieve gender equality. [91] However, efficient policies and regulations are vital in providing a supportive environment that underpins delivery and access. Extended to this, as is critical to any engendering framework for action, is ensuring countries have widely available gender-disaggregated data relating to access, usage, and all the intermediary enablers and constraints to set targets, create strategies and track progress, and to be fully adapted into a structural framework for economies. [92]

6.2. Regulatory concerns and digital finance ecosystem

It is critical to ensure that regulation matches the development pace of digital products, particularly those in the financial sector. Over the last few decades, we have often seen how limited financial regulatory capacity, across many African countries, encapsulated through lack of sufficiently trained individuals combined with dated or insufficient laws result in negative outcomes in the form of poor lending practices, insider lending, etc. All of which negatively impact bank customers. The rapid speed and adoption of digital financial products mean it is necessary to ensure financial regulations are up-to-date to match and protect consumer rights that are appropriate for access to basic services.

Equally, regulation should not be seen as overly restrictive to avoid limiting equal access. For example, Gabon, Cameroon, Chad and Niger have regulations that prevent women from opening a bank account in the same manner as men.[93] Easing financial regulation may provide momentum for improved access. As was the case in Ghana between 2014 and 2017 when the mobile money penetration tripled to 39 per cent due to the new regulations implemented in 2015, a three-tiered know-your-customer (KYC) system and the reduction of the documentation for low-value accounts.

6.2.1. Markets and institutions

Digital financial services and associated policies need to be tailored to meet the needs and circumstances of those that require them the most. This includes promoting affordability, consumer protection and education to ensure trust in the financial system. [94] However, digital technologies can create antagonistic relationships between users and policymakers, especially if there is mistrust in regulation. This leads to resistance to change. In order to bridge the trust gap, potential users must be convinced of the safety and benefits of mobile money. [95]

Future-proofing regulatory frameworks for DF services require co-operation across borders and sectors, on levels that have not been seen before. After all, digital ecosystems do not respect such barriers. The aim should be to generate quality financial inclusion for mobile money, digital identification, e-commerce, affordable and meaningful access to the internet, and digital public goods, whilst protecting consumer rights. These aims are possible to fulfil with effective digital co-operation and coordination that, in turn, require strengthened multilateralism,

[90] Klapper 2019
[91] Bill & Melinda Gates Foundation 2019
[92] GSMA 2019a
[93] Bill and Melinda Gates Foundation (2019).
[94] Demirguc-Kunt, Klapper, and Singer 2017
[95] ITU 2019c

from the local to the global level. This multilateralism should also be complemented by multi-stakeholderism – not only governments but also civil society, academia, the tech industry and the private sector, as a whole-of-society approach. [96]

6.2.2. Consumer protection

Governments should help to allocate financial, human and other resources to ensure that consumer protection mechanisms are enforced and effective over time, space and across genders. The use of high-cost, short-term credits, coupled with high rates of late repayments and defaults, suggest that decision-makers should take a more cautious approach to the development of digital credit markets. The lessons learned from the development of the non-digital banking sector to ensure consumer protection are essential to consider for strengthening credit reporting systems and requiring information reporting from all sources of credit, including digital lenders, to improve the accuracy of credit assessments. It is also important to analyze whether prevailing digital credit screening models are strong enough and appropriate to ensure that first-time borrowers are not unfairly listed. There should also be clear rules to block corporations that extend reckless lending to digital lenders. [97]

6.3. Emerging gender dimensions of technology

6.3.1. Digital identity and registration for digital financial services

For some countries in Africa, such as Ethiopia and Niger, men are on average nine percentage points more likely than women to have formal identification – commonly a pre-requisite to obtaining mobile phone services, with the gaps being twice as large in some economies. [98] Digital identification is, therefore, likely to be an important catalyst for improving access and usage of digital financial services, and indirectly impacting on trade, governance, social protection, financial inclusion, domestic resource mobilization, as well as security and human rights.

Digital IDs have the potential to be harmonized and interoperable across platforms and could be used as a proof of legal identity, which, in turn, is necessary for a digital finance account, as well as for traditional functions such as applying for passports, driver's licenses, voter's cards and other official documents. Furthermore, integrating digital ID with civil registration could enable robust and sustainable digital identification, prevent duplication of efforts, save costs and time, and allow for efficient public service delivery. ECA is leading a Digital Transformation initiative, with the main focus on Digital ID as it is key to efficient, smooth and safe digital services. These policy initiatives are necessary because a majority of Africans are still excluded from reaping the benefits of digital technology.

The requirements that underpin legal digital identity processes are to some extent already embedded across several social protection frameworks within Africa through unique IDs for individuals and the use of national registration systems and database such as National Information Systems for Social Assistance (NISSA). The combination of these could further spur innovation and entrepreneurship by reducing transaction costs and providing efficient access to digital financial services. It could also function to strengthen the capacity of state institutions and their ability to deliver essential social services to the citizenry, including social benefits, scholarships, etc. Digital ID is the basis for digital economy platforms, and can facilitate the

[96] United Nations 2019
[97] CGAP 2018
[98] Brookings 2019

participation of Africans in the digital economy, yielding dividends for inclusion and sustainable development. [99] However, digital ID needs to be efficient and secure so that money laundering and terrorist financing are minimized. [100]

6.4. Integrated rights and justice for gender equality of access

Engendered rights is at the centre of empowering women and should be focal to the development of digital ID schemes and ecosystems. Legal empowerment and deprivations affect the poorest disproportionately and are particularly harmful to women at both the household and business level. Ultimately rights and access to justice, which are an enabling right and are directly linked to broader goals of gender empowerment and poverty reduction, as well as are at the center of the global community's commitment to achieving the SDGs – reducing deprivation and poverty, and working towards achieving gender parity. Hence, ensuring that we engender consumer protection and rights within digital frameworks is essential. [101]

6.4.1. Financial regulatory services and court systems

The ability for all people to have adequate recourse to the consumer protection processes that protect their rights also has the potential to be embedded digitally. In order to reduce the delays associated with financial regulatory services and congested court systems, governments must allocate more resources to courts, expand infrastructure and introduce the digitalization and integration of court systems. This would streamline complaints, investigatory processes and the court systems while enabling users to track an application or an appeal through each stage of the legal system. Any policies and programmes developed must be attached to adequate funding, and should take into account the specific needs of women within the broader financial regulatory environment and the justice system.

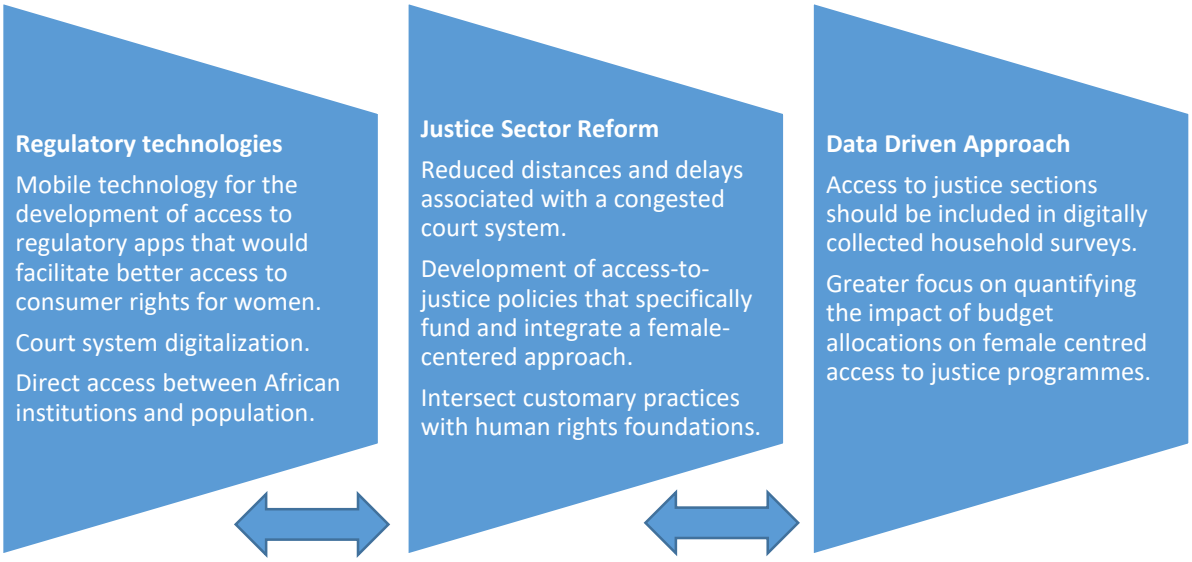


Figure 32: Digitalisation of the regulatorysector and enabling justice

Source: Abridged from Lawson et al (2020).

Understanding the interfaces between improved financial regulatory services and court systems, where each interacts with the other providing feedback-loops and seamless

[99] ECA 2019
[100] Sy 2019
[101] Lawon, Dubin and Mwambene 2020.

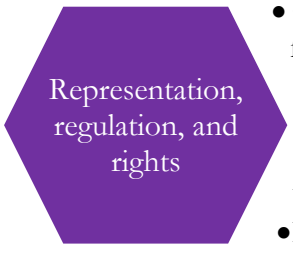
integration, will indicate what is required to protect rights. Figure 32 presents an overview. As part of regulatory and justice sector reform, a greater focus should be on quantifying the impact of budget allocations on access to consumer rights, regulatory services and justice, and other human rights programs, as well as better and increased use of data in understanding the complexities faced when making policy decisions about access to justice.

Greater investment in relevant technology should be made, for example, the development of mobile apps facilitating greater access to rights information, regulatory services and legislative processes for justice. Such apps could provide access to a range of services from information about consumer rights, ombudsman facilities, financial regulatory services and information of legislation to filing a complaint. At the heart of all this must be a commitment to investing in the advancement of the rights of women and girls.

6.5. SUMMARY: OPPORTUNITIES

- Gender inequality gaps continue to exist in STEM fields. In 2013, the proportion of women researchers employed in R&D was 30 per cent in Africa, compared with 47 per cent in Central Asia.
- Across Africa, women's representation at the ministerial level has seen the largest increase between 2010 and 2020, holding portfolios in the areas of public works and planning, education, employment, labour and training, science and technology, and research and development.
- Of the parliament members across Africa in 2020, 21.7 per cent are women, compared with the global average of 24.9 per cent.
- The lack of women's inclusion in all stages and processes of financial policy-making space, financial institutions, credit reference bureaus and legal systems remains one of the largest barriers to the development of an inclusive financial system eco-system.
- It is critical to ensure that regulation matches the development pace and level of digital products, particularly for those in the financial sector, which requires co-operation across borders and sectors on levels that have not been seen before.
- In some African countries, men are about nine times more likely than women to have formal identification – a common pre-requisite to obtaining mobile phone services. The same gaps are twice as large in some economies.
- The ability for all people to have adequate recourse to the consumer protection processes that protect their rights also has the potential to be embedded digitally.

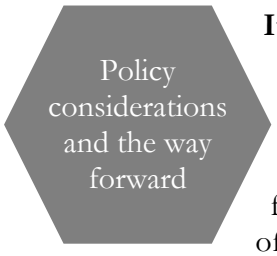
6.6. POLICY PERSPECTIVES: OPPORTUNITIES FOR ENGENDERING REPRESENTATION, REGULATION AND RIGHTS



- Governments must prioritize female representation within the digital finance ecosystem and place engendered policies at the heart of the strengthening. There needs to be a high-level commitment and understanding of the issues facing women. The inclusion of women at the highest levels of decision-making is a fundamental component of this approach.
- It is critical to ensure that regulation matches the development pace of digital financial products.

- The development of digital finance (DF) regulatory frameworks for DF services requires co-operation across borders and sectors among African economies – AfCFTA could be leveraged as a platform for this purpose.
- The framework and requirements, which underpin legal digital identity processes, are to some extent already embedded in several social protection frameworks across Africa. Governments can embed digital IDs, leveraging the existing national registration systems and databases as a springboard for engendering DF frameworks.
- As part of an all-encompassing engendered framework, the development of mobile apps facilitating greater access to rights information, regulatory services and legislative processes of the justice system should be at the core of the government's policy development agenda.

7. POLICY CONSIDERATIONS: DIGITAL FINANCE ECOSYSTEM TO PROMOTE ECONOMIC EMPOWERMENT



It is important to develop and implement policies that respond to the circumstances of people at large, but it is equally important to tailor policies, when required. In other words, the more countries improve the underlying socio-economic contexts for sustainable development, especially related to the SDGs, the greater are the chances to harness digital finance for people in general, and women in particular. However, protection of the most vulnerable, particularly in the early stages of eco-system development, is vital.

Both the short and long-term policy measures are particularly important in light of the emerging AfCFTA. Digital ID and interoperable digital systems would be welcome features to boost intra-regional trade in Africa. Both domestic and international trade are particularly dependent on reliable, smooth and efficient supportive systems. Digital infrastructure is crucial for the modern economy, as well as for cross-border traders across Africa, many of whom being women. At the moment, cross-border trade takes longer and involves numerous barriers and harsh circumstances for women as they are more vulnerable to violence or threats of violence in border towns.

Finally, it is essential to enact policies, regulations and campaigns that genuinely and sustainably transcend social norms which obstruct gender equality and women's economic empowerment. Therefore, decision-makers must take bold steps to remove structures and mind-sets that are blocking women in society, and promote women's access to and control over productive resources.

7.1. To enhance digital and mobile connectivity

There are clear needs to build cross-continental digital financial infrastructures. However, the physical and digital infrastructure needs to be complemented with other relevant components to provide an enabling framework that can form the basis of engendering development over the next few decades. For example, a functional ID system, ICT connectivity, and reliable, stable, and fast internet services are all essential ingredients. Such infrastructure should not only be concentrated in urban centers, but also in rural areas. [102]

Infrastructure development is central to reducing the barriers to women's inclusion in digital technology in general and digital finance in particular, and by connection maximize returns of digital finance (DF) across society. In this regard, improvements could improve accessibility and affordability, the main barriers to women accessing DF. It is imperative to genuinely integrate women's concerns into strategies and plans, including setting specific gender-equity targets and tracking progress with the use of frequently updated gender-disaggregated data. Consultation processes should be all-embracing across all segments of the population before making decisions on infrastructure development. Women can provide information and perspectives on their specific needs in terms of services, policy design, regulations and implementation. [103]

At a broader level, African policymakers need to fill the energy infrastructure gaps that underpin DF technology usage, by establishing an appropriate mix of energy sources to

[102] Demirguc-Kunt, Klapper, and Singer 2017
[103] GSMA 2019a

generate electricity and improve the governance of public utilities to ensure an adequate provision of electricity and internet services. To do so they will need to complement their scarce public resources with domestic and foreign private financing as well as concessional resources. In turn, policymakers will need to mitigate the risks associated with investing in infrastructure projects in their countries. Policymakers need to mobilize the financing needed to invest in electricity generation, transmission and distribution, as well as in the critical internet infrastructure and the hardware and software systems infrastructure necessary to provide internet services such as fiber-optic links. Investment costs are also only one part of the accessibility challenge. Operations and maintenance, not just construction, must be included in budgets to ensure the reliability and affordability of electricity. [104]

7.2. To ensure adequate digital and financial skills

It is equally important to integrate digital technologies into education from primary to tertiary levels, and into specialized education.

7.3. To address financial inclusion and lower the risks of accessing credit

Financial institutions and capacity to embrace digital platforms and services

Digital finance has the potential to provide a channel of efficiencies through time use savings - an aspect that disproportionately impacts on African women and can improve efficiency by default, with time and cost-savings. The transmission mechanisms through which DF can boost women's economic empowerment are multi-layered, however, it is the income streams and savings of women that should be promoted and supported; rather than relying on the belief that credits will boost women's economic empowerment. There are a number of channels through which policymakers could create enabling environments for women's economic empowerment such as fiscal and monetary policies, welfare systems, education opportunities, child-care, health-care, and labour laws. In this respect, it is also important to boost women's income and wealth through the labour markets.

Hence, countries should promote gender-informed policy interventions to enhance gender parities throughout society. Informed policy interventions in this area include conditional cash transfers to female-headed households, stipends for education, free or cheap transport, health services and child allowances. The greater objective would be to increase the income and wealth of women so they can better harness digital finance, which, in turn, means reducing their reliance on credits. Improving women's financial resources would also strengthen their creditworthiness and loan repayment capacities.

7.4. To remove the barriers to accessing financial products and services

Innovative structures of credit history, credit reference and alternatives to asset-based lending

Diverse financial products and services catering to the specific needs of women

There appears to be a trend that the more women use mobile money, the narrower gender gaps in savings and borrowings. However, the correlation could also be in reverse. In countries with higher savings and borrowings among women, there could be a tendency to go for mobile money to facilitate transfers. In other words, mobile money is a vehicle for financial resources that already exist. If so, mobile money plays a positive administrative, but not necessarily monetary, role. Administrative and logistical roles can play a cost-reduction and time-saving function, which

[104] Sy 2019

in turn provide benefits to the livelihoods and business operations of women. Altogether, digital finance services seem to contribute to women's economic empowerment, but we have also taken note of serious pitfalls, risks and barriers that they carry.

7.5. To harness opportunities through engendering representation, regulation and rights

Fair, competitive and integrated financial regulatory environment

African policymakers need to address the gap between the fast-moving digital sphere and the slow-moving regulation. A priority area is to ensure appropriate digitalization regulation that protects citizens and organizations in order to guarantee financial stability and integrity, as well as consumer protection from fraud, cyber-risks and low financial literacy. [105]

Seamless integration of online identity and credit references

Digital financial services require data confidentiality and reliability. People's identity must be verified and protected from hackers and fraudsters. The services must be sufficiently smooth, attractive and cost-effective to small merchants and their customers, while being accessible to all adults and interoperable between different service providers. They should also be consistently available and secure, protecting users' digital identities and data – assuring that money and identities are safe. [106]

A further priority area focuses on a cross country or sub-region development of digital infrastructures that are interoperable so users can transact with anyone while using different service providers. Similarly, to maximize efficiencies of service, competitive pricing and coverage, and minimize limitations in access, exclusion from financial products and market monopolies, there should be a single digital ID system that covers every individual across all digital platforms, and preferably be the same around the continent. [107]

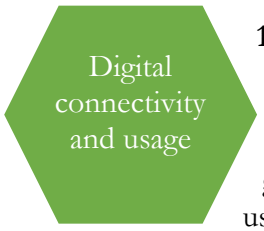
Safe and secure online environment for financial transactions

Uncertainty around the impact of FinTech persists, especially given its rapid adoption. Policymakers must also manage risks to stability and security, as well as financial integrity, and transmission channels to other parts of the economy. [108]

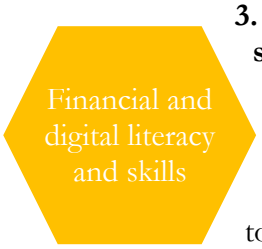
Digital technologies promise a plethora of benefits to Africa's women as they could off-load some of the additional burden carried by them and even remove some of the barriers faced by them. However, digital technologies also carry risks and pitfalls related to cyber intrusion and theft.

[105] Sy 2019
[106] ITU 2019d
[107] Bill & Melinda foundation 2019
[108] GSMA 2019a

ENGENDERING DIGITAL FINANCE ECOSYSTEMS
10 POLICY ACTION POINTS



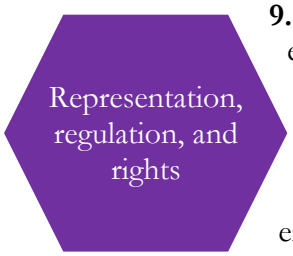
1. **National development policies/plans** should contain strategic pillars focusing on ICT and social development – which provide policy frameworks that embed closing the gender gap.
2. **National ICT policies to be appropriately designed,** a priority must be given to ensuring gender-disaggregated data, relating to ownership, internet usage, etc., are established within national household survey data.



3. **Establish a critical mass of trained individuals, and women specifically, to build relevant ICT skills to harness digital finance** - Embed ICT skills as a core component of school curricula and prioritize STEM-focused policy initiatives.
4. **Understanding the level of financial knowledge and literacy is critical for countries for empowerment**. National level household surveys, to determine the existing level of financial literacy are vital, as well as the inclusion of African countries in global survey initiatives.

5. **Embed within National Development Plans DF frameworks** that encourage and facilitate women to adopt DF initiatives, and complement with work, employment and entrepreneurial training schemes.
6. **Amend Local Government Authority and Financial Acts** to encourage mobile money uptake (positively associated with savings) particularly for women, across many countries in Africa – hence propagate savings ratios, and accentuate empowerment effects.

7. **Establish credit bureaus and registries** to support the financial inclusion of larger segments of the population to address the challenges of gender bias and associated assumptions within credit reporting systems and algorithms.
8. **Prioritize the collection of gender-disaggregated financial data** (in doing business surveys) to support digital finance initiatives and understand how social and cultural norms, as well as financial products and services impact women's economic empowerment.



9. **Prioritize female representation** within the digital finance ecosystem - the inclusion of women in decision-making at the highest levels is a fundamental component of this - set within industry targets.
10. **Establish cross-regional DF regulatory and access to justice frameworks using AfCFTA** as a platform and embed digital IDs, using national registration systems and database as a springboard for engendering DF frameworks.

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