

WORKING PAPER

LEVERAGING DIGITAL FINANCE FOR GENDER EQUALITY AND WOMEN'S EMPOWERMENT



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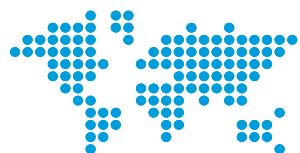
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ACRONYMS

AI	Artificial Intelligence
CEO	Chief Executive Officer
CEOP	CEO Partnership for Economic Inclusion
CSOs	Civil society organizations
DLT	Distributed Ledger Technology
EU	European Union
G2P	Government-to-person
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GFLEC	Global Financial Literacy Excellence Center
GIIN	Global Impact Investing Network
GSMA	Global System for Mobile communications Association
IC	Investment committee
ICT	Information and communications technology
IFC	International Finance Corporation
IMF	International Monetary Fund
IPV	Intimate partner violence
LDCs	Intimate partner violence
SDGs	Sustainable Development Goals
SMEs	Small and medium-sized enterprises
SMS	Short Message Service
UN	United Nations
UNCDF	United Nations Capital Development Fund
UNSG	United Nations Secretary General
USSD	Unstructured Supplementary Service Data
VC	Venture Capital
WEF	World Economic Forum

EXECUTIVE SUMMARY

For women and girls, the digital revolution represents one of the biggest opportunities and threats to gender equality. In recognition of this critical dichotomy, the *UNSG Task Force on Digital Financing for the SDGs* has selected gender as one of the main themes of its work. This working paper provides a basis to review the barriers, risks and opportunities related to gender and the accessibility and utilization of digital finance and help identify pathways that could be leveraged for potential impactful investment returns for women.

Facts and figures

Although some progress has been made, gaps remain for women to fully benefit from the digitalization of finance.

The global Internet gender gap is growing wider and is the largest in the world's Least Developed Countries:

31%

\$1.3 billion

was invested in gender bonds in 2017, much less than the \$187 billion invested in climate finance bonds

The global gender gap in financial inclusion has not changed since 2011. In developing countries, this gap reaches

9 percentage points

Less than 2%

of banks' CEOs are women and less than 20 per cent of board seats at banks are held by women

“An industry that intends to serve women but has very few women in its leadership or technical positions will miss complementary perspectives and will likely invest in the development of services that will not meet the diverse needs of women.”

Barriers faced by women trying to access and benefit from digital finance

- **Infrastructure:** On average, women are 10 per cent less likely to own a mobile phone than men and 26 per cent less likely to use mobile Internet. Bringing an additional 600 million women and girls online could boost global gross domestic product by as much as US\$18 billion.
- **Costs:** The high price of Internet access is one of the greatest barriers for women. This results in inequitable gains from technology access and

leads to more investments that benefit men, as they are the largest group of customers.

- **Laws:** In too many countries, laws still discriminate against women and prevent them from accessing credit and property rights, and getting the official identification documents required to open a mobile account.
- **Education:** Lack of knowledge and digital skills deter new female users from accessing mobile Internet and inhibit existing users from using mobile Internet on their own. Low financial knowledge is also an important barrier, with the younger generation of women showing even less interest in making their own financial decisions.
- **Social norms:** Owning a phone or exchanging information online can increase risks for women of enduring gender-based violence. Gender stereotypes have a profound impact on the digitalization of finance and women worldwide are systemically under-represented in financial-technology (fintech) jobs.

How to mitigate the major risks associated with digital finance from a gender perspective

<p>Preventing a widened gender, economic and geographical divide</p> <p>Women are already struggling with a deficit in all areas which prevent them to keep up with the progress made by men who had earlier and easier access to finance and technology.</p> <p>We need to further support women living in areas with low connectivity or inadequate laws and regulatory frameworks, as they are the most at risk of being left behind and disconnected from the new digital financial services currently being developed in more favourable locations.</p>	<p>Addressing the technology knowledge gap</p> <p>Whether we are looking at the world population connected to the Internet or without access, very few people understand the risks associated with new technologies with regard to data transfer, privacy, AI and digital identities.</p> <p>Without a clear understanding of key concepts, the use of digital financial services can create new risks for women to be treated unfairly and new legal barriers for women's economic participation and lead to a lack of trust in the services offered.</p>
<p>Fixing gender bias and discrimination in service provision</p> <p>The design of AI systems involves human inputs at various stages, which if left unchecked are all opening the door to reinforcing the risk of bias and discrimination for women.</p> <p>This raises many legal and ethical issues for policy-makers, to make sure that digital finance services providers using AI for credit scoring, client or service selection and more can be held accountable and that their decisions are transparent.</p>	<p>Redirecting investment towards gender-responsive solutions</p> <p>The digitalization of finance must address the systematic way in which women are undervalued and lead to the development of services that help women exercise their economic power.</p> <p>The gender imbalance in the digital, financial and emerging fintech workforce prevent women from taking an active role in creating and sharing their vision for new digital financial services.</p>

What are the pathways to unlock the benefits of digital finance for women?

Evidence showing the positive impact of the digitalization of finance for women

Expanding access to mobile money accounts: Global Findex data reviewing eight African countries show that in six of them, there is no gender gap in mobile money account ownership. Even though women face more barriers to equal men as early adopters, they often catch up once services are more widely available.

Expanding use of mobile money account for payments, loans and savings: A study in Kenya shows

that mobile money services enabled women-headed households to increase their savings by more than a fifth, allowed 185,000 women to leave farming and develop business or retail activities, and helped reduce extreme poverty among women-headed households by 22 per cent.

Expanding use of mobile money accounts for government payments and remittances: Digitizing payments from government to people has a positive effect in increasing account ownership and providing women with independent access to predictable income streams and greater control over how money is used. Remittances are another area where digitization can be a driver for women's financial inclusion.

Increasing interest for investing with a gender lens:

The digitalization of finance gives access to more sex-disaggregated data and builds a compelling business case for investing with a gender lens. The trend is growing and 87 funds deploying capital with a gender lens have been identified in 2018, compared to 58 in 2017.

Interventions that can create and boost demand for digital finance services

- **Improving awareness and understanding**
Develop capacity-building initiatives and financial education to help women be more aware that diverse digital financial services exist, understand how to access these services, gain confidence in using them and be able to make informed financial decisions.
- **Meeting women's unique financial needs**
Improve sex-disaggregated data collection to better understand how costs and individual preferences can impact women's demand for and use of various digital financial services and what criteria women prioritize when choosing to adopt new services.
- **Using targeted incentives**
Avoid mechanisms based on stereotypes or misconceptions to better understand how women customers process information, make choices for preferences and act on their choices, in order to design incentives that not only target increase in access but also in utilization of services.

Interventions that can improve the supply of digital finance services

- **Developing value propositions for women**
Put the specific needs and preferences of women at the centre of the design of digital financial services, to disrupt the current digital market which considers women as receivers and men as senders of digital payments and offer innovative features, products and customer service to address existing barriers.
- **Adopting enabling environment regulations**
Adopt the promotion of women's financial and digital inclusion as a specific policy objective to encourage open, interoperable and interconnected systems that expand opportunities to access new products and review new and changing risks through a gender lens to ensure financial consumer protection.
- **Integrating a gender strategy in investment portfolios**
Provide practical guidance to investors on how they can incorporate gender in their strategy to channel capital towards the improvement of women's access to entrepreneurship, leadership opportunities and products and services that enhance their economic participation and financial inclusion.

INTRODUCTION

“Technology is a basic right, not a luxury. We need to change that mind set if we are to address the chronic underinvestment in women and girls and achieve their equal access to technology as a norm. This can be accelerated by embedding people from the development sector within the worlds of technology and finance, and by governments enlarging their concept of necessities beyond water, food, shelter and energy.”

Phumzile Mlambo-Ngcuka, Executive Director, UN Women

The UN Secretary-General has established a Task Force on Digital Financing of the Sustainable Development Goals (“the Task Force”), as part of his financing strategy, to determine how best to harness digitalization in accelerating financing for sustainable development.

The Task Force is mandated to identify **how digitalization will reshape finance and to identify, theorize, and propose how best this can support the financing of the Sustainable Development Goals (SDGs)**. This requires considering the broader context of finance, technology and the SDGs, and then narrowing to those areas of SDG financing that are changing due to digitalization.

One of the roles of the Task Force will also be to look at specific SDGs or cross-cutting issues for deeper analysis on how to unlock opportunities and mitigate the risks associated with the digitalization of finance. **For women and girls, the digital revolution represents one of the biggest opportunities and threats to gender equality. In recognition of this critical dichotomy, the Task Force has selected gender as one of the main themes of its work.**

UN Women and its Executive Director, who is 1 of the 16 members of the Task Force, is committed to supporting the Task Force to further explore the different impacts of the existing digital financial ecosystem through a gender lens. On the one hand, digital financial technologies are accelerating women’s empowerment worldwide. By dismantling the need for intermediaries, digital technologies enable women to play a more direct and active role in the financing value chain. On the other hand, the growing gender digital divide, the gender gaps in the technology sector and the gender pay and investment gaps put women and girls disproportionately at risk to be worse off from the transformations fostered by digital technologies.

This working paper is based on initial discussions with and between Task Force members, technical experts, practitioners, innovators and other stakeholders, as well as through a review of available literature. **It provides a basis to review the barriers, risks and opportunities related to gender and the accessibility and utilization of digital finance and help identify pathways that could be leveraged for potential impactful investment returns for women.**

PART 1: WHAT ARE THE SPECIFIC BARRIERS FACED BY WOMEN TRYING TO ACCESS AND BENEFIT FROM DIGITAL FINANCING?

The lack of parity between women and men has serious economic implications. Gender inequality is not only a pressing moral and social issue, it is also critical to sustainable development and the achievement of the SDGs. A McKinsey Global Institute report finds that US\$12 trillion could be added to the global GDP by 2025 by advancing women's equality.¹

The digitalization of the financial sector and the recent increase of digital financial services brings new opportunities to help build inclusive economic infrastructure that offers new services to marginalized populations and underserved communities around the world. **It has been widely documented that digital financial solutions have the potential to make a significant difference in bridging the gender gap**, by increasing women's financial autonomy and improving their economic participation.² Digital financial services can help bridge the gap in account ownership, increase women's participation in the financial system and give them the opportunity to save formally or access credit. It can lower the risks associated with greater financial autonomy by improving privacy, confidentiality and control and reduce the time spent on travelling. It can also help their business by lowering costs and giving access to a diversity of financial services.³ McKinsey estimates

that digital financial services could turn 1.6 billion of the 2 billion unbanked people into formal customers by 2025, thus adding US\$3.7 trillion to the GDP of emerging economies.⁴










However, women are already lagging behind in the digital field and in accessing financial services. The current gender gap in financial inclusion and the gender digital divide can be traced to many common factors, ranging from unequal opportunities, structural barriers and social and cultural norms. **The overlap of these barriers creates greater risks for women to be excluded from the opportunities associated with the digitalization of finance and to prevent them from bridging the current divide.**

Part 1 of this working paper will explore the main current factors barring women from fully participating in and benefiting equally from the digitalization of finance.

FIGURE 1

How digital financial services advance women's empowerment and economic participation

Digital financial inclusion for women advances their economic empowerment and participation, because digital financial services can:

-  **1.1** Help bridge the gender gap in account ownership and increase women's participation in the financial system – both in terms of the volume and value of transactions.
-  **1.2** Provide women with greater privacy, confidentiality, and control over their finances.
-  **1.3** Give women the opportunity to save formally, lowering or eliminating the high cost associated with saving informally.
-  **1.4** Improve women's access to formal credit.
-  **1.5** Reduce time spent on travelling to access banks or make utility payments.
-  **1.6** Support risk management.
-  **1.7** Improve women-owned businesses' ability to lower banking costs.
-  **1.8** Help female entrepreneurs better manage their inventory stock and make more efficient procurement decisions.
-  **1.9** Have a multiplier effect that drives adoption among more women.

Source: World Bank et al. 2015.

1. Structural barriers

a. Infrastructure

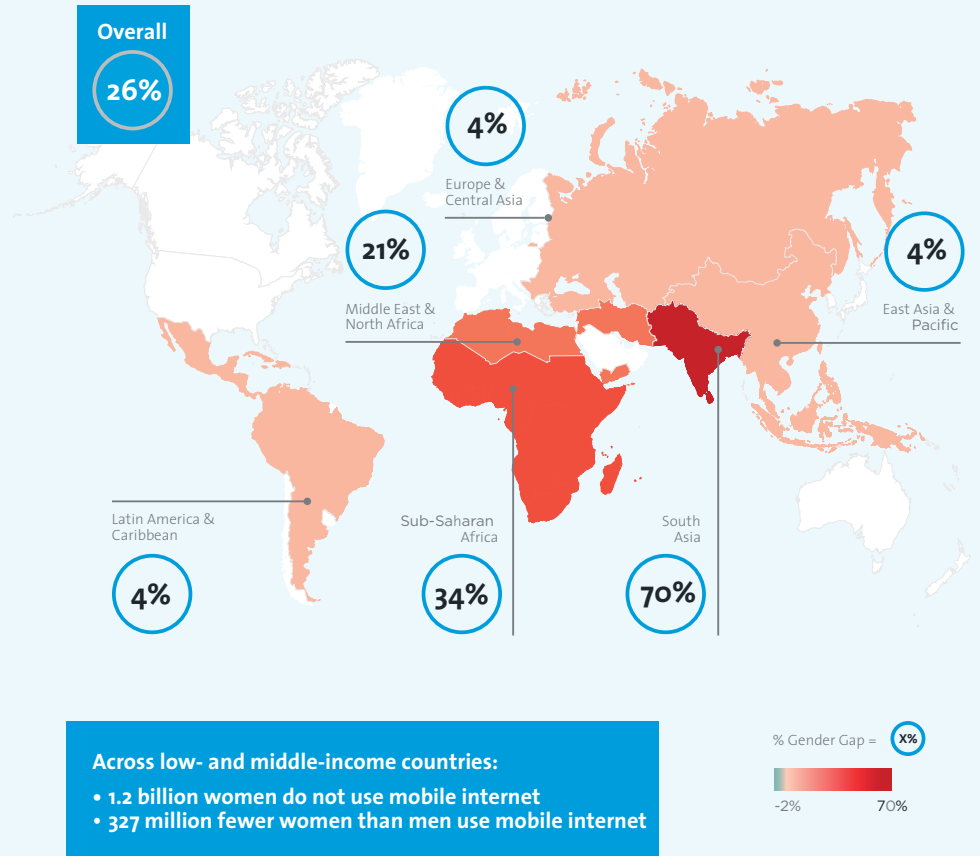
Today, broadband networks are critical infrastructure, as important as roads, railways, water and power networks. The scale of the infrastructure that must be built or upgraded to bridge the digital divide and deploy emerging technologies is huge and expensive — the International Telecommunication Union (ITU) estimates that connecting the next 1.5 billion people will cost US\$450 billion.⁵

One of the most pernicious aspects of the global digital divide is the digital gender gap and worryingly, recent data reveal that this digital gender gap is growing wider.⁶ The global Internet user gender gap grew from 11 per cent in 2013 to 12 per cent in 2016. The gap remains large in the world's Least Developed Countries (LDCs) at 31 per cent. In 2016, the regional gender gap was largest in Africa (23%) and smallest in the Americas (2%).⁷

Within countries, two other factors are also creating the digital divide and tensions: urban versus rural residency, and age.⁸ In Brazil, the mobile Internet gender gap is 32 per cent in rural areas compared with just 2 per cent in urban areas.⁹

FIGURE 2

The gender gap in mobile Internet use in low- and middle-income countries, by region



Source: GSMA et al. 2018.

The GSMA 2018 report on the gender digital gap shows that **despite an increase in access, there also remains a significant gender gap in mobile phone ownership and use.** The data on the mobile gender gap show that women in low- and middle-income countries are, on average, 10 per cent less likely to own a mobile phone than men, which translates into 184 million fewer women owning mobiles phones.¹⁰

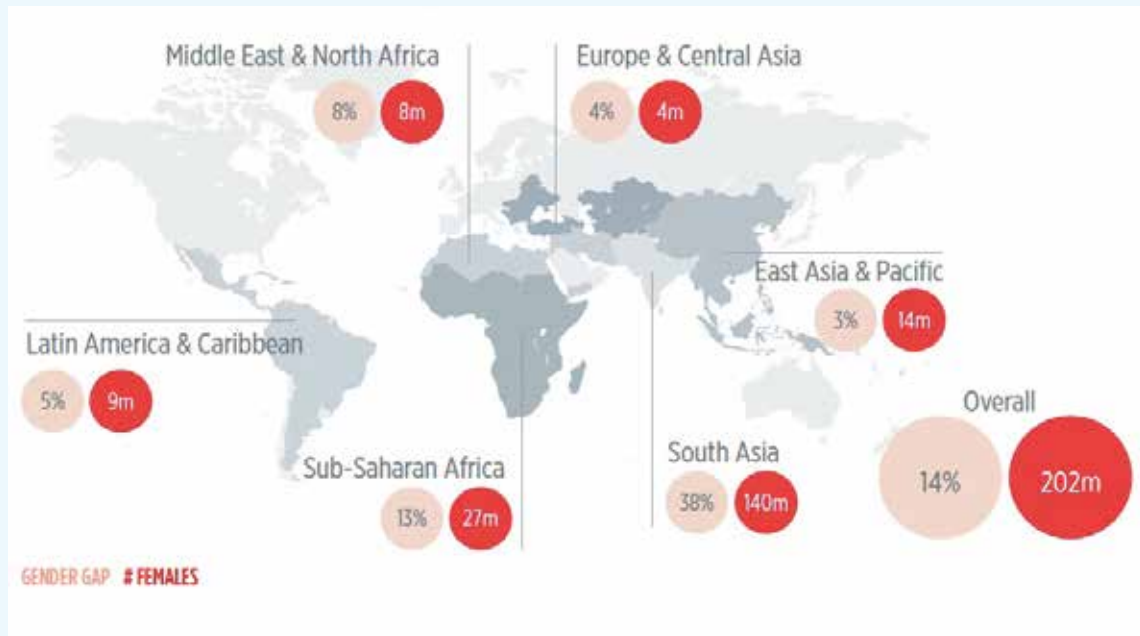
Women who own a mobile phone report using phones less frequently and intensively than men, especially for transformative services such as mobile Internet. GSMA estimates that women are on average 26 per cent less likely to use mobile Internet

than men and, according to the latest findings from the World Bank's Global Findex database, women in low- and middle-income country markets are on average 33 per cent less likely to use mobile money. This gender gap is wider in certain parts of the world. For example, women in South Asia are 26 per cent less likely to own a mobile phone than men and 70 per cent less likely to use mobile Internet.¹¹

A similar worrying trend can be seen with regards to the divide in financial inclusion. The Global Findex data show that **while more and more women are opening bank accounts, a global gender gap of 7 percentage points still exists — reaching 9 points in**

FIGURE 3

Gender gap in mobile phone ownership in low- and middle-income countries



Source: GSMA Intelligence and World Bank data, Altai Consulting analysis.

developing countries, and that this percentage has not moved since 2011.¹² As a result, women still make up 56 per cent of the 1.7 billion unbanked adults, with large variations across regions and countries: the Middle East and North Africa region shows the

largest gender gap — 52 per cent of men in the region have an account, compared with only 35 per cent of women — while countries like China, Colombia, India, Kenya and Mexico show improved results and reduced gaps.¹³

BOX 1

Financial inclusion

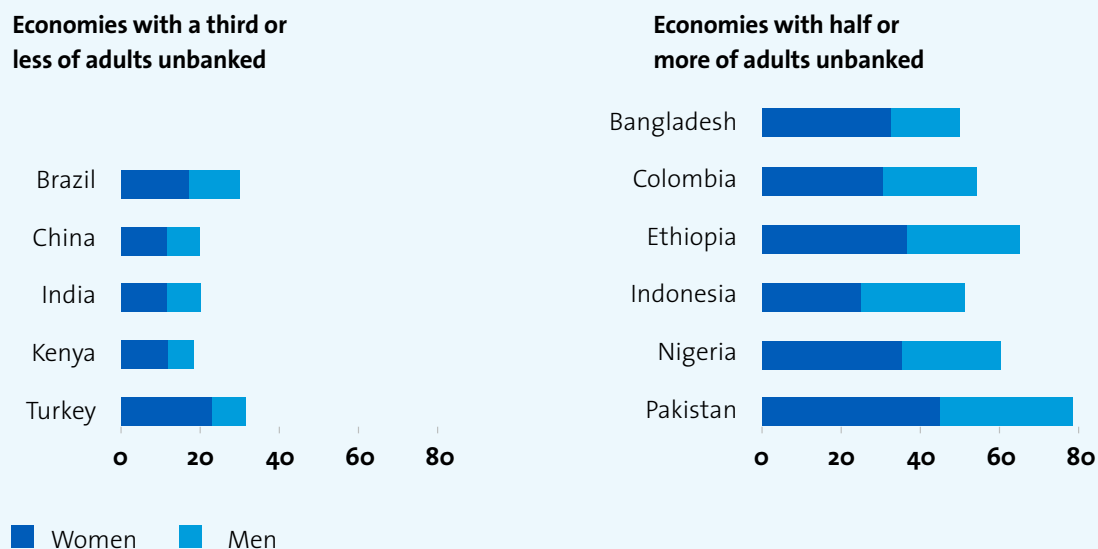
Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs — transactions, payments, savings, credit and insurance — delivered in a responsible and sustainable way.

Source: World Bank.

Between 2014 and 2017, adults who either had an account through a financial institution or a mobile money service provider rose from 62 per cent to 69 per cent.¹⁴ In emerging economies, this percentage rose from 54 per cent to 63 per cent. Despite investments and improvements in financial and digital infrastructure, it is disappointing that the gender financial and digital divide has not improved globally and is sometimes at risk of worsening in some countries. While connectivity remains a key issue in many rural areas, other structural factors such as costs and regulations are also preventing women from having equal access and use of digital financial services.

FIGURE 4

Women are overrepresented among the unbanked in most economies



Source: World Bank. 2017.

b. Costs and economic barriers

Geographical access to digital financial services remains unequal, but we see **access to digital services becoming more a problem of economics than geography and infrastructure.**

In many low- and middle-income countries, as well as low-income regions, the high price of Internet access is one of the greatest barriers for women. Women are paid less and face an unequal dividend of paid and unpaid work. Women who head their households can find Internet access to be an impossible expense; and women dependent on a male breadwinner may not have control over household finances at all.¹⁵

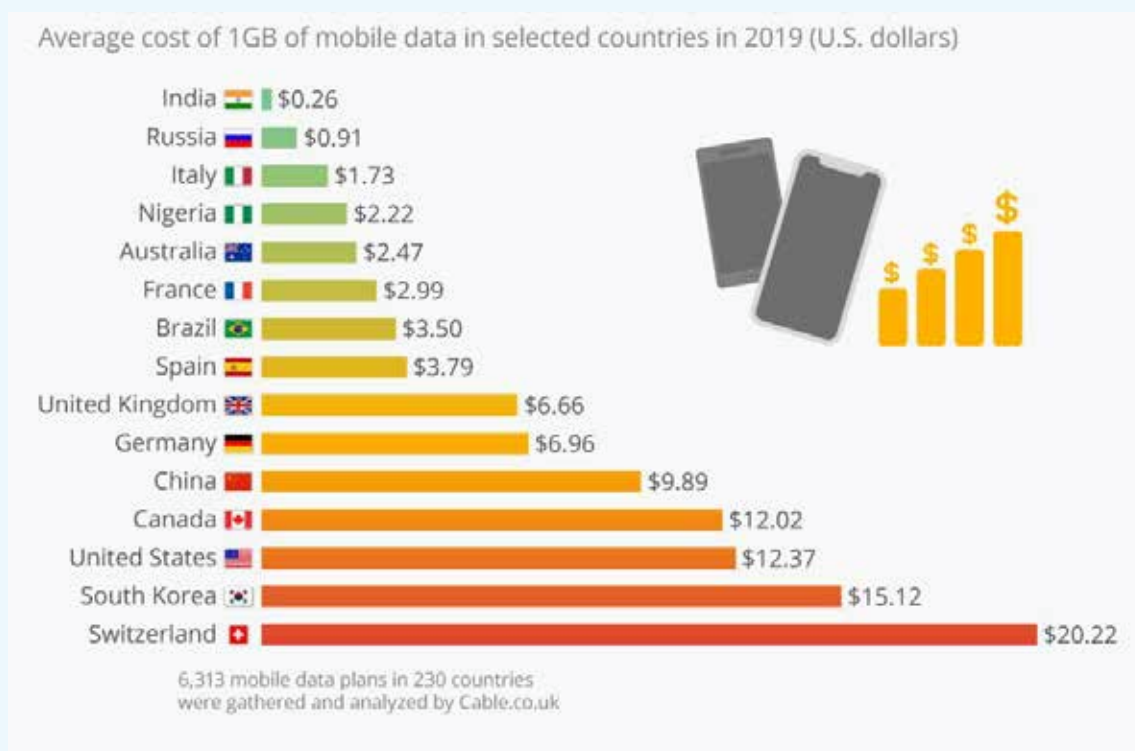
A GSMA study show that in low- and middle-income countries, there is a strong negative correlation between women’s education and income levels and a gender gap in mobile ownership. Where female educational attainment is lower and female income is smaller, particularly relative to handset costs, the gender gap tends to be larger.¹⁶ **Although cost is an important consideration for both women and men in**

many of the countries surveyed by GSMA, this barrier disproportionately affects women. For example, in the Dominican Republic, 53 per cent of female mobile phone users who do not use mobile Internet, but are aware of it, cited handset cost as a key barrier to mobile Internet use compared to 37 per cent of men. In a similar sample in Kenya, 43 per cent of women and 31 per cent of men stated that not having access to an Internet-enabled mobile phone was a major barrier to using mobile Internet.¹⁷

A study from the University of Tennessee investigated the factors responsible for the inability of 245 female slum-dwellers in India, who earn around US\$2 a day, to own a mobile phone. They found that more than 90 per cent of the respondents experienced more than two economic barriers, which prevented them from owning some of the least expensive mobile phones worth US\$15 or so on installments of US\$1 a month.¹⁸ These barriers were identified as: fluctuating low personal income, low personal savings, lack of financial support from husbands, the cost of owning and maintaining a mobile phone, low household income, supporting the majority

FIGURE 5

The cost of mobile Internet around the world



Source: Cable.co.uk, Forbes, Statista.

of financial dependents in the family, unexpected and unforeseen family expenses, and inherited debt.¹⁹

The cost of service is also an important barrier for women, especially with regards to access to the Internet. In a recent study from the Alliance for Affordable Internet (A4AI) carried out in 10 low- and middle-income countries, results showed that none of the 6 African countries studied met A4AI's ideal target of 1GB of data for less than 2 per cent of the average monthly income. In Uganda, 1GB of mobile broadband costs more than 22 per cent of the average monthly income.²⁰ **The cost of mobile Internet has a direct impact on the digital finance ecosystem: this results in inequitable gains from technology access**

and leads to more investment in services that benefit men, as they are the largest group of customers with access to mobile Internet.

c. Laws and regulations

In the past years, many regulators have found it a challenge to keep an adequate understanding of the implications of evolving business models and the rise of technology in the financial sector. Policymakers — often already struggling with resource and capacity gaps — may resort to regulatory frameworks that are overly restrictive, are ill-suited for technology-driven innovation, or exacerbate pre-existing market gaps that hinder financial inclusion.²¹

The introduction of digital financial services brings new risks. Governments have to balance opening systems and lowering barriers with the responsibility of supervising a wider range of market participants and protecting millions of new consumers.²² Past experiences in regulating traditional financial services have shown that seemingly gender-neutral regulations could operate differentially with regards to men and women. Without policies requiring the collection of gender-disaggregated data by not only financial authorities but also by non-banking institutions developing digital financial services, there is little understanding on the barriers and risks faced by women.

Studies on financial inclusion have been able to identify the specific barriers women may face in proving their identity to open an account, travelling to a bank or an agent, and building a credit score. These barriers and challenges are also preventing women from accessing digital financial services. It has been reported that women in countries like Bangladesh, Nigeria, Tanzania and Uganda face legal and social barriers

BOX 2

People with low incomes, especially women, often lack access to an official identification document

Traditional customer due diligence requirements that do not consider these constraints deeply affect whether women are able to access formal financial services. In Togo, where 62 per cent of women and 47 per cent of men lack a bank account, 30 per cent of financially excluded people cite lack of identification as one of the reasons they do not have an account, according to the 2017 Findex. Regulation that allows for simplified customer due diligence in lower-risk scenarios and recognizes the types of identification documents that women typically have should help to bring more women into the financial system.

Source: Yasmin Bin-Humam et al. 2018.

to attaining the government identity documents required to open a mobile account in their own names.²³ In some countries, stringent registration policies for SIM cards have also been identified as impediments and pose a real risk of excluding large sections of communities, often the most vulnerable or geographically the most remote.²⁴

In too many countries, laws still discriminate against women and have a direct impact on their ability to access and use digital financial services. The Women, Business and the Law report from the World Bank measures the barriers faced by women in going places, starting a job, getting paid, getting married, having children, running a business, managing assets and getting a pension.²⁵ In 18 countries, husbands can legally prevent their wives from working and 36 countries have laws which prevent women from inheriting equally as a spouse. In 31 countries, women cannot be the head of household or family and 17 countries have laws which prevent women to travel outside their homes.²⁶

UN Women has launched a new strategy to fast-track the comprehensive elimination of discriminatory laws and support governments in their reform efforts.²⁷

This includes introducing laws on non-discriminatory access to credit, based on gender and marital status, and the reform of legal barriers to women's access and control over assets by addressing laws affecting marital property, inheritance and the titling of land.²⁸ Having access to property rights and land is essential for women entrepreneurs because property is used as collateral security for business credit. Yet, even though women are a major force in agriculture and provide 70 per cent of labour in the sector, they only hold about 1 per cent of registered land titles, with around 5 to 6 per cent of registered titles held in joint names.²⁹ These laws prevent women from having access to loans or from building credit scores that would lower the rates and fees of digital financial services.

These barriers show that the challenges faced by women are multifaceted, and the large gender gaps in some regions are often correlated to multiple societal and cultural barriers which complicate strategies to overcome the disparities.

2. Socio-cultural barriers

a. Education and digital financial literacy

The fact that women experience greater barriers to benefit from the opportunities provided by the digitalization of finance is often explained by underlying social norms, such as women being less likely to receive an education or be employed in specific roles. In many Least Developed Countries, the literacy rate remains below 50 per cent³⁰ and even if literacy among youth is globally rising, young women lag behind and represent 56 per cent of the 102 million youth illiterate population.³¹ Women and girls are more likely to face low digital and financial literacy and in developing countries, they are also less likely to be aware of mobile Internet in the first place, due to the structural barriers mentioned above.

A GSMA study on how to accelerate digital literacy for women highlighted how a **lack of knowledge and digital skills deters new users from accessing mobile Internet, and inhibits existing users from using mobile Internet on their own.**³² The study shows how women viewed the Internet through the lens of the one or two applications and services they were familiar with. Many women who did not use mobile Internet did not understand the utility of the Internet and, as a result, had no incentive to invest in learning mobile Internet skills on their own. Most of the women interviewed in the GSMA report had not received any formal training on how to use the Internet but even those who had still had limited skills. In Indonesia for example, Internet education at the school level is limited to basic concepts like search and email. As a result, more female users are reporting the perception that mobile Internet is not relevant to them.³³

Low financial knowledge is also a major barrier for all women around the world. A Global Financial Literacy Excellence Center (GFLEC) study shows that women have lower financial literacy and confidence than men and that this gender gap is independent of socio-economic background as well as cultural and institutional context.³⁴ A recent study from UBS in the United States shows that this is a multigenerational problem, and that alarmingly the younger generation of women is showing even less

interest in making their own financial decisions.³⁵ The study found that while women are acutely aware of their long-term financial needs, few take the lead in managing their finances and prefer to defer to their spouses for important financial decisions. Millennial women are unexpectedly more likely to let men lead (56%) as opposed to women over 51 years of age (54%). This behaviour will prevent women from accessing the new services made available by the digitalization of finance and put them at financial risk during critical life moments.

b. Cultural and societal barriers

In many countries, women face limited access to education, employment, entrepreneurship and formal financial markets, as well as disadvantageous social norms and legal treatment. Societal bias varies depending on local contexts and is found in all aspects of society. For the purpose of this paper, two specific examples of persistent and systemic inequality that are the most relevant for digital finance will be developed, but other inequalities such as wage inequality, unpaid work and care, and discriminatory also play direct and indirect roles in limiting women's ability to benefit from the digitalization of finance.

The first example aims to show the complex realities faced by women and girls in ownership and utilization of mobile phones and access to financial services. Access for women can sometimes grow fast, but it is often accompanied by new risks that can lead to abuse.

There is an additional layer of risk for women of facing gender-based violence as a direct consequence of owning a phone, exchanging information online and having independent access to new online financial services. As shown in Figure 6, digital services and new technologies not only can widen inequality, they can also increase acts of violence or harassment. A GSMA study shows that safety and security are an important barrier to mobile Internet access by female mobile users, especially in Latin America. For example, in Chile, 49 per cent of women (versus 23% per cent of men) who used a phone but had not used mobile Internet indicated concern that they or their families may be exposed to harmful content online.³⁶ The

FIGURE 6

Anecdotal evidence of the risks of violence faced by women using a mobile phone



Source: UN Women.

empowerment of women through access to new digital financial services can have a great impact on power relations in households and communities. Similar issues can be seen with regards to access to microcredit, with evidence that some women are at greater risk of violence as a result of access to loans. But other evidence suggests that access to credit can empower women, lowers women's risk of domestic violence and improves women's willingness

to control fertility or contraceptive use.³⁷ **This is why the digitalization of financial services needs to be accompanied by further research on the benefits of people's mobile access to financial services. These studies need to take into account local contexts and be shaped by the intersection of different social categorizations and power structures based on factors such as age, class, sexual orientation, ethnicity and gender.**³⁸

BOX 3

Studies from Bangladesh and Ghana hypothesize that microfinance loans and cash transfers increase intimate partner violence (IPV) due to disagreement over use and control of the new income

The reported increase in IPV against women accessing finance in these two countries could be attributed to a process through which husbands seek to establish full management and control over microfinance loans. They posit that if a woman challenges her husband's attempt to control her loan, incidents of IPV within the household are likely to rise. An ethnographic study of IPV and microfinance programmes in Bangladesh finds that "the highest levels of violence against women were in the village where it was most apparent that a transformation in gender roles was underway."

Source: Sarah Gammage et al. 2017.

The second example aims to show how **gender stereotypes have a profound impact on the digital finance sector and the people that are directly investing in and developing digital financial services.** Globally, women are systematically under-represented in information and communication technology (ICT) jobs, top management and academic careers. For instance, women worldwide are 20 per cent less likely to hold a senior leadership position in the mobile communication industry; they make up only 8 per cent of the investing partners at the top 100 venture capital (VC) firms and only 17 per cent of the scientists earning more than US\$105,000 (in 2015).³⁹ Start-ups and venture capital investment point to socio-cultural gender bias in equity financing: as of today, 90 per cent of innovative start-ups seeking venture capital investments have been founded by men. Women-owned start-ups receive 23 per cent less funding and are 30 per cent less likely to have a positive exit — i.e. be acquired or to issue an initial public offering — compared to men-owned businesses.⁴⁰

In addition, women have historically had a low presence in leadership positions in the financial industry and with regulators. Currently, less than 2 per cent of bank's CEOs are women and less than 20 per cent of board seats at banks are held by women (IMF, 2017). As shown in Figure 7 below, **the new emerging fintech sector is at risk of following the same trend as the ICT and financial sectors.**

An industry that intends to serve women but has no women in its leadership, technical positions or venture capital investor positions will miss complementary perspectives and will likely invest in the development of services that will not meet the diverse needs of women and girls.

The wide variety of barriers faced by women with regards to the digitalization of finance may hinder its potential contribution to the SDGs and create new risks to widen the gender divide.

FIGURE 7
UK Fintech Census 2017 by EY



Source: EY et al. 2017.

PART 2: HOW TO MITIGATE THE MAJOR RISKS ASSOCIATED WITH DIGITAL FINANCE FROM A GENDER PERSPECTIVE?

Innovation can be a force for good but also produces dramatic changes. Women and men face different vulnerabilities, risks and impacts based on their gender, with women being disproportionately represented among the poorest and most vulnerable populations. The world needs to harness the power of technology and digital finance to introduce significant, positive change and not create new risks to widen the gender divide and expand existing barriers.

The digitalization of finance needs to support social progress and develop solutions to challenging and often systemic social, economic and environmental issues that are preventing progress towards gender equality. **Promoting a gender-responsive approach to digital finance will help acknowledge gender differential vulnerabilities to digitalization and identify adequate risk mitigation actions.** It will also help bridge the current gender gap and give women and girls equal rights and opportunities to be the innovators and influencers that will shape digital finance services and policies that will impact their lives and those in their communities.

1. Preventing a wider gender, economic and geographical divide

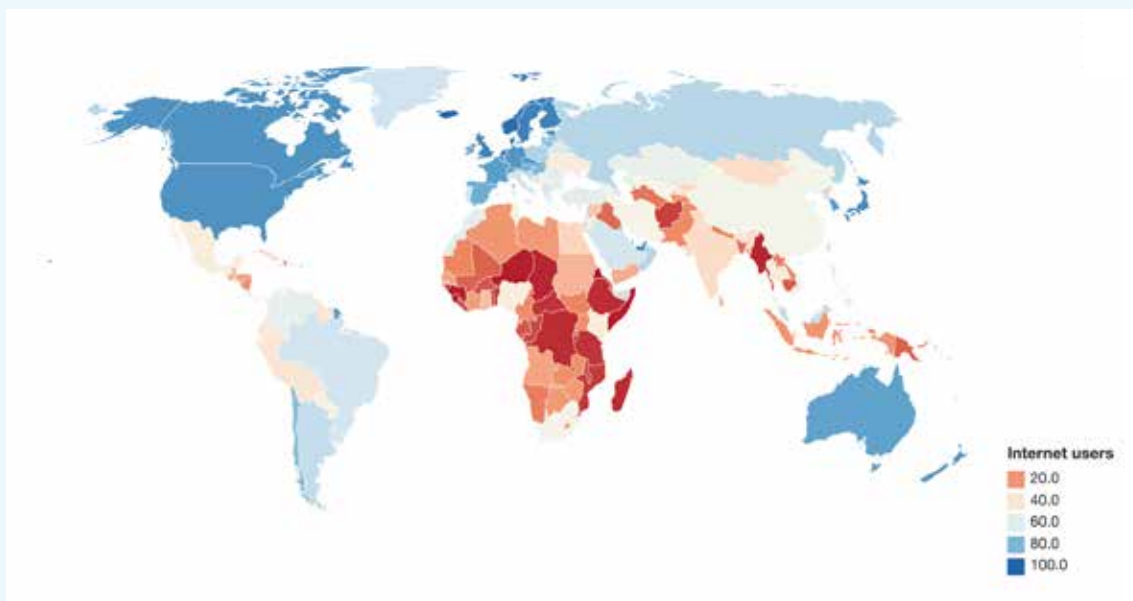
The digitalization of finance is being rolled out while women are already struggling with a deficit in all areas which prevent them from keeping up with the progress made by men who had earlier and easier access to finance and technology. Since 2006,

the economic gender gap has reduced by only 2.5 per cent and it is estimated that it will take roughly 202 years to close.⁴¹ Without urgent action, there is a real risk that the current barriers to digital inclusion will be layered on top of existing obstacles to financial inclusion and disproportionately impact women trying to access and use digital financial services.

The most critical risks at the global level are of progress on gender equality slowing down and the current gender divide widening in most countries around the world. The adoption of a gender-differentiated approach to increase women's digital financial inclusion will not only help reach unserved and underserved women, it will also promote more inclusive and equitable growth and local development. This approach will help the digital finance sector to further explore how the way people access and benefit from their services leads to different power relations, vulnerabilities and capacities and how women's participation in the digitalization of finance intersects with other inequalities.⁴²

FIGURE 8

Countries with the worst Internet access



Source: Created with Datawrapper.

Another important risk is that countries are unable to seize the new opportunities offered by the digitalization of finance in comparison with others. The ICT development index show that there is a strong association between economic and ICT development, with least developed countries at a particular disadvantage. Of the 10 least-connected countries in the world, 9 are in Africa.

Countries that will be able to adopt regulatory frameworks that support the development of mobile money markets and mitigate risks for their population will be in a unique position to accelerate progress. As of 2017, fewer than 6 per cent of Nigerians had a mobile money account, compared with 73 per cent of Kenyans. The regulatory framework in Nigeria limits competition in the provision of digital financial services; mobile network operators are not permitted to provide mobile money services either directly (as in Kenya) or through subsidiaries (as in Côte d'Ivoire, Ghana, Tanzania and many other countries); and issues around fair access to the Unstructured Supplementary Service Data (USSD) channel also remain unresolved.⁴³

Women living in these countries are the most at risk of being left behind and disconnected from the new digital financial services currently being developed in more favourable locations. This would be a major lost opportunity as low infrastructure countries could greatly benefit from digital financial services that would cut out the intermediary customer-facing businesses and instead provide users and consumers with direct access to products and services that would otherwise require a mediator.

2. Fixing gender bias and discrimination in service provision

The use of artificial intelligence (AI) and Big Data is pervasive in the development and delivery of digital financial services. According to the International Data Corporation, financial services firms are helping lead the way in adopting artificial intelligence, with banks expected to spend US\$5.6 billion on AI solutions in 2019.⁴⁴ AI is used in many different ways, from developing transactional bots (web robots) that act as digital finance advisors to assessing credit scoring

and client risk profiling, and from predictions to offering clients new services and improved offerings.

BOX 4

Artificial intelligence has a problem with gender and racial bias

We often assume machines are neutral, but they aren't. A study done on AI systems sold by tech giants like IBM, Microsoft and Amazon showed that given the task of guessing the gender of a face, all companies performed substantially better on male faces than female faces. The companies had error rates of no more than 1 per cent for lighter-skinned men. For darker-skinned women, the errors soared to 35 per cent.

Another famous example is the Amazon AI recruiting tool, developed to review job applicants' résumés with the aim of mechanizing the search for top talent. Amazon realized its new system was not rating candidates for technical posts in a gender-neutral way because the models were trained to vet applicants by observing patterns in résumés submitted to the company over a 10-year period (most came from men, a reflection of male dominance across the tech industry). In effect, Amazon's system taught itself that male candidates were preferable.

Source: Jeffrey Dastin. 2018. Joy Buolamwini. 2019.

AI and machine learning are nothing like learning in the human sense: they are based on algorithms that can learn from data without relying on rules-based programming.⁴⁵ However, **the design of AI systems involves human input at various stages, which, if left unchecked, can open the door to bias and unintended discrimination towards women.**

- **Gender bias can first be found in the definition of the “solution” to be identified through machine learning or deep learning techniques.** If an AI system aims to identify a customer's

creditworthiness for example, the translation of this concept into something that can be computed has to be done by humans.⁴⁶ If the company's past parameters to define creditworthiness were not fair and transparent, the model will incorporate these criteria. Bias in model definition can also be unintended, for example in the case of models programmed to maximize profits, which could then engage in predatory behaviour with the most financially vulnerable populations, even if it was not the company's intention.⁴⁷

- **Gender bias can also be found in the data, especially when relying on data sets that reflect existing prejudices.** As women have been under-represented in many walks of life, there is less data available for them, and what data exist are often of lower quality. As a result, machine learning models incorporate the biases in the training data. This is an important issue for deep learning systems applying pattern recognition, which are not able to intuit how to solve certain problems or explain how they reached a conclusion. If the data used are flawed by systematic historical biases, those biases will be replicated at scale and hard to eliminate.
- **Finally, gender bias can also be found in preparing the data,** which involves selecting which attributes you want the algorithm to consider.⁴⁸ These are decisions that are again made by humans, and who chooses which attributes to consider or ignore can significantly influence a model's predictive accuracy.

Ensuring that societal values are reflected in algorithms and AI technologies will require no less creativity, hard work and innovation than developing the AI technologies themselves.⁴⁹ The introduction of bias is rarely obvious during an AI model's construction and the negative impact of the data and choices made is often only seen until much later. Once they appear, it is hard to retroactively identify where bias came from and then figure out how to get rid of it. Experience has shown that AI models that penalized women could not be fixed by simply programming the system to ignore explicitly gendered words, as revised systems were also able to pick up on implicitly gendered words and use them to make decisions.⁵⁰

BOX 5

Leveraging blockchain technology in humanitarian settings — opportunities and risks for women and girls

Ensuring meaningful engagement with affected communities is required to challenge the trend of top-down blockchain-based solutions to humanitarian problems. This is not only a matter of justice and equality but is fundamental to ensure that this technology is able to deliver on its promises for all and not further enhance discrimination. **Currently, local authorities, communities and affected individuals are largely excluded from the initial phases of blockchain testing and/or pilots, often under the pretext that they do not need to be engaged or would not understand the technology.**

Blockchain is a list of records, for example of financial transactions, that is designed to not be modified. It is important to digital finance in that it allows us to safely own digital assets and goods.

Although challenging, especially considering the complexity of the technology and the fact that its application is usually located in back-end solutions, humanitarian actors seeking to explore blockchain technology in humanitarian settings must strive to ensure participatory approaches are in place to meaningfully engage the affected women and girls themselves from the start, and throughout all the existing phases of the project.

Under current innovation practices, it is extremely valid to ask whether the ‘user’ is really afforded a decision-making role in services. **Women’s and girls’ diverse views, needs, aspirations and concerns need to be listened to and acted upon to ensure that they not only are able to access and benefit from the technology but also are able to exert agency and use blockchain technology in ways that they find empowering.**

Source: UN Women. 2019.

This raises many legal and ethical issues for policy-makers, to make sure that companies and people using algorithms can be held accountable and that their decisions are transparent. Some forward-thinking regulators are beginning to explore options: for example, the EU’s General Data Protection Regulation (GDPR) requires organizations be able to explain their algorithmic decisions. The city of New York recently assembled a task force to study possible biases in algorithmic decision systems.⁵¹ The recent Report of the UN Secretary-General’s High-level Panel on Digital Cooperation also stated that autonomous intelligent systems should be designed so that their decisions can be explained, and humans remain accountable.⁵²

In order to mitigate the risks of using digital finance services based on AI models, companies should audit their algorithms. This would prevent the development of biased services based on data sets where a group of individuals appears more frequently or using biased criteria for selecting attributes. These audits would identify programmes that have trained themselves to optimize the services for a specific group only, due to biased data sets. Without these audits, new services and products could not only be failing women, they would be failing to capture the complexity of gender and to offer fair services to other underserved populations.

3. Addressing the technology knowledge gap

Whether we are looking at the 50 per cent of the world population connected to the Internet or the 50 per cent without access, in most cases we can see that very few people understand the risks associated with new technologies and data transfer, privacy, AI and digital identities. Women who lack digital skills have low user literacy and are particularly at risk of not understanding key concepts. For example, one important principle is informed consent, which is the ethical (and in some cases, legal) mechanism ensuring that individuals voluntarily provide information with full knowledge of relevant risks.⁵³ In the case of digital identities, this means the individual is aware of the use of her digital identity and its associated data trails, informed, and able to understand the decisions made through the use of her data.⁵⁴ These are complex issues that experts are still debating in terms of risks and benefits, at a time when many countries are launching massive digital identity programmes.

BOX 6

The M-Shwari microcredit product depends on points earned through the usage of an M-Shwari Deposit Account, M-Pesa and other Safaricom services. In most cases, the digital data used to calculate the amount of credit that can be accessed come from the number of phone calls, M-Pesa/M-Shwari balances or wallet spend ins and outs. **Focus group discussions with women microentrepreneurs in Kenya showed that many participants expressed a desire to understand how Safaricom calculates the points that determine the amount of credit they can access.** Much of the time, they indicated that the amount of credit they can access through this service is too little for their business needs. Women reported only using digital credit for personal reasons but turned to their informal savings groups for their bigger financing needs.

Source: Michael Kimani. 2017.

Without a clear understanding of key concepts, women are not empowered to hold companies and governments accountable for fairer outcomes. If the majority of a population is confused about what technology can and cannot do and how it operates, it is very hard for a society to decide what products and services are socially acceptable, suitably transparent and free of undesirable effects. Lack of understanding often leads to lack of trust and all around the world, we see people that are both increasingly dependent on, and distrustful of, digital technology. People have limited opportunity to opt out of non-consensual data collection or push-marketing. Although not all risks translate into actual harms such as digital identity theft, inadequate data protection practices or rules can result in women in both emerging and developed markets experiencing financial harm, loss of privacy, and/or reduced trust.⁵⁵ For the digitalization of finance to have a positive impact, there is a need for a long-term view of trust, safety and confidence in the services offered.

The digitalization of finance and its heavy reliance on data raises many ethical questions on the transparency of data collection and usage. It is not always clear what informed consent means in the context of digital services. Are we giving informed consent when we are agreeing to dozens of pages of terms and conditions to access a service or an update? Do service providers have an obligation to make sure information is understood, not just provided, especially for the most vulnerable populations?⁵⁶ These questions are particularly relevant in low- and middle-income countries, where many new services are being rolled out and tested by the private sector but also by development partners who are trying to provide more efficient service delivery in humanitarian contexts. In some locations, it is not always evident if customers or beneficiaries of social services who are accepting the use of digital financial products feel they have a choice or if they feel that not doing so would take away a resource that is valuable to them.

Women are also particularly at risk of not understanding how new technology can shape their lives and their daily financial decisions and transactions. In

Ghana, MNO Tigo found that women usually require 5 to 10 interactions before they feel confident enough to use its mobile money service and initiate transactions, whereas men require just 3 to 5.⁵⁷ With the development of agricultural technology (AgriTech) and digital services to farmers, we see new challenges emerging for women. In many countries, women farmers sometimes feel they do not have the freedom to choose which seeds or which fertilizer to purchase because of distribution or supply chain systems put in place by agribusinesses. These farmers can now access various digital trading platforms offering a variety of new digital financial services, but have very limited knowledge with which to make informed choices of the best options for their businesses. In addition, these new digital services are often linked to buyers or private sector companies, which put farmers at risk of losing their data and transaction history if they stop using the service or try to transfer to another platform. The chair of Sierra Leone's open data council emphasized the importance of empowering people to have control over any data they may generate, as it is an important step in providing education on data, as well as enabling people to determine their future.⁵⁸

Therefore, the use of digital financial services can create new risks for women to be treated unfairly, more legal uncertainty and new legal barriers for women's economic participation. In the case of AI, the lack of transparency on how data are used and collected or the lack of explainability of how an algorithm operates can lead to opaque decisions on issues of critical importance in the lives of women. The use of AI to decide whether or not a woman can have access to credit, insurance or any other financial service will make it harder for women to understand whether they have been discriminated against or unfairly barred from accessing opportunities. It will cause new legal problems for consumers which will be increasingly difficult to address and require new financial and consumer protection regulations. A study by the World Justice project shows that 53 per cent of women report experiencing a legal problem within the last two years but very few take some form of action of a legal nature. Consumer and housing issues were among the most common problems women experienced. However, only 13 per

cent turned to an authority or third party to help resolve the problem.⁵⁹ Regulating algorithms is often seen as a "black box problem" (we can see the black box but don't know what is inside it and how it works). However, without proper regulations, it will become increasingly difficult to demonstrate how an algorithm complies with equality legislation, to determine who is responsible in case of discriminatory decisions, or to decide the level of fines that would be enough of a deterrent to engage stakeholders to develop strong accountability systems.

4. Redirecting investment towards gender-responsive solutions

The digitalization of finance must address the systematic way that women and girls are undervalued. It should also lead to the development of services that help women exercise their economic power.⁶⁰ None of the SDGs will be achieved if this critical risk is not addressed. Digital bank accounts can provide new opportunities for women to access new markets or welfare or safety net payments provided by governments. They can prevent household money to be solely controlled by men and improve families' livelihoods. When a mother has control over her family's money, her children are 20 per cent more likely to survive.⁶¹ An increase to a woman's income of US\$10 achieves the same improvements in children's nutrition and health as an increase to a man's income of US\$110.⁶²

By 2028, women will control close to 75 per cent of discretionary spending in the world.⁶³ **Yet, the gender imbalance in the digital, financial and emerging fintech sectors prevent them from taking an active role in creating and sharing their vision for new digital financial services.** Women and men have different expectations, needs and constraints for using digital services, which can only be properly addressed by adopting a gender-responsive approach to digital finance innovation. Service providers need to include women in innovation design thinking, use tools to measure the effect their innovative services have on women and girls and empower women in their teams to lead innovation processes.

BOX 7

Gender-responsive innovation

A gender-responsive approach means going beyond acknowledging and raising awareness of gender gaps, to make sure women's and men's concerns and experiences are equally integrated in the design of innovative products or services and that due consideration is given to gender norms, roles and relations.

UN Women **Gender Innovation Principles** recommend to:

1. **Make a high-level corporate commitment** to adopt a gender-responsive approach to innovation
2. **Design** innovations that include women as end users
3. **Adapt implementation approaches** to ensure innovations meet the needs of women
4. **Evaluate** gender-responsive impacts by using a data-driven approach
5. **Scale innovations that provide sustainable solutions** to meet the needs of women and girls

Source: UN Women.

Financial institutions and capital markets also need to support women entrepreneurs and companies that focus on developing gender-responsive services. **In the current financial system, financial institutions and services that inadequately cater for the credit needs of entrepreneurs — both women and men — are a major constraint to the development of the sector.** In a study conducted by World Women Banking, focusing on providing credit access to poor women, it was established that fewer than 2 per cent of low-income entrepreneurs worldwide have access to credit facilities.⁶⁴ The IFC estimated the credit gap for women-owned small and medium-sized formal enterprises across all regions to be roughly US\$287 billion, which is 30 per cent of the total credit gap for SMEs.⁶⁵ There is a clear shortage of supply of financial services compared to the demand, which could be partly covered by fintech or non-bank financial service providers. However, it will require that digital finance sectors develop services that address the most significant barriers faced by women, and come up with innovative solutions such as the use of alternative data

to assess risk, the replacement of standard collateral requirements with modern collateral requirements such as moveable assets to address the lack of formal identification by innovative digital identification (including biometric capabilities) and to address the lack of credit history through the use of data from utilities and trade creditors.⁶⁶

In a context where environmental, social and governance (ESG) factors are gaining momentum in influencing investment decisions, there is also an urgent need to identify and create financial products that would help provide better financing options for women entrepreneurs and for companies supporting gender equality both through their policies and their activities. If no particular effort is made in the coming years to address the gender gap in the capital market, there is the risk of missing critical investment opportunities that could be directed at companies providing specific services for women. Similar concerns can be seen in the venture capital world, where just 2.2 per cent of all venture capital

in the United States goes to companies founded solely by women. Companies with all-male founders receive funding after their first round close to 35 per cent of the time, while the number is less than 2 per cent for companies with female founders.⁶⁷ Without targeted investments, the innovative digital financial products and services that will be developed

in the coming years will not address the specific demands of women, particularly in priority areas such as insurance products, pension schemes, leasing arrangements, agricultural finance, low-value equity investments, crowdfunding, international remittances, government-to-person (G2P) payment options and conditional cash transfers.⁶⁸

BOX 8

MetLife has been developing and testing Vitana, an automated insurance solution using blockchain technology to offer pregnant women financial protection in case of gestational diabetes — a condition affecting up to one in five expectant mothers in Singapore.

Vitana securely connects to customers' electronic medical records via their mobile device to issue a policy within minutes. If the customer's doctor records a positive diagnosis in her medical records, Vitana will trigger an automatic payout, without the customer needing to make a claim.

It aims to offer customers simpler and cheaper products covering new risks while ensuring data privacy and achieving operational efficiency by testing the feasibility of applying smart contracts to automate underwriting and Distributed Ledger Technology (DLT) to automate payouts.

Source: Business Wire. 2019.

PART 3: WHAT ARE THE PATHWAYS TO UNLOCK THE BENEFITS OF DIGITAL FINANCE FOR WOMEN?

It has been two decades after the first patent for mobile payment systems was filed and more than a decade after the launch of popular services like M-Pesa. However, there is little evidence and a lack of assessment and evaluation to show that the spread of mobile money accounts and the development of innovative digital financial services has affected poverty and gender inequality. One challenge experienced across regions and sectors is the lack of sex-disaggregated data or information on the disaggregated impact on excluded groups. Without further investment in this area, we lack access to sources of information that can be used to showcase how different populations can experience different outcomes and challenge assumptions that a given product will have the same effects on women and men.⁶⁹

In Part 3 of this working paper, we will review evidence from the latest studies on the positive impact that digital financial services and gender-lens investing have had on gender inequality. We will also highlight key actions required from governments, service providers, civil society and development partners to further unlock opportunities and fully leverage the potential of the digitalization of finance.

1. Evidence showing the positive impact of the digitalization of finance for women

a. Expanding access to mobile money accounts

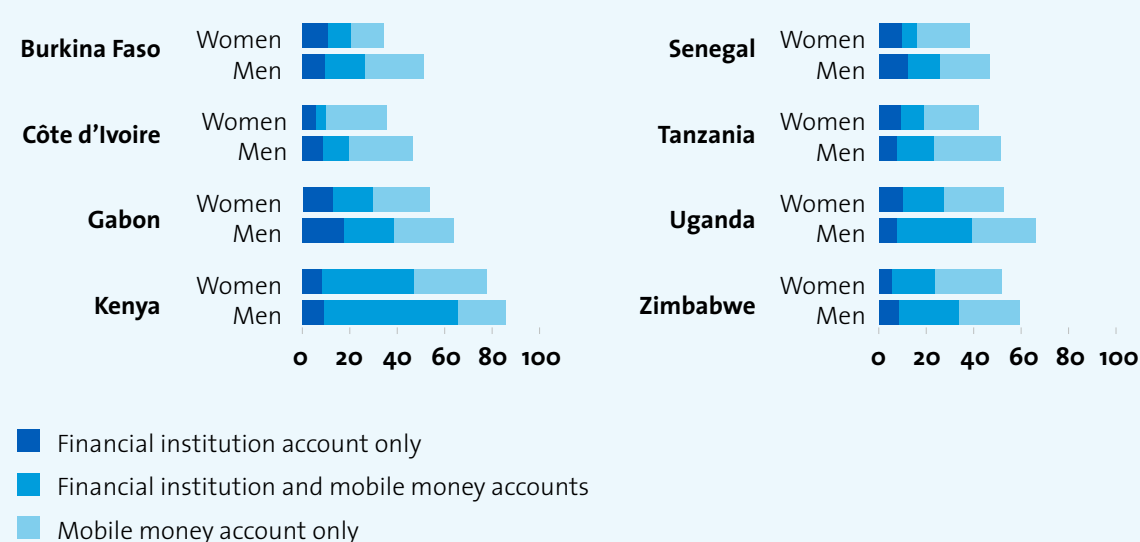
In sub-Saharan Africa, 21 per cent of adults now have a mobile money account — nearly twice the share in 2014 and easily the highest of any region in the world. While mobile money has been centred in East Africa, it is now spreading to West Africa and

beyond.⁷⁰ Very few studies are available globally to evaluate if the spread of mobile money accounts has created new opportunities to better serve women and other groups traditionally excluded from the formal financial system. **However, some early positive signs can be found in a few countries showing that mobile money accounts might be helping to close the gender gap.**

The Global Findex Data reviewed eight countries where 20 per cent or more of adults have a mobile money account only: Burkina Faso, Côte d'Ivoire, Gabon, Kenya, Senegal, Tanzania, Uganda and Zimbabwe. The report shows that all these countries have a statistically significant gap between women and men in the overall share with a traditional account as well as in the share with both a financial institution account and a mobile money account.⁷¹ **However, just two of them — Burkina Faso and Tanzania — have a gender gap in the share owning a mobile money account only, while the other six have no such gender gap.**

FIGURE 9

In some economies, mobile money accounts might be helping narrow the gender gap in financial inclusion (adults with an account (%), 2017)



Note: The figure shows only the economies where 20 percent or more of adults have a mobile money account only.

Source: The World Bank. 2017.

An intersectional analysis of the digitization of finance in these countries shows that mobile money accounts can also deliver positive results for specific underserved groups. The report shows that **there are hints that mobile money accounts may be helping to reduce the gaps between the richer and poorer in account ownership.** While all these countries have a statistically significant gap between richer and poorer adults in the share owning both a financial institution account and a mobile money account, only half of them — Burkina Faso, Côte d'Ivoire, Senegal and Uganda — have such a gap in the share owning a mobile money account only. In the case of Kenya and Zimbabwe, the results show that poorer adults are more likely than wealthier ones to have a mobile money account only.⁷² The other parameter reviewed by the report was age, but in this category, the results were too different to identify specific trends. Some countries had no major difference in mobile money account ownership between age groups, some had more young adults using mobile money accounts, while others had more older adults.⁷³

A specific study carried out in Kenya showed that in late 2013, men were about twice as likely as women to be using mobile banking. However, in late 2017, with 33 per cent of men and 27 per cent of women using mobile banking, men were only 25 per cent more likely to be using mobile banking.⁷⁴ **This is a positive indication that even though women face more barriers to equal men as early adopters, they have the opportunity to catch up once the services are more widely used and accessible.**

While these results are encouraging, it is still too early to say whether and how mobile money accounts can close the gender gap in financial inclusion. The financial digital services available and regulatory environments still vary greatly from one country to another and more sex-disaggregated data collection and research are needed to truly understand any connections between mobile money accounts ownership and gender inequality.

b. Expanding use of mobile money account for payments, loans and savings

One of the key areas to investigate to better understand the potential of the digitalization of finance is the use of accounts and whether the use of mobile money accounts varies by gender. Global Findex data show that among account owners in high-income economies, the use of digital payments is nearly universal for both men and women. However, in developing economies, men are on average five percentage points more likely than women to make or receive digital payments. This gender gap of five percentage points has remained unchanged since 2014 despite an overall increase in the use of digital payments.⁷⁵ It is important to note that **the gender gap in the use of digital payments varies substantially among developing economies, which makes it hard to identify any specific trends.** Many countries, such as Bangladesh, Egypt, Morocco and Pakistan, that have a double-digit gender gap in account ownership also have a large gap in the use of digital payments, while other countries like Turkey manage to reach universal use.⁷⁶

The adoption of digital credit is another area where it is useful to look at the intersection of gender with other parameters such as location and age to have a clearer picture of user trends. In a recent study in Kenya (Figure 10 below), men were found to be more likely to take out mobile loans than women. This is especially the case in rural areas where men are about 25 per cent more likely to have taken out a digital loan than women, while in Nairobi and other urban areas, men are 7 and 11 per cent more likely, respectively.⁷⁷ Among digital borrowers, men are much more likely to juggle more than one loan at a time: on average about one in three male digital borrowers have more than one outstanding digital loan, compared to about 1 in 7 female digital borrowers.⁷⁸ This gap is smallest among business owners, as about 23 per cent of female business owners who borrow digitally have concurrent loans compared to 29 per cent of male business owners.⁷⁹ Finally, age can be an important criteria for digital borrowing and differences in adoption can be very pronounced among mobile-owning women in rural areas. The study shows that women under the age of 30 are about 50 per cent more likely to have used or be using digital credit compared to women over 30 years of age. Rural women under the age of 30 are more active digital credit users than men of their same age cohort, whereas the opposite is true in urban areas.⁸⁰

Concerning saving behaviours, the evidence gathered by research is mixed. A study in Kenya found that access to mobile money services delivered big benefits, especially for women. It enabled women-headed households to increase their savings by more than a fifth; allowed 185,000 women to leave farming and develop business or retail activities; and helped reduce extreme poverty among women-headed households by 22 per cent.⁸¹ However, **many studies show that the best results can be found when the use of digital saving services is accompanied with specific training.** The World Bank implemented a project in Indonesia and Tanzania to promote the expansion of mobile savings accounts among women microentrepreneurs. In both countries, they provided financial literacy training with a focus on mobile savings to enhance the impact of the project. In Indonesia, the project led women to save more overall, including through the nascent use of mobile accounts, and report greater decision-making power within the household. However, while increased household welfare was observed, no discernible effects on business outcomes could be seen. In Tanzania, the project led to substantially higher mobile savings, new businesses and products, more capital investment and labour effort, and better business practices. However, the increased business investments were not accompanied by greater profitability.⁸²

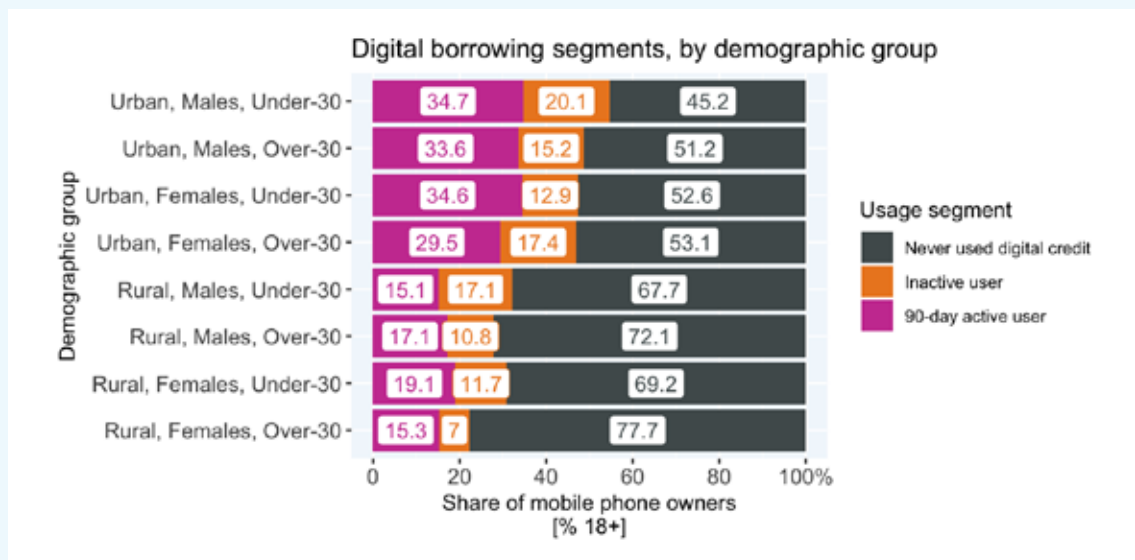
BOX 9

The Technoserve Women in Business programme trialed two interventions in Tanzania: female microentrepreneurs were trained on how to use the M-Pawa service (a mobile savings and loan product), with one group receiving weekly reminders on their savings goals and another one that included a business skills training. The first group saved three times more than women in the control group while the second group saved almost five times more. The intervention increased the probability of receiving a loan by 14 per cent. The second group also expanded their business and generated small increases in their monthly profits. However, the intervention did not have an impact on business survival.

Source: Niamh Barry. 2018.

FIGURE 10

Share of mobile phone-owning digital borrowers for segments of the population defined by location, gender and age in Kenya



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

c. Expanding use of mobile money accounts for government payments and remittances

Governments make several types of payments to people — paying wages to public sector employees, distributing public sector pensions, and providing government transfers to those needing social benefits.⁸³ **Digitizing payments from government to people has already had an effect in increasing account ownership.** Global Findex data show that about 140 million account owners opened their first account to receive government transfers — including 80 million women as well as nearly 75 million adults in the poorest 40 per cent of households.⁸⁴ The report indicates that women and poorer adults may benefit disproportionately when governments digitize transfer payments, highlighting the importance of gender-responsive policy design and implementation to prevent adverse effects of digital transfers. Among women with an account in Brazil, about 10 per cent got their first account to receive

government transfers. In Argentina, nearly a quarter of account owners in the poorest 40 per cent of households opened their first account for the same reason — and in Thailand 17 per cent did so.⁸⁵

A report from the Bill & Melinda Gates Foundation highlights how access to accounts by women may be driven by the digitization of G2P payments but not translate into full financial inclusion.⁸⁶ Many women are not using the accounts beyond cashing out, therefore not fully realizing the benefits of the programme or taking full advantage of them by accessing new digital financial services.⁸⁷ However, **global evidence suggests that digital transfers of social protection payments can provide women with independent access to predictable income streams, and the arrival of a digital payment can give female recipients greater control over how the money will be used.**⁸⁸ In India, depositing G2P transfer payments into women’s own accounts (instead of defaulting to the heads of household, their husbands) led to 90 per cent account ownership, compared to 43 per cent for those who did not receive payments into their own accounts.⁸⁹

BOX 10

Studies show that access to social safety net programmes like India's massive rural workfare program, MGNREGA, may increase a woman's economic independence — but not if her husband receives her wages.

In many emerging markets, women are the primary recipients of a growing volume of conditional cash transfers and other forms of government-to-person (G2P) transfers. However, **many large-scale financial inclusion and development programmes aiming to serve women, such as G2P programmes, have yet to fully explore how such payments might link women to formal financial services, including digital mechanisms.**

Among adults in developing economies who received government transfers digitally, 36 per cent opened their first account specifically for that purpose. Countries like Brazil, Mexico, Mongolia, Iran and South Africa are moving routine cash transactions into digital accounts and boosting rates of female account ownership significantly and rapidly. A recent study by the Bill & Melinda Gates Foundation concluded that women recipients of G2P cash transfers need to build skills and a knowledge base in order to become active participants in digital financial services and informed financial decision-making. They need support in overcoming the challenges of knowledge gaps, misinformation, digital illiteracy and scams that hinder the active and informed use of digital financial services.

Source: GSMA. 2013. and Harvard.

Remittances are another area where digitalization could be a high-volume driver for women's financial inclusion. Remittance-linked digital financial products can serve as an entryway for the use of a broader range of financial services — savings, credit, insurance and payments. There is a variety of situations where women can be the primary recipient of remittances: in countries like Nepal for example, women are often left in charge of the household when men migrate abroad seeking work opportunities. In the Mekong region, a UNCDF study showed that 60 per cent of the total recipients are women, and that most of them, 75 per cent, live in rural areas, are middle-aged, married and receive remittances frequently from their children. However, this study showed that a majority are still receiving remittances through informal channels and that while customers showed interest in digital remittance products, most of them cashed out their remittances to cover daily household consumption,

diminishing the potential to mobilize formal financial products.

d. Increasing interest in gender-lens investing

There has been growing evidence that gender-lens investing and gender equity is good for investment, businesses and society.⁹⁰ Research indicates that companies with more women in senior management have higher returns on capital, lower volatility, greater client focus, increased innovation and greater long-term orientation.⁹¹ This helps demonstrate that gender equity in financial decisions is not only a moral obligation, but is also a critical business consideration that companies and investors should not ignore.⁹² **Gender-lens investment is not only good for business, it is also good for social returns:** studies show that US\$5 to 7 trillion of investment capital will be required to address critical challenges outlined in the SDGs.

BOX 11

Gender-lens investing — Definition

Gender-lens investing is defined by the Global Impact Investing Network (GIIN) as “investment strategies applied to an allocation or to the entirety of an investment portfolio, which seek to examine gender dynamics to better inform investment decisions and/or intentionally and measurably address gender disparities.”

This broad definition covers many goals, which makes it complex to identify a measurement framework for analysing gender outcomes.

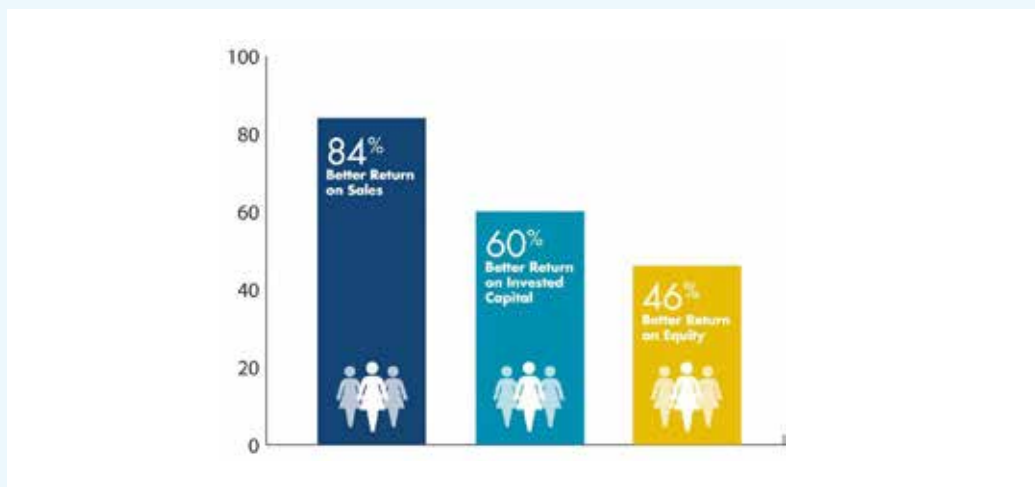
Wharton’s Project Sage 2.0 gave funds six options for how they defined gender-lens investing, and asked them to select all that apply. Approximately 50 per cent of funds included all five of the following classifications in their definition (14 per cent also selected “other”):

- Advancing women in finance: more women fund managers, on investment committees, etc.
- Advancing women in corporate/enterprise leadership: C-suite positions, boards, etc.
- Advancing products and services that improve the lives of women.
- Advancing companies that treat female employees well.
- Advancing companies that improve the lives of women in their ecosystem (supply chain members, etc.)

Source: University of Pennsylvania. 2019.

FIGURE 11

Corporate performance and women’s representation on boards, 2004–2008



Source: The Bottom Line: Corporate Performance and Women’s Representation on Board’s 2004-2008, 2011, Catalyst

Gender-lens investing is a trend that has been growing continuously these past years. The Wharton Social Impact initiative has done a landscape analysis of structured private equity, venture capital and private debt vehicles with a gender lens, and identified 87 funds deploying capital with a gender lens in 2018, compared to 58 in 2017.⁹³ This growth has been generated by an increased demand from the investor community, who are seeing the rise of women as consumers but are also sharpening their understanding of how capital can be part of the overall solution to address gender inequality.⁹⁴ In 2018, Veris Wealth Partners reported that assets under management in specified gender-lens strategies in the public markets climbed to US\$2.4 billion from US\$100 million in just four years.⁹⁵ Over the past three years, approximately US\$1 billion has been invested in women’s health technology, and ‘femtech’ is estimated to grow into a US\$50 billion industry by 2025.⁹⁶ **However, compared to other, more mainstream approaches, such as climate finance, gender still only occupies a niche: US\$187 billion was invested into climate bonds in 2017 while only \$1.3 billion was invested in gender bonds.**⁹⁷

During Women’s World Banking’s “Making Finance Work for Women” summit in November 2018, discussions highlighted that **the time is right for gender-lens investing but a few barriers are still limiting its potential impact: the need for more demand, data and clarity on business cases, and a misconception of what gender-lens investing is.**⁹⁸ Calvert Impact Capital, a non-profit investment firm that works with investors to move capital into communities worldwide, tried to address the gap in data and the lack of understanding of their investors by conducting a quantitative analysis of their portfolio through a gender lens. The results showed the positive relationship between gender diversity and financial performance in their portfolio, looking at return on sales, assets and equity.⁹⁹ These data helped make gender-lens investing more compelling to investors, so that they do not perceive a gender lens as optional but as an essential part of strategy and operations.¹⁰⁰

The digitalization of finance brings the opportunity to access more sex-disaggregated data and build a compelling business case for gender-lens investing. More inclusive and digitized financial services have the potential to increase the uptake of mobile accounts by women, especially in developing countries, thus generating more data and providing beneficial economic empowerment effects. However, these limited examples also show that without relaxing complementary demand-side constraints that women might face, access to mobile money accounts in itself is no “silver bullet” for unlocking the full potential of the digitalization of finance for women.¹⁰¹

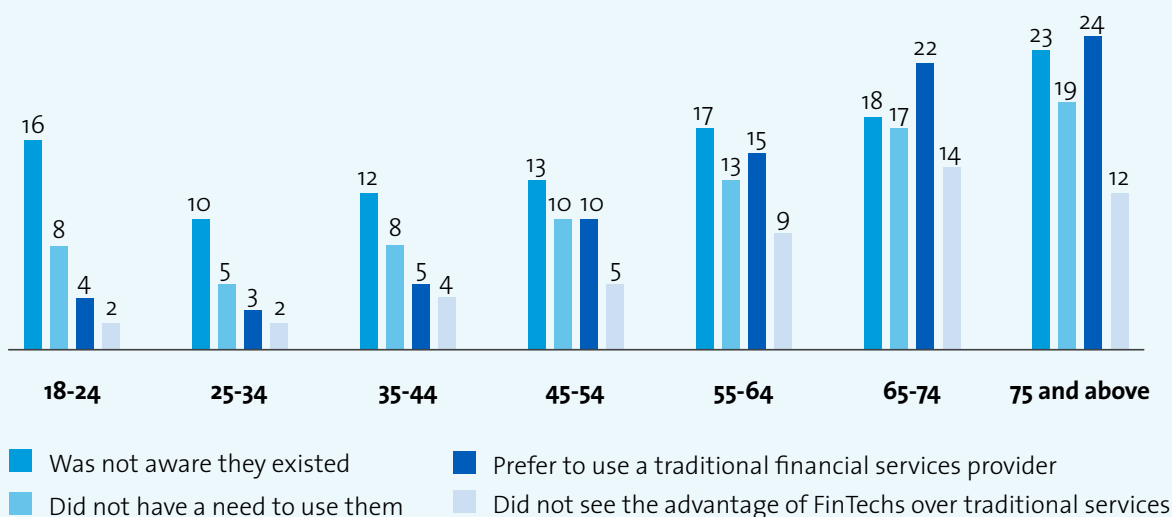
2. Interventions that can create and boost demand for digital finance services

a. Improving awareness and understanding

One of the most common reasons for women not using digital finance services is the lack of knowledge and understanding of how these services function and the benefits they could get from using them. A study in Kenya on digital loans showed that women were about 35 per cent more likely than men to cite fear as a reason for not borrowing. In addition, lack of awareness was one of the three main reasons for avoiding digital loans, especially for women living in rural areas.¹⁰² The UNCDF study on remittances in the Mekong region also mentions a lack of senders’ awareness of the products available as an important barrier to digital and formal remittance markets.¹⁰³ In a global survey done by EY, lack of awareness also comes up as one of the main barrier to fintech usage (Figure 12). The study demonstrates a relationship between fintech adoption and awareness of fintech with, for example, Hong Kong showing the highest adoption rate and lowest lack of awareness in 2015.¹⁰⁴

FIGURE 12

Analysis of selected barriers to fintech usage, by age group



Notes: The figures show the percentage of all respondents who cited four barriers to using FinTech, by age group. Survey respondents were allowed to choose multiple reasons for not using FinTech. The question was asked only to respondents who had used no FinTech services in the last six months, however, the analysis is re-indexed to show as a percentage of all survey respondents.

Source: EY, 2017.

What are the main entry points to reduce barriers to awareness and increase understanding? We need to develop capacity-building initiatives and financial education programmes focusing on behavioural outcomes, so that we not only support women to be aware that diverse digital financial services exists, but we also help them understand how to access these services, gain confidence in using them and be able to make informed financial decisions.¹⁰⁵

Understand the issue:

- **Civil society organizations (CSOs)** have a key role to play in gathering information on mobile money practices and barriers faced by women, in stimulating conversations on digital financial services and collecting data on sensitive topics.¹⁰⁶
- **Development partners and governments** need to do further research on the literacy, numeracy, and cognitive barriers faced by women to channel strategic investments in initiatives building those skills.
- **Service providers** need to use sex-disaggregated data to better understand how their services are

used, what are the market bottlenecks and what are the groups that are not accessing or using their products.¹⁰⁷

Design solutions:

- **Development partners and CSOs** need to develop capacity-building programmes focusing on women recipients to address knowledge and skills gaps but also the need for attitude and behaviour change.¹⁰⁸ This should include transforming saving groups to help members switch to digital savings¹⁰⁹ and developing networks of female digital finance agents.¹¹⁰
- **Service providers** should improve their marketing strategies and recruit well-trained mobile money agents to help female customers better understand the advantages of digital financial services and also show them how to use the platforms. This was the case with M-PESA and it greatly facilitated its adoption.¹¹¹
- **Governments** need to invest in education, social marketing and awareness-raising programmes

and leverage existing community structures to help their digital development policies achieve scale. They also need to include businesses in the development process of national financial inclusion strategies, to engage them in taking an active role in improving financial inclusion, supporting awareness campaigns and increasing the impact of advocacy.¹¹²

BOX 12

The Girl Effect Accelerator

When Zoono was established in 2009, they tried to recruit female high school graduates who had limited opportunities to further their education or find employment. The company organized specific peer learning for their female agents, as fewer women were applying to join their workforce. They provided marketing skills training and invested in campaigns that support female agents. Zoono created jobs for over 5,000 women and uses a reporting tool to track their progress, which shows that women are the strongest performers: 60 per cent of the top performing agents in Malawi are women.

Source: Anna Ferracuti. 2018.

b. Meeting women's unique financial needs

High transaction costs, poor literacy or poor connectivity are often cited as the primary causes for digital financial exclusion. In many countries, poverty and isolation play a persistent role in shaping people's abilities to access and use phones, computers and the Internet. **In countries where those barriers to access have been reduced, continued financial exclusion may highlight situations where digital finance services and products fail to meet the needs of potential clients.**¹¹³

The digitalization of finance is a unique opportunity to successfully improve services for women and provide flexible solutions for their varied financial needs. Digital finance services have to provide women with

opportunities to save and spend, receive wages or social benefits, replace cash-in transactions, pay utilities and make person-to-person transactions.¹¹⁴ These services should be tailored to address the specific social and cultural barriers women could face in trying to access and use these services. Global Findex data indicate that 26 per cent of adults without a financial institution account said they do not have an account because a family member already has one, with women more likely than men to cite this reason.¹¹⁵ Recent studies often refer to the gender differences in trust in institutions and technology but have only recently started to explore what underlies this difference.¹¹⁶ It is critical that digital finance services are not only relevant to a women's life priorities but that they also adequately address her main concerns.

What are the main entry points to better address women's financial needs with digital finance services? We need to better understand how costs and individual preferences can impact women's demand for and use of various digital financial services and what criteria women prioritize when choosing to adopt new services.

Understand the issue:

Each stakeholder needs to have a clear understanding of the barriers faced by women and how it impacts and limits the demand for digital financial services.

- **Civil society organizations** have to document the main issues faced by women who are particularly excluded and what are the services most needed by women in poor and hard-to-reach areas.
- **Service providers** should not treat women as a monolithic customer segment. They need to better research what services would be the most attractive for women but also which features would increase accessibility and usability.¹¹⁷ They should also better research how to make services affordable to access and use by underserved customers.
- **Governments and development partners** need to map out all the elements—financial, technological, geographical, behavioural and cultural—impacting women's demand for digital financial services to inform their policies and programmes.¹¹⁸

BOX 13

Understanding women's needs and aspirations to bridge the digital gender divide in financial inclusion

In 2011, BRAC Bank in Bangladesh launched its mobile money subsidiary bKash. Tens of thousands of agents signed up millions of accounts. By the end of its first year the word 'bKash' had become a verb in the Bengali language, meaning to send money. And yet, microfinance institutions in charge of BRAC's microfinance operations saw no change in overall deposit collection or deposit balances. Women living in poverty who saved weekly or monthly were continuing to save at exactly the same rate as before, whether or not they had access to a mobile phone or a bKash account.

These institutions realized that their assumption — that what clients want most is convenience — was wrong. For women living in poverty across Bangladesh, among the most important considerations in deciding how and where to save is the ability to protect their savings, mainly from male members of their own family (typically husbands, but often brothers, sons or even fathers). Microfinance institutions, which typically make it cumbersome to withdraw deposits, were unwittingly providing a service of tremendous value to their female clients — protecting their savings. The ability and ease of “cashing out” anytime was not what most of these women wanted or valued.

Source: Shameran Abed. 2018.

Design solutions:

- **Service providers** need to be more thoughtful about how to serve more women when developing and piloting new services. This would include working more closely with **civil society organizations** to integrate the needs and aspirations of marginalized women — some evolving and others constant — and provide solutions for them.¹¹⁹
- **Governments** should reform policies which make it harder in law or in practice for women to adopt digital finance services. This includes reforming the discriminatory laws discussed in Part 1, developing better customer protection frameworks, providing equal access to education and economic opportunities and developing stronger laws to curtail online harassment.¹²⁰
- **Development partners and governments** should work with bank and non-bank service providers, including mobile network operators, to support solutions that can reduce transaction costs and improve access to points of services.¹²¹ They should also stimulate investment and provide free Wi-Fi hotspots in public spaces.¹²²

c. Using targeted incentives

Many studies indicate that women are more risk-averse than men, and that gendered differences in risk perceptions and risk aversion can explain some of the differences in demand for financial services.¹²³ However, these statements often perpetuate gender stereotypes about risk aversion and risk tolerance and do not clearly reflect the various parameters influencing women's financial decision-making processes. **Indeed, recent academic research shows that 95 percent of the risk preferences of men and women overlap and are much closer than scholars used to think.**¹²⁴ Too many studies focus on the “average” man or woman, while ignoring variation within each gender such as marital status, age and social background.¹²⁵ In one study, single women showed higher risk preferences in financial investments than single men.¹²⁶

This shows that stimulating demand for digital financial services and identifying effective incentives for women is not an easy task and should rely on research and impact assessment to avoid mechanisms based on stereotypes or misconceptions. If the main issue for women is trust or complexity of utilization, providing monetary incentives will not be enough to be impactful

on take-up and usage. In India, where 310 million additional people entered the formal financial sector in the four years to March 2018, 48 per cent of all bank accounts have never seen a single transaction.¹²⁷ A recent study across South Asia and Africa with 14 digital financial service providers showed that the average proportion of accounts with activity was only about 25 per cent.¹²⁸ It shows that incentives must be carefully designed, so that they not only target increase in access but also increase in utilization of services.

BOX 14

Gender stereotypes and venture capital support decisions

A 2017 study of the venture-capital industry shows how gender stereotypes are socially constructed and activated when assessing entrepreneurs' potential in the financial distribution of venture capital support. As a result, female entrepreneurs risk receiving significantly less venture capital.

In the study, **no statistical difference was shown between male and female entrepreneurs on hard financial risk indicators** such as the use of bank overdraft facilities, risk buffers and collateral, as well as debt-to-equity, mortgage and long-term borrowing ratios.

Source: Michele Wucker. 2018.

What are the main entry points to design effective incentives that will help generate demand for digital financial services? We need to better understand how women customers process information, make choices for preferences and act on their choices to identify behaviourally informed incentives.¹²⁹

Understand the issue:

- **Service providers** need to research what is the impact of the various methods used to attract new female customers, whether it is through marketing campaigns, monetary incentives or non-financial incentives.
- **Governments** need to explore what could be their role to increase demand and whether they need to step in with incentives or other measures to promote adoption in the early stages of market development.¹³⁰ They should use their improved understanding of female consumer demand to better appreciate which market developments need to be encouraged or facilitated through policy and regulatory changes.¹³¹

Design solutions:

- **Service providers** should use behavioural science to find innovative ways to fine-tune their outreach strategy and service offers.¹³² This would help identify the most effective monetary incentives (such as free accounts, airtime offers and lowered fees), behaviourally framed messages (such as using gender-centric SMS) or behaviourally informed nudges (such as badges, loyalty schemes and women's testimonials).¹³³
- **Governments** should go beyond their traditional regulatory responsibilities to facilitate the building of sustainable digital finance services ecosystems. Market forces alone will not always deliver equal accessibility to digital financial services and governments have a role to play in introducing incentives that build consumer demand.¹³⁴ They can also promote the use of digital services by diversifying the possibility to receive social benefits through digital channels.¹³⁵ For these incentives to be effective and scalable, governments should work with **development partners and civil society** so that G2P programme delivery models embed capacity-building and prioritize content that will build women's functionality.¹³⁶

BOX 15

Offering financial products women prefer to existing alternatives

Pakistan has solid digital infrastructure and financial regulation in place and has even had some success in digital domestic remittance payments. Nonetheless, the uptake and use of mobile money accounts is by little more than 1 per cent of the adult population; although it is easy to open a digital wallet, people seem to prefer using cash and standard remittance services. In such cases, governments may be able to help by identifying market failures and working with providers to create incentives to use new digital finance products. For example, they might transfer social subsidies and other government payments to individuals digitally, a strategy India is pursuing.

Source: McKinsey Global Institute. 2016.

3. Interventions that can improve the supply of digital finance services

a. Developing value propositions for women

Women will adopt digital financial services only if they prefer them to existing alternatives. Many individuals and small businesses in low- and middle-income countries use cash and a variety of informal financial arrangements for good reason, and these mechanisms sometimes play a cultural and social role in addition to a financial one.¹³⁷ **Many providers are waiting for women to adopt digital financial products without first questioning how these products can better meet women's needs.** New digital products need to offer true advantages, which will require smart product design and for service providers and fintech in particular to leverage their agility, innovation culture and technological expertise. Looking at the digitization of finance through a gender lens gives the opportunity to design entirely new financial offerings but also innovative features to address existing barriers.

New features: Mobile money services can easily diversify the number of languages available to do financial transactions, including local languages. For example, M-Pesa is available in English and Hindi but also Bengali, Marathi and Gujarati.¹³⁸ Applications can also use biometrics and voice solutions to address issues related to women's lower levels of technical and financial literacy, like fingerprints or facial recognition technology to authenticate transactions.¹³⁹

New ways of using digital finance services: A wider acceptance of mobile payments could encourage a greater use of accounts. For example, one billion adults with a financial account still pay utility bills in cash.¹⁴⁰ Even when bills can be paid digitally, many people choose not to because of high fees, lack of proof of payment or other concerns. People using digital payments also need to be able to deposit and withdraw cash safely and conveniently, especially in countries where digital payments are not yet widely accepted for everyday purchases at local markets.¹⁴¹ In this case, a reliable cash-out experience for women is key to the success of digital mobile accounts.

New products: Lending was among the earliest segments of finance to be disrupted by digitalization and alternative lenders are some of the largest and most established fintech companies.¹⁴² Digitalization can lead to new methods of collateral for women who do not have access to traditional credit assets or lack credit history, like M-Shwari which uses a customer's preliminary credit score upon enrolment based on past use of a Safaricom product.¹⁴³ Alternative credit scoring can also be useful for women that have been displaced or are moving to a new country or for young people who are often underbanked.¹⁴⁴ Many service providers are also exploring the possibility of giving customers digital identities, and large companies with huge data sets have acquired a unique edge in this space that could enable them to act as identity providers.

New customer services: Digital finance services do not need to rely on physical branches as traditional financial institutions. They allow companies to come up with new ways to connect with customers, using chatbots or door-to-door delivery service, replacing branches by a network of agents that can offer a more personalized and convenient service, particularly for women in rural areas.¹⁴⁵

What are the main entry points to provide more appropriate sets of digital finance services offerings to women? We need to put the specific needs and preferences of women at the centre of the design of digital financial services to provide women with products that work for them.

Understand the issue:

- **Service providers** need to collect sex-disaggregated supply-side data to serve women more effectively with a broader array of digital financial applications. The current digital market perceives women as receivers and men as senders of digital payments. Accordingly, the design and marketing of digital applications are usually focused on men sending money and women receiving money. Very few mobile operators target female business owners or workers.¹⁴⁶
- **Governments** need to design digital financial inclusion policies that lead financial service providers to improve sex-disaggregated supply-side data reporting to better understand gender inequality in access and use.¹⁴⁷ Too many supply-side studies rely only on administrative data or institution-based surveys, which provide a limited picture of the supply side.¹⁴⁸
- **Civil society** needs to raise awareness on the architecture for consent in relation to data collection and the explainability of financial decisions taken through AI models, so that the new services developed ensure transparency and respect for human rights.

BOX 16

BTPN Wow! A human-centred success story

In Indonesia, innovative tools have not gained a lasting foothold as shown by the 69 per cent dormancy rate for mobile money. BTPN, an Indonesian bank, tried to reverse this trend, aiming specifically at low-income customers. Turning its back on the traditional one-size-fits-all approach, BTPN employed a human-centred design process that involved low-income customers and agents in every step of product development, from initial design through prototyping. The result is BTPN Wow!, a no-fee savings account accessed by the simplest cell phone with only a single bar of signal — all crucial requirements for its customers. In its first two years, active usage is 38 per cent, well ahead of the regional average of 19 per cent for mobile money accounts. Wow! has gained 1.5 million low-income clients with equal numbers of women and men, and around 70 per cent live in rural areas.

Source: UNSGSA. 2017.

Design solutions:

- **Service providers** should use human-centred design and behavioural science to be more agile at testing and understanding digital female customers. They should use gendered customer journey frameworks to identify key touchpoints and improve not only their offering of services but also their customers' services and identify new products to market. Companies should also engage in private-private partnerships, such as the CEO Partnership for Economic Inclusion (CEOP) launched in 2018. The idea behind the CEOP is for companies to explore opportunities to join forces and offer financial services to underserved customer segments such as small and medium-sized enterprises (SMEs), farmers and migrant workers. In the process, the companies improve their bottom lines and build a collective knowledge of the market, while targeted customer segments obtain better access and usage of financial services.¹⁴⁹
- **Governments** should use supply-side data to refine their policies and regulatory frameworks, to ensure service providers develop products accessible to underserved women, providing them with affordable and secure options that increase usage opportunities.

BOX 17

Lack of proofs of concept for investing in innovations for women and girls

Since 2016, UN Women invests in areas that are particularly relevant to underserved women to demonstrate the impact of investing in innovations that benefit women from marginalized or vulnerable groups.

Women make up 43 per cent of the agricultural labour force in developing countries and 59 per cent in sub-Saharan Africa. Yet, women farmers face a number of key structural barriers that limit their access to land, information, infrastructure and markets. Their limited access to finance makes it extremely difficult to invest in processing and post-harvesting equipment that would enable women farmers to avoid distress selling, receive higher prices and reduce post-harvest losses. One of the key reasons for their limited access to finance is the lack of data, which makes it impossible for women farmers to build a credit profile.

For the last two years, UN Women has been designing and piloting a digital platform, Buy from Women, with human-centred design to identify the specific needs of women smallholder farmers and provide them with digital solutions that allow them to access pertinent information while helping them establish themselves as legitimate commercial entities and process financial transactions with a larger numbers of buyers.

Source: UN Women. 2017.

b. Adopting enabling environment regulations

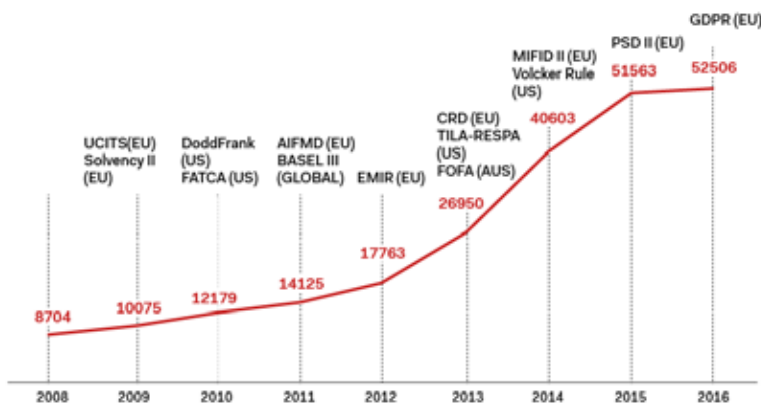
The digital financial services regulatory environment is uncertain in many countries, with government agencies often lagging behind technological and fintech organizations. Many of these organizations have adopted a “beg for forgiveness” rather than “asking for permission” mentality and do business under a cloud of regulatory uncertainty.¹⁵⁰ The challenge of managing compliance in an uncertain and changing environment has even led to the development of new tech solutions for companies and regulators, RegTech and SupTech (regulatory and supervisory technology), to harness the power of data and technology to develop intelligence for supervision and policy and regulatory development.¹⁵¹ A number of regulators in advanced, emerging and developing economies have responded to such challenges by innovating on their own. These innovative regulatory initiatives include innovation offices, regulatory sandboxes and RegTech for regulators.¹⁵² These initiatives are in the early stages of implementation, consequently, empirical data

are limited, including on their impact on financial inclusion. However, it is clear that no single initiative is a magical solution for effective regulation and regulators need to remain agile and open as they innovate and create regulatory initiatives.¹⁵³

The 2019 IMF-World Bank Global Fintech Survey shows that countries are broadly embracing fintech and working to build an enabling environment.¹⁵⁴ Two-thirds of all surveyed jurisdictions recognize the potential of fintech and are either working on or have a national strategy in place. The survey shows high expectations of the potential of fintech to expand financial inclusion for households (84 per cent) and SMEs (73 per cent) and reduce the urban-rural gap. However, there are only modest expectations for the potential of fintech to address the gender gap.¹⁵⁵ **This shows the need to reach out to financial authorities, both regulators and supervisors, to showcase the actions they can take within their mandates to contribute substantively to fostering the greater participation of women in access to, and usage of, digital financial services.**¹⁵⁶

FIGURE 13
Growing regulatory complexities 2017

Total Number Of Regulatory Publications, Changes And Announcements Per Year (Global)



Note: The list of regulations mentioned in the chart is non-exhaustive.

Source: Thomson Reuters, BI Intelligence.

One example could be to look at countries that have used innovative initiatives to identify customer-centric solutions, such as financial policymakers in Mexico and the Philippines. They are using consumer research methods like mystery shopping, which involves central bank employees posing as low-income customers, in order to understand the effectiveness of consumer protection policies related to digital services. In Ghana, the central bank used a behavioural mapping of actual consumer complaints to develop a new consumer recourse policy.¹⁵⁷

BOX 18

How to accelerate digital inclusion for women?

The public sector has an enormous role to play in ensuring that digital financial services products are accessible to women. In Tanzania, the government works to open access through interoperability and less onerous Know Your Customer (KYC) requirements.

Source: Women's World Banking, 2018.

What are the main entry points to introduce new regulatory frameworks or adjustments to existing frameworks to advance women's digital financial inclusion? We need financial authorities to consider adopting the promotion of women's financial and digital inclusion as a specific policy objective alongside the other objectives in their mandates.¹⁵⁸

Understand the issue:

- **Governments** should use the collection and analysis of both demand-side and supply-side gender-disaggregated data to identify how to strengthen the financial infrastructure, what are the regulatory frameworks and supervisory practices to reform with priority, how to enhance market conduct and financial consumer protection regulation, and how to address cultural and social barriers.¹⁵⁹
 - **Development partners** should help inform discussions on regulatory issues through research, analysis and forums with leading stakeholders in the digital finance space. They should highlight the vital importance of a financial system that is innovative, dynamic, inclusive and that provides adequate protection against fraud and misuse.¹⁶⁰
- #### Design solutions:
- **Governments** should encourage open, interoperable and interconnected systems. They should also systematically review new and changing risks linked to the digitalization of finance through a gender lens to ensure adequate frameworks for digital financial products, services and delivery channels. For example, they should evaluate whether the current regulatory system is adequate or in need of reform to adopt risk-based proportionate regulation and supervision to consider consumer protection, credit risks or operational risks linked to data security and data privacy.¹⁶¹
 - **Development partners** should provide low and middle-income countries with technical support to build their capacity to handle the additional risks brought by innovations and new business models in the digital financial sector and to set up specialized units that can deal with the risks associated with digital finance technologies.¹⁶² In the IMF-WB fintech survey, countries also identified key areas requiring technical support and policy advice, including the development of legal, regulatory and supervisory frameworks and greater cooperation on cross-border issues and international standards for mobile money services and peer-to-peer lending.¹⁶³
 - **Service providers** should take a more active role as advocates for financial inclusion and engage in partnerships such as the CEO Partnership for Economic Inclusion launched by Her Majesty Queen Máxima of the Netherlands, the United Nations Secretary-General's Special Advocate for Inclusive Finance for Development.¹⁶⁴ Such cross-industry partnership helps chart new paths to innovative solutions and establishes new platforms for dialogue between companies, regulators and policymakers.

BOX 19

A gender lens must be applied across the entire range of regulatory enablers for digital financial services

Expanding e-money issuance to more non-banks like fintechs and mobile network operators with large female customer bases will make it possible for many more women to own financial accounts. An open competitive environment could improve services for women consumers.

Diversifying digital financial services ecosystems by allowing non-banks to issue e-money has already brought many women aboard. In Côte d'Ivoire, which has allowed non-banks to issue e-money since 2006, women are now more likely to own a mobile money account than a bank account.

Source: Yasmin Bin-Humam et al. 2018.

c. Integrating a gender-lens strategy in investment portfolios

Recent studies show that not enough attention is being paid to how to invest in women and how to provide practical guidance to investors on how they can incorporate gender in their strategies and better understand gender-focused funds.¹⁶⁵ New tools are needed to help investors pay more attention to a variety of criteria such as women's representation, hiring practices, equality policies, availability of sex-disaggregated data on clients and the value chain.

An increased focus on gender-lens investing could help close the gender gap in access to capital for women-led start-ups and women-owned businesses in the technology sector and reshape the investment market. It could also help direct investments towards creating more digital financial products that would specifically target women

customers. In the same way that there are many asset management products linked to environmental protection or labour rights, new products linked to gender analysis could be developed in the coming years.¹⁶⁶ In the climate sector, we already see that the new opportunities created by digital finance have increased citizens' engagement on this issue, unlocking new sources of finance for low-emission, resilient infrastructure in both developed and developing societies.¹⁶⁷ Similarly, gender-lens investment in digital finance can address social aspects such as inclusiveness, social acceptance, accessibility, affordability and efficiency.¹⁶⁸

What are the main entry points to developing gender-lens investing strategies for digital finance? We need to identify how to channel capital towards the improvement of women's access to entrepreneurship, leadership opportunities, and products and services that enhance their economic participation and financial inclusion.

Understand the issue:

- **Investors** should collaborate with gender experts to improve internal capacity among staff to understand how gender operates in different settings.¹⁶⁹ This would improve their ability to evaluate companies and develop funds that meet women's needs.
- **Service providers** should research how they can improve their access to capital by focusing on gender criteria such as the number of women in leadership and the workforce and gender- and family-friendly internal policies, supply chains and products.
- **Development partners** should research which metrics are the most accurate in capturing gender impact and document what constitutes investor best practice. As an example, the gender-lens investing study made by Calbert Impact Capital led them to develop specific tools, such as a framework providing an overview of how to incorporate gender across asset classes and a list of questions for due diligence processes.¹⁷⁰

BOX 20

The increasing role of women in fintech is driving more user-centric product design globally

Approximately 35 per cent of fintech projects in Latin America have a women founder or co-founder which is much higher than the global average at around 7 per cent. About half of these projects with a woman in the founding team are focused on financial inclusion.

Source: Leonora Buckland et al. 2019.

Design solutions:

- **Investors** should demonstrate their commitment to gender-lens investing by (i) investing in funds with explicit gender mandates, (ii) incorporating a gender analysis into any sustainable and responsible investing and (iii) screening out companies with poor diversity records and proactively investing in funds or enterprises that promote women in leadership and exhibit best practices in gender-sensitive employment policies.¹⁷¹ They should also focus on geographic diversity and invest in low- and middle-income countries.
- **Service providers** should improve gender diversity and equality in their management, workplaces and activities to offer investors opportunities to invest in gender-responsive companies operating in digital finance.
- **Governments** should identify policies and incentives to bring more socially oriented

gender-lens investing into their countries. They should focus on women entrepreneurship but also on how this new capital can be deployed to enterprises that positively affect women via products and services.¹⁷²

- **Development partners** and specifically multi-lateral development banks have a critical role to play as early-stage investors to demonstrate the market viability of gender-lens investing in low- and middle-income countries.¹⁷³
- **Civil society** should ensure that gender-lens investing in digital finance stays rooted in the needs and realities of women and is positively impacting gender equality.¹⁷⁴

BOX 21

In 2019, the Australian government awarded US\$1.2 million to **develop the ecosystem for gender-lens investing in Asia**. Impact Investment Exchange (a global organization working on innovative finance and support for high-impact enterprises) will implement the **Equity@Scale** programme, focusing on addressing key weaknesses in the current entrepreneurial ecosystem and moving capital to impact enterprises. It will support impact enterprises with three types of capital: human capital in the form of investment readiness training; social capital in the form of access to mentoring and corporate networks; and financial capital in the form of access to investors and private sector equity and debt investments.

Source: IIX. 2019.

CONCLUSION

The Task Force on Digital Financing is in a unique position to create multistakeholder coalitions that can break through the barriers faced by women and advocate for reforms that will fill current institutional, capacity and policy gaps in relation to the digitalization of finance. Steering the digitalization of finance to benefit the SDGs and meet the needs of underserved women is too complex for civil society, business, governments or development partners to tackle alone.

This paper aims to begin a conversation about the potential of applying a gender lens to digital finance and to identify resources and partners available to work together to make gender a central concern when developing new products or investing in new services or infrastructure. As stated in *the Biarritz Declaration for a G7 & Africa Partnership*, all actors need to take specific action to ensure that digital transformation benefits all, including those in the most fragile regions.¹⁷⁵ This transformation also needs to bridge the digital divide and benefit the most marginalized and vulnerable populations. **The barriers and risks faced by women in many countries are enormous, but so is the opportunity if we manage to unlock the potential of digital finance to create a more equitable and sustainable world.**

ENDNOTES

1. McKinsey Global Institute. 2015. The power of parity: how advancing women's equality can add \$12 trillion to global growth
2. World Bank et al. 2015. Digital Financial Solutions to Advancing Women's Economic Participation
3. Ibid.
4. McKinsey Global Institute. 2016. Digital Financing for All: Powering Inclusive Growth in Emerging Economies
5. Broadband Commission. 2018. The State of Broadband: Broadband catalyzing sustainable development
6. Web Foundation. 2016. Digging into Data on the Gender Digital Divide
7. International Telecommunication Union. 2016. ICT Facts and Figures 2016
8. Web Foundation. 2016. Digging into Data on the Gender Digital Divide
9. GSMA. 2018. Accelerating Digital and Financial Inclusion for Women
10. Ibid.
11. Ibid.
12. Kristalina Georgieva. 2018. The gender gap in financial inclusion won't budge. Here are three ways to shrink it
13. Ratna Sahay and Martin Cihak. 2018. Women in Finance: A Case for Closing Gaps
14. World Bank. 2017. Global Findex Database 2017
15. Student Blog. 2018. The Gender Digital Divide
16. GSMA et al. 2018. Connected Women: The Mobile Gender Gap Report 2018
17. Ibid.
18. ICT Works. 2016. 8 Economic Barriers Responsible for India's Gender Digital Divide
19. Ibid.
20. Alliance for Affordable Internet. 2016. Five Barriers to Women's Online Empowerment: New Digital Gender Audit Released
21. USAID. 2019. FinTech Partnerships Playbook
22. Gates Foundation. Strategy Overview: Financial Services for the Poor
23. Danielle Moore. 2017. Closing the Gender Gap in Digital Finance: Tailored Products Are Not Enough
24. GSM Association. 2016. Mandatory registration of prepaid SIM cards: Addressing challenges through best practice
25. World Bank. 2019. Women, Business and the Law 2019: A Decade of Reform
26. UN Women. 2019. Equality in Law for Women and Girls By 2030: A Multistakeholder Strategy for Accelerated Action
27. Ibid.
28. Carolina Robino et al. 2018. Financial Inclusion for Women: A Way Forward
29. Aiddah Kabukuru and Francis Ofunya Afande. 2016. Analysis of Challenges Faced by Women Entrepreneurs in Accessing Finance in Kenya (A Case of Beauty Sector in Nairobi Central Business District)
30. UNESCO Institute for Statistics. Literacy rate, adult female (% of females ages 15 and above)
31. UNICEF Data. 2018. Youth and adult literacy rates
32. GSMA et al. 2015. Accelerating Digital Literacy: Empowering women to use the mobile internet 2015
33. GSMA et al. 2018. Connected Women: The Mobile Gender Gap Report 2018
34. Global Financial Literacy Excellence Center. 2017. The Gender Gap in Financial Literacy: A Global Perspective
35. UBS. 2019. UBS study of women investors reveals the "divide and conquer" approach to managing finances is a multi-generational problem
36. GSMA et al. 2018. Connected Women: The Mobile Gender Gap Report 2018
37. Carollette Norwood. 2014. Women's Empowerment and Microcredit: A Case Study from Rural Ghana
38. UN women. 2019. Leveraging blockchain technology in humanitarian settings — opportunities and risks for women and girls
39. OECD. 2018. Empowering women in the digital age: WHERE DO WE STAND?
40. Ibid. Even if they are funded, they receive on average 23 per cent less funding than male-led start-ups, even after controlling for the location and the nature of the start-up, as well as for the education level and professional background of start-up founders.
41. World Economic Forum. Closing the Gender Gap
42. UN Women. 2019. Leveraging blockchain technology in humanitarian settings — opportunities and risks for women and girls
43. Ariadne Plaitakis and Simone di Castri. 2018. Getting Policies Right in the Digital Era: Competition and Innovation as Policy Objectives
44. Maria Korolov. 2019. How AI is revolutionizing financial services

45. McKinsey & Company. 2016. FinTechnicolor: The New Picture in Finance
46. Karen Hao. 2019. This is how AI bias really happens — and why it's so hard to fix
47. Ibid.
48. Ibid.
49. James Guszczka et al. 2018. Why We Need to Audit Algorithms
50. Karen Hao. 2019. This is how AI bias really happens — and why it's so hard to fix
51. James Guszczka et al. 2018. Why We Need to Audit Algorithms
52. UN Secretary-General's High-level Panel on Digital Cooperation. 2019. The Age of Digital Interdependence
53. OCHA. 2014. Humanitarianism in the Age of Cyber-warfare: Towards the Principled and Secure Use of Information in Humanitarian Emergencies
54. Chloe Messenger. 2019. Digital Identity Series Part 1: Digital Identity and Informed Consent
55. Responsible Finance Forum. 2017. Opportunities and Risks in Digital Financial Services: Protecting Consumer Data and Privacy
56. Chloe Messenger. 2019. Digital Identity Series Part 1: Digital Identity and Informed Consent
57. Yasmin Bin-Humam et al. 2018. 4 Regulatory Enablers for Digital Finance: A Gender Perspective
58. Lisa Cornish. 2018. Is data consent in humanitarian contexts too much to ask?
59. World Justice Project. 2019. Women's Access to Justice: A Global Snapshot
60. Melinda Gates. 2018. Melinda Gates: When money flows into the hands of women, everything changes
61. Ibid.
62. FAO. The Female Face of Farming
63. EY. 2013. Women: The next emerging market
64. Aiddah Kabukuru and Francis Ofunya Afande. 2016. Analysis of Challenges Faced by Women Entrepreneurs in Accessing Finance in Kenya (A Case of Beauty Sector in Nairobi Central Business District)
65. IFC. 2014. Women-owned SMEs : a business opportunity for financial institutions — a market and credit gap assessment and IFC's portfolio gender baseline
66. Toronto Centre. 2018. Advancing Women's Digital Financial Inclusion
67. Erika Szychowski. 2019. Opinion: Women-owned businesses face a lack of funding — and here's how to change this
68. Toronto Centre. 2018. Advancing Women's Digital Financial Inclusion
69. Niamh Barry. 2019. How Does Digital Finance Impact Low-Income Clients? Insights From a New 'Evidence Gap Map'
70. World Bank. 2017. Global Findex Database 2017
71. Ibid.
72. Ibid.
73. Ibid.
74. Paul Gubbins and Edoardo Totolo. 2018. Digital Credit in Kenya: Evidence from demand-side surveys
75. The World Bank. 2017. Global Findex Database 2017
76. Ibid.
77. Paul Gubbins and Edoardo Totolo. 2018. Digital Credit in Kenya: Evidence from demand-side surveys
78. Ibid.
79. Ibid.
80. Ibid.
81. Tavneet Suri and William Jack. 2016. The long-run poverty and gender impacts of mobile money
82. Gender Innovation Lab. 2018. Are mobile savings the silver bullet to help women grow their business?
83. World Bank. 2017. Global Findex Database 2017
84. Ibid.
85. Ibid.
86. Women's World Banking et al. 2019. Five Principles for Building Women's Capacity for Digital Financial Services
87. Ibid.
88. Wendy Chamberlin et al. 2019. Enhancing Women's Economic Empowerment Through Digital Cash Transfers: Digitize/Direct/Design: The D3 Criteria
89. Ibid.
90. Calvert Impact Capital. 2018. Just Good Investing: Why gender matters to your portfolio and what you can do about it
91. Geri Stengel. 2014. The Power Of Women's Portfolio
92. Calvert Impact Capital. 2018. Just Good Investing: Why gender matters to your portfolio and what you can do about it
93. University of Pennsylvania. 2019. 7 Takeaways from Project Sage 2.0, the Global Scan of Gender Lens Private Equity, VC, and Private Debt Funds
94. Wharton Social Impact Initiative. 2017. Gender Lens Investing: Why the Opportunities Are Growing
95. Abby Schultz. 2019. Future Returns: Investing With a Gender Lens
96. Danielle Logue and Gillian McAllister. 2019. Gender-lens investing: Why women are increasingly front of mind for investors
97. Women's World Banking. 2018. The time is right for gender-lens investing, what is holding us back?
98. Ibid.
99. Calvert Impact Capital. 2018. Just Good Investing: Why gender matters to your portfolio and what you can do about it

100. Ibid.
101. Gautam Bastian et al. 2018. Are mobile savings the silver bullet to help women grow their business?
102. Paul Gubbins and Edoardo Totolo. 2018. Digital Credit in Kenya: Evidence from demand-side surveys
103. UNCDF. 2017. Remittances as A Driver of Women's Financial Inclusion in the Mekong Region
104. EY. 2017. EY FinTech Adoption Index 2017: The rapid emergence of FinTech
105. Women's World Banking et al. 2019. Five Principles for Building Women's Capacity for Digital Financial Services
106. Milcah Mulu-Mutuku and Castro Ngumbu Gichuki. 2016. Object-Centered Focus Group Discussions: Stimulating Conversations On Mobile Money Practices and Culture
107. UBS. 2019. UBS study of women investors reveals the "divide and conquer" approach to managing finances is a multi-generational problem
108. Ibid.
109. Sushmita Meka et al. 2018. Digital Savings Groups Can Help Women Finally Bridge the Financial Gender Gap
110. Tanvi Gupta. 2019. Women Helping Women: How a Network of Female Digital Finance Agents is Boosting Empowerment in India
111. ICT Works. 2017. Now Scientific Fact: Mobile Money Can Lift Women Out of Poverty
112. UNSGSA. 2017. Financial Inclusion: Transforming Lives
113. Sarah Gammage et al. 2017. Gender and digital financial inclusion: What do we know and what do we need to know?
114. Diana Boncheva Gooley. 2018. Delivering on the Digital Promise for Women in Bangladesh
115. World Bank. 2017. Global Findex Database 2017
116. Sarah Gammage et al. 2017. Gender and digital financial inclusion: What do we know and what do we need to know?
117. Robin Lewis et al. 2016. Bridging the financial inclusion gender gap
118. Shameran Abed. 2018. Bridging the Digital Gender Divide in Financial Inclusion
119. Ibid.
120. Alliance for Affordable Internet. 2016. Five Barriers to Women's Online Empowerment: New Digital Gender Audit Released. An Alliance for Internet research show that 74 per cent of countries were not doing enough to tackle online violence against women. Notably, police and courts in almost all countries we reviewed are still not equipped to handle ICT-mediated violence and harassment cases. Legislation to protect the privacy of data and communications is also still lacking across many countries.
121. UNCDF. 2017. Remittances as A Driver of Women's Financial Inclusion in the Mekong Region
122. UNICEF. 2017. The State of the World's Children 2017: Children in a Digital World
123. Ibid.
124. Michele Wucker. 2018. Why Gendered Risk Management Is a Risky Business
125. Ibid.
126. Ibid.
127. Ideas 42. 2018. Transforming Financial Inclusion Using Behavioral Science: From Financial Access to Financial Health
128. Ibid.
129. Ibid.
130. McKinsey Global Institute. 2016. Digital Financing for All: Powering Inclusive Growth in Emerging Economies
131. EY Global Financial Services Institute. 2015. Building consumer demand for digital financial services — the new regulatory frontier
132. Ideas 42. 2018. Transforming Financial Inclusion Using Behavioral Science: From Financial Access to Financial Health
133. Ibid.
134. EY Global Financial Services Institute. 2015. Building consumer demand for digital financial services — the new regulatory frontier
135. Carolina Robino et al. 2018. Financial Inclusion for Women: A Way Forward
136. Women's World Banking et al. 2019. Five Principles for Building Women's Capacity for Digital Financial Services
137. McKinsey Global Institute. 2016. Digital Financing for All: Powering Inclusive Growth in Emerging Economies
138. World Bank et al. 2015. Digital Financial Solutions to Advancing Women's Economic Participation
139. Ibid.
140. World Bank. 2017. Global Findex Database 2017
141. Ibid.
142. Samantha Sharf. 2018. Forbes Fintech 50 2018: The Future Of Lending
143. World Bank et al. 2015. Digital Financial Solutions to Advancing Women's Economic Participation
144. Sarah Kok. 2018. 5 Ways Alternative Credit Scoring Aids Financial Inclusion
145. UNCDF. 2017. Remittances as A Driver of Women's Financial Inclusion in the Mekong Region
146. The World Bank et al. 2015. Digital Financial Solutions to Advancing Women's Economic Participation

147. Mayra Buvinic and Stephanie Oula. 2019. Navigating New Frontiers for Women's Financial Inclusion: Data and Harmonization in a Digital World
148. Sarah Gammage et al. 2017. Gender and digital financial inclusion: What do we know and what do we need to know?
149. Eric Duflos and Nancy Widjaja. 2019. Early Lessons from the CEO Partnership for Economic Inclusion
150. Jim Marous. 2017. Top 10 Retail Banking Trends and Predictions for 2018
151. World Bank et al. 2015. Digital Financial Solutions to Advancing Women's Economic Participation
152. UNSGSA FinTech Working Group and CCAF. 2019. Early Lessons on Regulatory Innovations to Enable Inclusive FinTech: Innovation Offices, Regulatory Sandboxes, and RegTech
153. Ibid.
154. IMF. 2019. IMF Policy Paper Fintech: The Experience So Far
155. Ibid.
156. Toronto Centre. 2018. Advancing Women's Digital Financial Inclusion
157. UNSGSA. 2017. Financial Inclusion: Transforming Lives
158. Ibid.
159. Ibid.
160. Brian Knight. 2016. FinTech: Who Regulates It and Why It Matters
161. Toronto Centre. 2018. Advancing Women's Digital Financial Inclusion
162. World Bank, Association of Southeast Asian Nations. 2019. Advancing Digital Financial Inclusion in ASEAN: Policy and Regulatory Enablers
163. IMF. 2019. IMF Policy Paper Fintech: The Experience So Far
164. Website of the UN Secretary-General's Special Advocate for Inclusive Finance for Development (UNSGSA)
165. Calvert Impact Capital. 2018. Just Good Investing: Why gender matters to your portfolio and what you can do about it
166. Leonora Buckland et al. 2019. Gender Lens Investing: How Finance Can Accelerate Gender Equality in Latin America and the Caribbean
167. Cornis van der Lugt. 2018. Digital Finance and Citizen Action In Financing the Future of Climate-smart Infrastructure
168. Ibid.
169. Leonora Buckland et al. 2019. Gender Lens Investing: How Finance Can Accelerate Gender Equality in Latin America and the Caribbean
170. Ibid.
171. Ibid.
172. Ibid.
173. Ibid.
174. Ibid.
175. Biarritz Summit. 2019. Biarritz Declaration for a G7 & Africa Partnership

REFERENCES FOR FIGURES AND BOXES

Figures:

Figure 1: World Bank et al. 2015. Digital Financial Solutions to Advancing Women's Economic Participation

Figure 2: GSMA et al. 2018. Connected Women: The Mobile Gender Gap Report 2018

Figure 3: Biz Carson. 2015. GSMA: The world is getting mobile phones, but women are being left behind

Figure 4: World Bank. 2017. Global Findex Database 2017

Figure 5: Niall McCarthy. 2019. The Cost Of Mobile Internet Around The World

Figure 6: UN Women.

Figure 7: EY et al. 2017. UK FinTech Census 2017

Figure 8: Datawrapper. 2017. A map of countries with the worst internet access

Figure 9: World Bank. 2017. Global Findex Database 2017

Figure 10: Paul Gubbins and Edoardo Totolo. 2018. Digital Credit in Kenya: Evidence from demand-side surveys

Figure 11: Geri Stengel. 2014. The Power Of Women's Portfolio

Figure 12: EY. 2017. EY FinTech Adoption Index 2017: The rapid emergence of FinTech

Figure 13: Medici. 2018. Growing Regulatory Complexities – RegTech to the Rescue

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Box 2: Yasmin Bin-Humam et al. 2018. 4 Regulatory Enablers for Digital Finance: A Gender Perspective

Box 3: Sarah Gammage et al. 2017. Gender and digital financial inclusion: What do we know and what do we need to know?

Box 4: Jeffrey Dastin. 2018. Amazon scraps secret AI recruiting tool that showed bias against women and Joy Buolamwini. 2019. Artificial Intelligence Has a Problem With Gender and Racial Bias. Here's How to Solve It

Box 5: UN Women. 2019. Leveraging blockchain technology in humanitarian settings — opportunities and risks for women and girls

Box 6: Michael Kimani. 2017. How Kenya's Digital Financial Inclusion Industry Is Failing Women Entrepreneurs

Box 7: UN Women. The Gender Innovation Principles

Box 8: Business Wire. 2019. MetLife Recognized in Forbes' Inaugural Blockchain 50 List

Box 9: Niamh Barry. 2018. Digital savings—what do we know about the impact on clients?

Box 10: GSMA. 2013. Unlocking the Potential: Women and Mobile Financial Services in Emerging Markets and Harvard. Technology to Facilitate Women's Financial Autonomy

Box 11: University of Pennsylvania. 2019. 7 Takeaways from Project Sage 2.0, the Global Scan of Gender Lens Private Equity, VC, and Private Debt Funds

Box 12: Anna Ferracuti. 2018. Women's empowerment through digital finance: Golden or rotten egg?

Box 13: Shameran Abed. 2018. Bridging the Digital Gender Divide in Financial Inclusion

Box 14: Michele Wucker. 2018. Why Gendered Risk Management Is a Risky Business

Box 15: McKinsey Global Institute. 2016. Digital Financing for All: Powering Inclusive Growth in Emerging Economies

Box 16: UNSGSA. 2017. Financial Inclusion: Transforming Lives

Box 17: UN Women. 2017. Buy from Women Enterprise Platform brochure

Box 18: Women's World Banking. 2018. Ten years later: what has digital technology done for women's financial inclusion?

Box 19: Yasmin Bin-Humam et al. 2018. 4 Regulatory Enablers for Digital Finance: A Gender Perspective

Box 20: Leonora Buckland et al. 2019. Gender Lens Investing: How Finance Can Accelerate Gender Equality in Latin America and the Caribbean

Box 21: IIX. 2019. IIX awarded S\$1.2M from Australian government to develop ecosystem for gender lens investing in Asia

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