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Bridging the gender digital gap

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Bridging the Gender Digital Gap

Judith Mariscal, Gloria Mayne, Urvashi Aneja, and Alina Sorgner

Abstract
Despite the headway the world has experienced over the last couple of years in terms of a substantial increase in digital access; there are still significant challenges to overcome in ensuring women are included in the transformation to a digital society, which in turn will enhance productivity and social development. Efforts to increase internet adoption access through broadband plans and legislative reforms have yielded improvements in use and adoption. However, there is still a stark and pervasive gender inequality in terms of access, ownership of digital devices, digital fluency as well as the capacity to make meaningful use of the access to technology. Even though affordability is a key source of exclusion, there are also significant socio-cultural norms that restrict access for women. This policy brief brings forward the argument that access alone is not enough, women need agency and capacity to leverage access. The authors thus highlight the need to make an assessment of the global gender gap and develop meaningful indicators that contribute to the design and implementation of effective policies that drive adoption. We need effective promotion of women´s digital adoption not only from the government but also from the private sector and civil society in order to lead the digital adoption of best practices for women around the world.

(Submitted as Global Solutions Paper)

JEL J16 J24 O30
Keywords Digital gender gap; digital inclusion; digital skills

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Challenge

Despite the headway the world has experienced over the years in terms of a substantial increase in access as well as the availability of new applications and more affordable handsets, there are still significant challenges to overcome in ensuring women are included in the transformation to a digital enabled society. Ensuring women can efficiently adopt new digital technologies would benefit worldwide productivity and social development.

Access to mobile services in low and middle-income countries is indeed increasing, alongside falling prices and a vibrant internet ecosystem, as a result of information and communication technologies (ICT) policy reforms implemented since the early 1990s (Byrne & Corrado, 2015; Mariscal, J, Galperin, H & Viecens, F, 2016). However, a closer examination reveals significant gaps not only in terms of digital access but also in the ability of specific social groups to leverage new technological applications for socio-economic development.

Many groups, such as older adults, indigenous groups, and in particular, women, continue to fall behind in opportunities to effectively use ICTs to improve their livelihoods. As numerous areas of daily life and basic services are delivered through digital technologies, only some people will be able to benefit from the opportunities of engaging in the economy, from communicating and establishing social networks as well as from having access to improved public and private services. The welfare gap between those with access to ICTs and the digitally excluded, salient among them, women, will widen and thus increase worldwide inequality.

Existing gender gaps in digital inclusion, if not properly addressed, are likely to lead to gender inequalities in many other areas, including inequalities in labour markets and less financial inclusion of women. The main reason behind this is that digital technologies are omnipresent and digitization affects all areas of our lives. Therefore, digitally excluded women will be left out from more attractive and lucrative employment opportunities, because they lack digital literacy, which is one of the most demanded skills in the present digital age. This exclusion, in turn will also prevent them from finding a *fairly* paid job. The job search markets are becoming increasingly digital and many employers prefer to hire their employees on online platforms. Women without access to such platforms run the risk of receiving significantly lower wages for their

work than current market wages. Therefore, the inability to access and use digital technologies is likely to lead to an even wider gender pay gap.

A better digital inclusion of women will also significantly improve their financial inclusion. Women often lack collaterals required by traditional financial institutions to prove their creditworthiness. Digital economies are data-driven economies in which data capital is an important asset. New financial technologies use computer algorithms to analyse customer data in form of digital transaction records and to decide whether a particular customer should receive a loan or not. Digitally excluded women lack this important asset, which makes them riskier and less trustworthy for providers of financial capital. Time is a crucial factor here, because the longer it takes to close the digital gender gap, the less data capital women will be able to accumulate, which could lead to a much wider gap in financial inclusion.

Thus, policies aimed at reducing gender gaps in digital inclusion will further empower women by preventing and reducing gender inequalities in labour markets and improving women's financial inclusion. If existing digital divides are addressed, particularly in low and middle-income nations where the digital gender gaps are the largest; a leapfrogging process towards development could be experienced. This would enable developing nations to leverage new technologies for long-standing challenges, including effective healthcare, education, political participation, and civil rights, among others. ICTs have the potential for transforming industries, by providing opportunities to deliver services in new and efficient ways that can reach the most disadvantaged sectors of societies.

Like mobile phone access did for voice, mobile broadband is spearheading internet adoption. Across Africa, Asia and Latin America, people are accessing the internet for the first time through their mobile devices. However, as of 2015, it was estimated that 200 million fewer women—some 14% globally—than men owned mobile phones. (GSMA, 2015).

The adoption of mobile technologies alone can play a substantial role in shortening the gender divide by making women "*feel safer and more connected, and provide access to information, services and life-enhancing opportunities like health information, financial services and employment opportunities*" (GSMA Mobile Gender Gap Report, 2018).

Where we are?

Efforts to increase internet adoption access through broadband plans and legislative reforms have yielded improvements in digital adoption around the world. However, a closer look at these advances shows a stark gender inequality in terms of access, ownership of digital devices as well as digital fluency. According to Equals Global Partnerships, 200 million fewer women worldwide own a mobile phone, 250 million fewer women than men use the Internet and only 6 percent of women develop apps.

Even though mobile phone ownership and access in low and middle-income countries has grown exponentially, recent studies show that women continue to be left behind; the prevalent gender inequality permeates the digital arena. India is the world's second biggest market for mobile phones, with more than one billion users, yet women make up only 2% of internet users in rural areas. (Aljazeera. India: Banning Women from Owning Mobile Phones. 2016). Across low- and middle-income countries 390 million women are unconnected and 184 million fewer women than men own a mobile. As Figure 1 shows, there is a significant gender gap in mobile ownership and mobile internet use across low and middle-income countries, where South Asia stands out with the highest degree of gender inequality. Moreover, as Figure 2 indicates, the gender gap in mobile internet use is persistent and growing. Thus, even when women own mobile phones, there is a significant gender gap in usage for more transformational services, such as mobile internet (GSMA, 2018).

This data are corroborated by the AfterAccess Global South Survey that reveals that in Africa, Latin America and Asia, women have less access to technology than men, even to mobile services widely used by the poor. Women in low- and middle-income countries are, on average, 10% less likely to own a mobile phone than men; with 184 million fewer women owning a mobile phone. This survey also shows that urban users far exceed rural users in all three regions. Even with mobile broadband coverage, people are not necessarily getting online. Over 1.2 billion women in these regions do not use mobile internet. Women are, on average, 26% less likely to use mobile internet than men. Even among mobile owners, women are 18% less likely than men to use mobile internet.

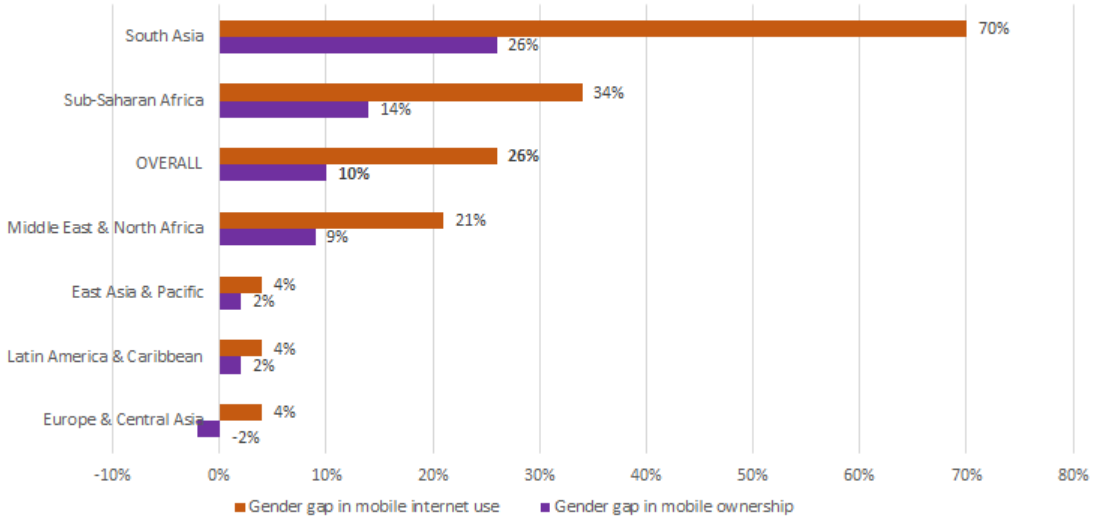

Figure 1. The gender gap in mobile ownership and mobile internet use, by region. Source: The Mobile Gender Report 2019, GSMA.

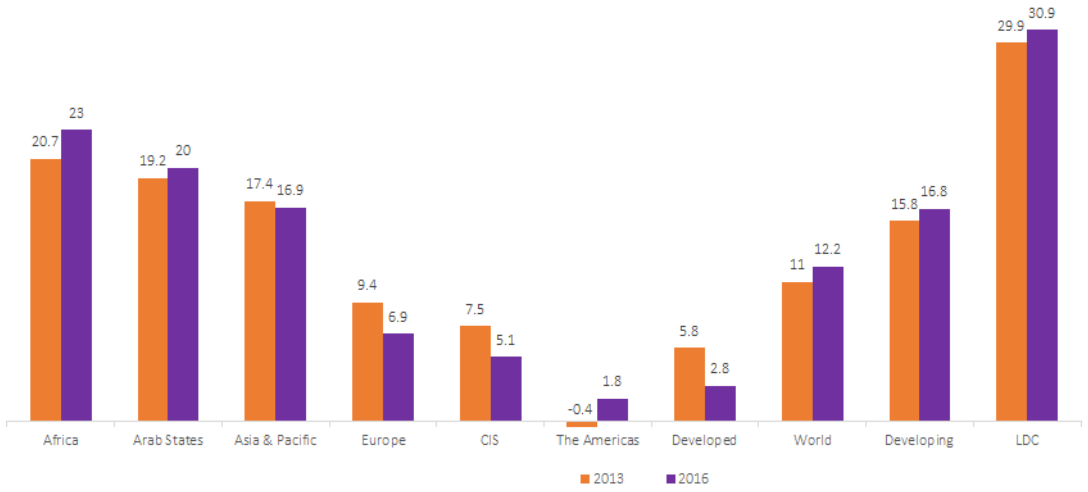

Figure 2. Internet user gender gap (percentage). Note: 2016 are estimates. The gender gap is the difference between the Internet user penetration rate for males and females in relation to the internet user penetration rate for males, expressed as a percentage. Source: ITU.

In Africa, the percentage of mobile phone penetration is higher for men than for women in Kenya, Ghana, Nigeria, Tanzania, Rwanda (the most unequal country with

50% for male population and 32% for women), and Mozambique. In the case of smartphone penetration, there is also a larger percentage for the male population than for the female population. South Africa, the country with the highest penetration, has 60% access for men and 52% for women.

In Asia, the gender gap in mobile ownership is almost 50%. In India, from the 61% of people owning a mobile phone, 79% are men and 43% are women. In terms of internet use; in Bangladesh out of the 13% of people with internet access, 18% are male while 7% are women - almost a 62% gap. In Cambodia, this gap in internet use is 34%.

In Latin America, the only countries where a gender gap in mobile phone penetration does not exist is Colombia. The region shows a lower gender gap than any other region of the global south. In Argentina this gap is very small, while Perú shows a more significant difference.

As seen in Figure 3, developed countries such as the U.S., the Netherlands, the UK, as well as the Nordic countries (Sweden, Denmark, Norway, and Finland) have the highest digital fluency scores and rank among the top performers in workplace gender equality. However, in the majority of the countries, low levels of access are likely to further constrain the capacity of women to access new digital economy opportunities. In a rapidly transforming workplace, digital fluency is going to become a paramount skill.

The digital gender divide becomes even more pronounced when it comes to women as creators of technology. This is also an issue in developed countries, where access to and affordability of digital technologies is almost equal for both sexes. In the USA, women account for 57% of all professional occupations, but only 25% of all computing occupations. There is only a negligible share of women from minorities in such occupations. While 88% of all ICT patents are invented by male teams of inventors, only 2% of patents are invented by female teams of inventors (Ashcraft et al. 2016). When it comes to commercialization of knowledge, only a few women, compared to men, decide to set up a new business venture in the ICT sector. This pattern applies to almost all G20 countries and is largely independent of the country's level of economic development (Sorgner et al. 2017).

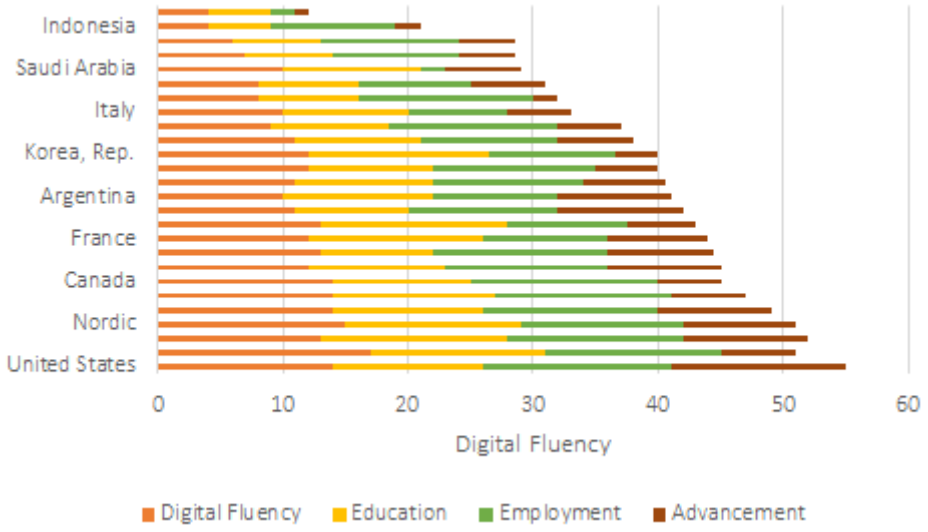

Figure 3. The Accenture Digital Fluency Model Overall Scores for Women. Source: Getting to Equal: How Digital is Helping Close the Gender Gap at Work, Accenture 2016

Barriers to Inclusion

According to the After Access Survey, unaffordability is consistently the main barrier to digital inclusion across all developing regions. The cost of devices and services were cited along with relevant content as inhibiting factors for digital adoption. Other significant barriers include lack of connectivity and lack of access to a device. A salient barrier is both low literacy and lack of digital skills. Women are less aware of mobile internet compared with men, which significantly limits their uptake, particularly in Africa and Asia. Another barrier across markets, often felt more strongly by women, is a perception that mobile internet is not relevant to their lives. The absence of electricity was identified in this survey as a big challenge to overcome in parts of Asia and Africa.

Socio-cultural factors are a key impediment to access for many women. The gender gap in mobile ownership in India – estimated at about 114 million – reinforces the issue of unequal access but also paints an incomplete and misleading picture. A survey conducted in semi-rural Madhya Pradesh revealed that a majority of the women who owned a mobile phone did not know how to operate it. Unable to read or write, they could not dial a number or read messages; most did not know their mobile

numbers and had to ask their husbands. Their mobile phone usage was mostly limited to pressing the green button when the phone rang.

The digital divide is thus not simply a question of access to digital technologies but about the capacity to make meaningful use of its access. In Madhya Pradesh, as in many parts of rural and semi-rural India, this capacity is directly shaped by gender-biased belief and value systems that impose restrictions on the education and free mobility of women. Data from the 2011 Census indicates that 65.46% of women are literate as compared to over 80% of men. Further, 23% of girls drop out of school before they reach puberty. A recent study, aptly titled 'Whatever she may study, she can't escape from washing dishes: Gender inequity in secondary education', also finds that the engagement of girls in housework and domestic chores is the largest contributor to a gender gap in secondary education. Patriarchal attitudes and beliefs also restrict women's rights to public spaces, preventing them from accessing community internet centers, outside employment, and co-ed training facilities.

Moreover, in many parts of India, as in other developing countries, not only do these social systems seem impervious to change, they seem to be becoming more deeply entrenched. Since 2010, there have been numerous reports of *khap panchayats* and other conservative groupings banning or severely restricting mobile phone use for women; most recently, a *panchayat* in a village in Mathura announced that girls using a mobile phone would be fined. In many Indian villages, where 70% of India's population lives in over 600,00 villages, unmarried girls have been banned from using mobile phones with elders citing various reasons, including personal safety and ensuring they are not distracted from their studies. (Aljazeera. India: Banning Women from Owning Mobile Phones. 2016)

Thus, poverty and socio-cultural norms that affect women's educational opportunities are primarily responsible for digital gender divide. Socio-cultural norms can fuel gender stereotypes concerning the use of technologies, and these stereotypes are often reinforced in girls' closest environments, their families. Parents can directly or indirectly discourage girls to use technology during early socialization. In this way, they may shape girls' preferences regarding their future career choices in science and technology. Without sufficient female role models outside the family, it becomes even more difficult to overcome gender stereotypes.

Proposal

Case Studies

Many barriers to women's digital inclusion are traditional gender restrictions, which manifest themselves in laws or socio-cultural norms, poverty, lower educational opportunities for girls and restricted access to labour markets, as well as persistent gender stereotypes. Accordingly, policies aimed at empowering women by eliminating these traditional restrictions will also promote their digital inclusion. Moreover, there are increasingly more examples of how governments and NGO's can address women directly to improve their digital inclusion (see Sorgner et al. 2017 for an overview of existing programmes in the G20 countries). The following cases document the importance of agency to address current digital gender exclusion. By promoting the successful adoption of digital technologies by women, they are able to harness the opportunities offered by ICT; allow their inclusion to markets, public services, political participation and social networks thus diminishing existing vulnerabilities.

Prospera Digital – Mexico

Prospera Digital is one of Mexico's most recent case studies that had digital inclusion as one of its main objectives. The initiative was aimed at promoting maternal and infant health among some of Mexico's poorest. Prospera is one of the world's oldest and largest conditional cash transfer programs. Its model has been replicated in several countries due to its effectiveness in ensuring that beneficiaries are co-responsible for their and their families' social development. The digital component of the program was aimed at Prospera beneficiaries who were pregnant or had an infant. They were provided with a mobile solution that could empower them with knowledge about the different stages of their pregnancy, offer them health advice on areas such as nutrition and physical activity and ensure that they could identify risk factors that could potentially lead to birth complications or death. This mobile solution was a two-way automated messaging system that could be used on basic smartphones. The messages were designed by the Health Ministry with the aid of international organizations that specialise on behavioural science. This was done to ensure that women not only received reliable, valuable and potentially life-saving information in an accessible way; but also that the messages could coax them into adopting healthier

behaviors. The results of this pilot program proved effective in impacting the baby's health indicators such as height and weight at birth as well as other indicators such as length of the pregnancy and number of prenatal consultations, both of which are key elements to prevent birth complications. The pilot program also proved effective in helping women adopt mobile technology in new and useful ways, indicating that pertinence is a key element to promote adoption. Prospera Digital had an important training component, through which users were introduced to the program and also completed a brief workshop with the objective of teaching women how to engage with the SMS platform. In many cases, women were familiar with the use of SMS messaging, but many others had to learn. Most women in the program used their own phones, however some of the them had to learn to use cell phones for the first time. These basic phones were distributed for the purpose of the pilot.

EQUALS Global Partnership

EQUALS Global Partnership is a global network with more than 50 partners from government, NGOs and civil society. It was initiated in 2016 through an alliance between the International Telecommunications Union (ITU), UN Women, the International Trade Centre (ITC), GSMA and the United Nations University. Aware of the problem that women are excluded from opportunities in the financial, educational, social and health resources of the digital world, their objective was to collaborate among actors capable to transcend borders and cultures.

EQUALS Global Partnership includes an action plan of data gathering, knowledge sharing and advocacy strengthening. The network focuses on improving women and girls' digital technology access, connectivity and security, supporting development of science, technology, engineering and math skills of women and girls and promoting decision-making roles for women within the ICT field. These access, skills and leadership priorities have resulted in the creation of the Global Digital Gender Equality Action Map, a database of initiatives that seek to bridge the digital gender gap around the world.

EQUALS has enabled a repository of relevant research and annually grants awards to outstanding projects. The winner in the skills category was the Digital Citizen Fund of Afghanistan, for building 13 information technology and media centres that

provided internet access to 55,000 people and trained more than 10,000 women in digital literacy, financial literacy and entrepreneurship. As a result, more than 100 women have launched their own start-ups.

The Access award was granted to Lebanese Alternative Learning, which developed “Tabshoura in a Box”, a platform that functions independently of internet access and electricity. It constructed a hotspot where students access digital learning resources even in rural areas. Currently, three school and three learning centers are using Tabshoura in a Box. Sula Batsu Cooperativa of Costa Rica won the leadership award for creating rural “technological poles” lead by women to empower them to launch their own digital businesses. EQUALS claims the programme has impacted 1,500 rural young women. It also hosts a network of 400 girls who meet regularly to define and implement actions around women in tech, the results of which influence university curricula, companies and public policies.

Athena SWAN Charter - United Kingdom

The Athena SWAN Charter was promoted by the British Equality Challenge Unit in 2005 to promote the inclusion of women in science, technology, engineering, maths and medicine (STEMM). The charter now recognizes also work in the fields of arts, humanities, social sciences, business and law.

Athena SWAN Charter´s priorities are to help women advance in academia, to retain their participation in the carrier pipeline, to address the gender pay gap, transitioning women from PhD to sustainable employment and avoiding discrimination. There are currently 143 members in the Charter with a total of 699 awards that recognise good practice in achieving gender equality. Athena has created a repository with information from all the winning projects. In the United Kingdom, there are 93 institutions that hold Athena SWAN Award.

This accreditation program functions as a way to positively sanction organizations that create an inclusive workplace. Requisites for receiving an Athena SWAN award are: collecting data on their current gender equity standards, policies and practices, identifying weaknesses and shortcomings, developing and implementing plans to improve gender equity at all levels of seniority, for casual, full-time and part-

time staff, as well as for students and demonstrating improvements in gender equity over the course of two years.

Athena SWAN was evaluated in 2014 and holders of an award experienced changes in the working environment and organizational culture such as: women were more familiar with promotion processes, more likely to receive rewards for their work, improved their visibility, increased their self-confidence, enhance their leadership skills, saw benefits in terms of career development and in managing work-life balance.

Athena SWAN is operating also in Ireland and Australia. The organization Science in Australia Gender Equity (SAGE), a program of activities designed to improve gender equity and diversity in the Science, Technology, Engineering, Mathematics and Medicine (STEMM), has implemented a pilot that involves 45 Australian Charter members, including 30 universities, 6 medical research institutes and 4 government science organizations.

Internet Saathi – Google, India

The Internet Saathi initiative, supported by Google and Tata Trust's partnership, aims to facilitate rural women's engagement with the internet by training them in rudimentary internet skills and providing them with an internet enabled device. Once trained as 'saathi's', more than 30,000 women across 1.1 *lakh* villages have helped other women access and utilise the internet in various ways. Anecdotal evidence indicates that women enrolled in the programme have utilised the internet in imaginative ways, from increasing awareness around health issues, to improving their earnings and productivity.

Policy Recommendations

- Governments around the world need to implement legal and regulatory frameworks that drive ICT adoption. These frameworks must consider the internet as a general-purpose technology which is transversal to all sectors of the economy as well as to the political and social spheres of nations. Policies need to create and strengthen public agencies that coordinate the transversal integration of digital strategies across ministries. Through transversal and integrated policies, governments should

act as a catalyst for change; promoting the active participation of key actors in the promotion and adoption of gender ICT adoption.

- Inclusive policies must effectively promote useful and meaningful content for women via digital platforms to increase access and use of basic services. Progressive policies would promote technological innovation as a driver for social inclusion and economic participation of women.
- Design and implement capacity building programmes for women that include teaching digital skills and individual mentoring that accompanies women through the learning and adoption process in a case by case basis. Restrictions on mobility, for example, often result in women losing access to community internet centres and training facilities. Informal education and life-long learning spaces are important to impart digital fluency skills to women. More broadly, this highlights that skilling initiatives to equip women and other social groups with capabilities for future jobs cannot work in isolation; skilling will have to be undertaken alongside broader social policy interventions.
- Promote education of women in science and technology fields through scholarships, internships and training programs and consider gender quotas for admission into education programs in order to strengthen women participation in decision making positions and leadership within the STEM sector.
- Promote affordable, state of the art network deployment through alternative solutions, such as public-private partnerships, coverage obligations attached to spectrum auctions that promote connectivity to underserved areas
- Design digital procurement strategies that promote increased private supply of ICT services.
- Interventions to address digital exclusion of women must take into consideration prevailing socio-cultural norms, e.g. women might need informal learning spaces.
- Low levels of education and skills inhibit women's capacity to access and use digital technologies. These 'old' problems need to be urgently addressed to meet the 'new' digital challenges. New tools will be needed such as family counselling and innovative new pedagogies.
- Statistical data on digital inclusion are scarce and usually not disaggregated by gender. Disaggregated statistics should be made available. In addition, measures

of digital inclusion should be improved to make them comparable across countries. This is particularly important for evaluating the effectiveness of policy measures aimed at improving digital inclusion in general and reducing gender digital divide in particular. More research needs to be done to better understand the dynamics and the underlying causes of the gender digital divides in different countries.

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