POLICY BRIEF

THE DIGITAL GENDER GAP

TOPIC LEADER

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Introduction

The digital gender divide has been recognized as a challenge to achieve gender equality for women, particularly as the 4th Industrial Revolution continues to increase the pace of change of information and communication technologies (ICTs). By 2022, 60% of global GDP will be digitized.[i] The extent of this impact on our education needs, our societal structures, our legal frameworks and economic strategies, is still unknown, but urgent action is needed to ensure the benefits of these transformations are distributed equally. As societies become increasingly dependent on digital technology, women, their broader communities and national economies are at risk of losing out on the positive promise of full participation in digital economies. If the digital gender gap is not addressed, digital technologies may exacerbate gender inequalities rather than help to reduce them. Thus, ICTs are a "double-edged sword". Digital technologies form a vital part of the 2030 Agenda's call for the full development and active participation of women in today's world. One of the targets in the fifth Sustainable Development Goal (SDG5) calls on the international community 'to enhance the use of enabling technology, in particular information and communication technologies (ICTs), to promote women's empowerment.'

The digital gender divide has three components: (1) access and use of digital technologies and the internet; (2) development of the skills needed to use digital technologies and to participate in their design and production; and (3) advancement of women to visible leadership and decision making roles in the digital sector. This overview is aligned with previous discussions led under W20 Argentina and W20 Germany, as well as efforts from multi-national organizations and global partnerships, such as EQUALS and the Coalition for Digital Intelligence.

Access is a key foundation to achieve digital inclusion, however, in many countries, including G20 economies, structural inequalities such as those in income, education and employment opportunities increase barriers to access and use, which women are likely to experience more severely. Women have less access to digital technologies and the internet than men, they make less use of them, and gain less benefit from them than men do; especially certain groups of women, for example, elderly women, women who live in rural areas, those who live with disabilities, those who are refugees. The significant access gap across generations poses the risk of expanding as countries continue to experiencing growth in the share of older persons in their population. Latest (2017) estimates from the ITU suggest that women globally are 12% less likely than men to use the Internet. Women are also less likely than men to own or use a mobile phone, the most common means of personal communications and Internet access in developing countries. A 2018 GSMA found that women in low- and middle-income countries are on average 10% less likely to own a mobile than men and 26% less likely to use mobile internet.[ii] This gap is context specific and is wider in certain regions and countries. To be beneficial to women, access to and use of digital technologies must be universal, affordable, unconditional, meaningful and equal,[iii] and must meet women's varying circumstances, needs and priorities.

Access and use are not the only ways in which women interact, or should interact, with digital technologies. Women should also be as much involved as men in the design, development and production of digital technologies. However, their participation in this context is also limited and unequal. Girls in the G20 countries still lag behind boys in the number of years of formal education completed, and there is a substantial gender gap in skills, jobs and careers involving

science, technology, engineering and mathematics (known as STEM subjects).[iv] There are many reasons for these discrepancies, starting with the fact that technology is not integrated effectively into primary and secondary education programs to increase awareness and build basic digital literacy for both boys and girls. Moreover, there is a lack of capacity building programmes and a life-long learning approach towards digital skills. In addition to the lack of skills undermining women's opportunities to access STEM careers, stereotypes and assumptions about the types of work that are appropriate for men and women continue to be widespread. Paying attention to these contextual and cultural dimensions and promoting a curricula that integrates STEM and Liberal Arts/Humanities subjects, is essential to ensure the next generation has the skills needed to participate fully in the digital future.

Finally, in the technology sector, men outnumber women at every level, with the starkest differences at the top of the industry, where women make up just 21% of technology executives.[v] Women's under-representation in visible leadership in this sector reflects and reinforces their under-representation in senior decision making roles in government and other areas of business. More participation by women as entrepreneurs, inventors and business leaders would help to redress the wider deficit in female leadership and provide much needed role models for girls in education and early careers.

How can communities harness the potential of technology to benefit all members of the society?

Recommendation: Work with other global stakeholders to develop an ethical standards framework to eliminate inherent gender biases in the development of digital technologies, and to develop holistic and cross-sectoral policies that support women's inclusion in the production, design and governance of digital technologies.

Income inequality has risen over the last three decades in advanced economies, with a broad pattern of rapidly rising incomes at the very top and stagnation at the bottom. One aspect driving this inequality is the uneven access to ICTs. Digital technologies have the potential to contribute positively to protecting women's rights and to their economic, social and political empowerment and development, by lowering information costs, expanding information bases and boosting financial independence and productivity. Particularly for women who are time constrained due to care responsibilities or who might face restrictions on their mobility and on the social and cultural environments available to them.

Some example of the positive impact of digital technologies on women's lives include:

- Female subsistence or small-hold farmers may independently use information on weather, crops, and developments of market prices, to schedule their production and their sales.
- Online learning programs can offer gender-neutral opportunities for attaining education.
- Online banking and mobile money allow individuals to transfer money and access loans safely and anonymously.

Understanding how technology could benefit women, in the different countries and different contexts in which they live their lives and earn their livelihoods must be prioritized when

developing new applications and content.[1] This means more women must be consulted and involved in the development process, as users and consumers and as researchers and developers.

In G20 economies, women account for 27% of all researchers, which is slightly below the world average of 28.8% in 2015. Argentina and South Africa are the only G20 economies which have achieved gender parity, with 45% to 55% of female researchers. However, for about one-half of the countries for which sex-disaggregated data is available, just over one-third of researchers are women. The lowest levels of representation can be seen in the Republic of Korea, Japan and India where women make up, on average, 19%, 15% and 14% of researchers respectively.[vi] This disparity should be addressed to improve the quality of digital research and increase the extent to which digital applications and services meet women's needs and priorities.

Moreover, governments must review and append labour laws and employment regulations in order to support flexible work arrangements, gig work or other non-traditional employment structures. One recent study examined earnings data from over 1.8 million drivers in the so-called 'gig economy', 27% of whom were women. Its findings suggested that men surveyed earned more than women did per hour and worked shorter hours, which researchers concluded could lead to gender earnings gaps.[vii] Thus, this intersection of labour inclusion and digital inclusion is critical. Of the G20 nations, eleven do not mandate equal pay for equal value of work, and while nearly all nations have mandated non-discrimination in employment, there are insufficient provisions to protect women from being hired, promoted and dismissed because of their gender. Furthermore, only nine have legal statutes in place to support flexible work arrangements (see Appendix 1).

Lastly, there are multiple efforts underway led by various stakeholders to address the ethical and society concerns of digital technologies. The Institute of Electrical and Electronic Engineers (IEEE), EQUALS, AI4ALL, Partnership for AI, and The World Economic Forum are a few organizations involved or leading these initiatives. G20 countries need to collaborate with these organizations to develop a united approach and holistic policies that eliminate inherent gender bias in digital technologies.

How can we ensure that all women and girls have access to digital technologies?

Recommendation: Abolish the barriers to women's access and use of digital technologies, with a focus on affordability, safety and security of digital technologies and services, broadband and connectivity offerings, and the availability of relevant content and services.

The following are the main barriers to women's digital access and use, all of which are interrelated and often deeply rooted in social and economic structures:

a. The availability of relevant infrastructure
This refers to the physical unavailability or inadequacy of infrastructure, including network coverage and the electricity required to power devices. Women who live in poor and remote areas often find the Internet particularly difficult to access because of limited connectivity. Public access facilities can offer an alternative solution; however, such facilities may only be

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[1] "The effects of Digitalization in Gender Equality in the G20 Economies," OECD, May 2017

available in locations that women find unsafe or inaccessible, or where social norms and safety concerns curtail freedom of movement. In some societies, women also experience difficulties in obtaining proof of identification which is required to open accounts or register SIM cards.[viii]

b. Cost and affordability

Cost remains the greatest barrier to mobile phone ownership for many men and women.[ix] This barrier refers to both the cost of devices and the cost of usage. Cost typically affects women more because women's income is generally lower than men's.[x] In addition, women often have less financial independence and find it more difficult to access capital than men.[xi] Women are therefore more sensitive to price than men when buying devices, and often choose those with poorer quality and connectivity which enable lesser access to the Internet and other services.

c. Usability and skills

Women also lack the skills and confidence to engage with digital technologies effectively at every level, starting from basic usage. In many countries, girls have poorer access to education than boys and, as a result, more are illiterate.[xii] Limited literacy leads on to lack of digital skills and lack of confidence, reducing women's ability to take advantage of online resources.[xiii] As a result of this lack of confidence, women are less likely than men to use transformational services (like mobile internet), and more likely than men to restrict their use to a limited number of services and applications.[xiv]

d. Safety and security

Digital technologies can both empower women and foster abuse that disempowers them.[xv] Online harassment, abuse and violence can represent significant barriers to access for many women.[xvi] In many countries, women have experienced online abuse – from petty harassment and trolling to stalking and sexual intimidation. Nevertheless, studies also show that women can use mobile and digital-related services to protect and enhance their personal security;[xvii] for example, anonymous top-up services where women do not have to disclose their mobile phone number to the agents, panic button apps, emergency credit, helplines, and harassment mapping apps.[xviii]

e. Awareness and relevant content

In developing countries, many women are unsure or unaware of the potential of communications services to benefit their lives. Recent research by LIRNE*asia* shows that awareness of the Internet is very low, particularly amongst women. Many Internet users, particularly in developing countries, equate the Internet with social media services like Facebook, rather than the more diverse services it offers.[xix] Women with little disposable income, time, literacy or awareness of the Internet have little incentive to spend time and money to gain access. The lack of relevant content also exacerbates this problem. ICT services and applications are sometimes criticised for focusing mostly on men's priorities or paying too little attention to women's needs – for example, private access to information on reproductive health.

When looking at the barriers mention above it is also important to consider the social norms that shape women's lives to different degrees in different countries. Cultural factors which act as barriers to digital technologies are difficult to address, deeply entrenched, and often so subtle that it is hard to recognize their impact. Examples of such barriers are for example, the prioritization of boys' education over that of girls' or women's fear of the Internet because they believe content may be inappropriate, offensive or harmful to them.[xx]

To have a tangible effect on advancing digital inclusion, G20 members should focus their attention on concrete actions to implement policies, drawing on existing recommendations and working with initiatives that have already been developed. The Broadband Commission's

Working Group on the Digital Gender Divide has recommended four specific action areas for closing the digital gender gap which provide a framework for action:[xxi]

1. Promoting a better understanding of relevant contexts by supporting the collection, tracking and analysis of sex-disaggregated data on Internet access and use
2. Integrating gender perspectives in relevant strategies, policies, plans, and budgets
3. Addressing barriers related to affordability, threats that hamper access and use, digital literacy and confidence, and the availability of relevant content, applications and services
4. Supporting stakeholders to collaborate more effectively in addressing digital gender gaps by sharing good practices and lessons learned

How can we ensure that women and girls have opportunities and access to ongoing education and training to keep their knowledge and skills up to date?

Recommendation: Develop and guarantee inclusive educational programs through the promotion and investment in initiatives that boost equal participation of women and girls in Science, Technology, Engineering, and Mathematics (STEM) studies combined with the Liberal Arts to support women's digital rights and citizenship. As well as increasing investment and promote training and upskilling programs for life-long learning specifically for women.

Globally, governments spend on average 3-4% of GDP on education (primary, secondary, tertiary). However, the UNESCO Institute for Statistics (UIS) estimates 287 million children in G20 countries are not meeting literacy and numeracy proficiency levels. This means that approximately 47% of the total school-aged children are not meeting proficiency levels, due to not being in school or being in school but not retaining and building skills. In 13 of 22 countries where sex-disaggregated data is available, females represent the greater proportion of the youth not in school or other training programs, especially in Argentina, Brazil, Mexico and South Africa.[xxii]

Important skills, such as literacy, numeracy, and content knowledge in academic subjects need to remain part of the curricula, but information literacy, digital skills, critical thinking and complex problem solving also need to be prioritized. Individuals need to be able to analyse and create meaning from the vast amounts of information available. Moreover, as economies continue to digitize, digital skills are becoming essential.[xxiii] Recent analysis shows that, at least within developed economies, 90% of jobs require some level of digital skills.[xxiv]

Furthermore, according to the Future of Jobs Report 2018, by 2022, no less than 54% of all employees will require significant re- and upskilling. Nevertheless, the European Commission noted that only 4.4% of the 66 million adults with lower secondary education participated in adult learning programmes in 2015. Results from a Pew study on adult learning in the US showed a similar trend, as only 57% of adults with secondary schooling or less identified themselves as lifelong learners, compared to 81% who had completed tertiary education. Furthermore, 61% of adults surveyed had little or no awareness of the concept of distance learning, and 80% reported little or no awareness of massive open online courses (MOOCs).[xxv] In addition, when it comes to training, there is a significant drop in the participation of individuals that are 54-and-older, compared to younger working cohorts.[xxvi]

It is also important to consider that while small and medium sized enterprises (SMEs) employ 60-70% of workers in OECD countries and are an important driver of job creation, their size and limited resources can prevent their scope for training. In OECD countries, workers in

SMEs engage in half of the training activities as those workers employed by larger firms. The emergence of platform businesses and the new opportunities this pose will also enhance the need to upskill the current workforce.

G20 governments and private sector organizations must invest in education and capacity building initiatives that increase women and girls' digital skills through a life-long learning approach. In addition, more evidence needs to be gathered on the experience of women and men working in new types of employment in order to understand how enhanced digital skills can mitigate the impact these can have on earnings, experience and employment rights. Lastly, collaboration must be promoted with SMEs to identify and meet the training needs for the jobs of the future.

Appendix 1.

Economy	Does the law mandate equal remuneration for work of equal value?	Does the law mandate non-discrimination based on gender in employment?	Does the law mandate non-discrimination based on gender in hiring?	Does the law mandate non-discrimination based on gender in promotions?	Does the law mandate non-discrimination based on gender in dismissal?	Can parents work flexibly?
Argentina	Yes	Yes	Yes	Yes	Yes	No
Australia	Yes	Yes	Yes	Yes	Yes	Yes
Brazil	No	Yes	Yes	Yes	Yes	No
Canada	Yes	Yes	No	No	No	No
China	No	Yes	Yes	Yes	No	No
France	Yes	Yes	Yes	Yes	Yes	No
Germany	No	Yes	Yes	Yes	Yes	Yes
India	No	Yes	Yes	Yes	No	No
Indonesia	No	Yes	No	No	Yes	No
Italy	Yes	Yes	No	Yes	No	Yes
Japan	No	Yes	Yes	Yes	Yes	Yes
Korea, Rep.	No	Yes	Yes	Yes	Yes	Yes
Mexico	No	Yes	Yes	No	No	No
Netherlands	Yes	Yes	Yes	Yes	Yes	Yes
Russian Fed.	No	Yes	Yes	No	No	Yes
Saudi Arabia	No	No	No	No	No	No
South Africa	Yes	Yes	Yes	Yes	Yes	No
Turkey	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom	Yes	Yes	Yes	Yes	Yes	Yes
United States	No	Yes	Yes	No	Yes	No

Source: EY. Data from World Bank's Women Business and the Law 2018 report.

Appendix 2. Good practice examples

WeLearn online portal (Indonesia)
In collaboration with EQUALS partners willing to share digital learning content (e.g. Unilever), WeLearn is a portal that facilitates partner organizations and companies to work together to provide skills development opportunities for women and men, unlimited in age. This portal is a venue for developing skills virtually in order to facilitate women's access to lifelong learning, giving women the opportunity to gain relevant knowledge, abilities and attitudes needed to navigate life and work in the 21st century labor market (such as business development, literacy finance, procurement (procurement)), strengthen the capacity of women to compete in sectors with higher added value. The portal also seeks to help transform prevailing norms in society, attitudes and practices that hinder women's empowerment and encourage NGOs, communities, traditional leaders, teachers and families to promote the development of girls, employment, and entrepreneurship.

Women in Technology Role Model database (South Africa)
AfChix, an Africa based women in technology group, is creating and promoting a publicly available database of female experts, role models, professionals, entrepreneurs and innovators on its website to ensure more women are recognized for their achievements and to break down social norms about women and girls in STEM.

e-Training Caravan Learning Initiatives (Saudi Arabia)
Designed to enable the segments of society to deal with telecommunications and information society effective, bridging the digital divide and raising awareness of the important of ICT for all people, these caravans focus on populations in rural areas and low-income locations. Trainers and a driver traveled between cities and villages providing training for 5 days in each location, for up to 40 hours of training.

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[xviii] For more exmaples of these type of initiatives and others that address mobile-related safety concerns, please refer to GSMA, 2018.
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