

## **Gender divides and digital divides: looking towards the SDGs (Sterling)**

There is no tool for development more effective than the empowerment of women – Kofi Annan

Decades of research have demonstrated that sustainable poverty reduction and community development are only possible when women and women's interests are considered a top priority, as women are the primary caretakers and agricultural producers in the community, and are responsible for providing and upholding the educational and cultural health of the community, while also suffering the greatest brunt of poverty (Blackden & Bhanu, 1999; Klasen, 1999; Jato, 2004). According to Joaquim Chissano, Former President of Mozambique, "Health and development experts, economists, non-governmental organisations, UN agencies and even banks agree that expanding the freedoms, the education and opportunities for women holds the key to kick-starting inclusive economic growth (Chissano, 2014).

However – and evident around the world -- women have a diminished access to and control of the resources that they need to attain status in the community -- information, education, financial credit and material resources including housing, agricultural products and technology. Without access to these resources, women are further marginalized and opportunities for development and access to markets are closed to them. For these reasons, women remain vulnerable during market downturns, and during personal and family crises. This in turn feeds the cycle of women's under-development as a chronic condition that leads to systemic poverty. According to the World Bank, "a host of studies suggest that putting earnings in women's hands is the intelligent thing to do to speed up development and the process of overcoming poverty" (World Bank, n.d.).

One of reasons women bear such a disproportionate burden of poverty is their lack of access to the very information that could help them mitigate or manage these circumstances. Women's lack of access to information and education, as evident in the Human Development Report, remains a huge barrier to their advancement, despite the billions of dollars that are spent on ICTs to promote access to information and close the "digital divide" (Avgerou & Walsham, 2000; Ojo, 2003). The United Nations lists women's access to ICT as the third most important development issue for women globally after poverty and violence against women (Hafkin & Taggart, 2001). However, ICT initiatives generally fail to take gender-specific barriers to ICT access and use into consideration. These barriers often include literacy, training, cost, time, safety, and gender segregation (Hafkin, 2000; Hafkin & Taggart, 2001; Huyer & Sikoska, 2003; Primo, 2003; Huyer, Hafkin, Ertl & Dryburgh, 2005).

By ignoring gender differences, ICT programs and policies further exclude women from the benefits of technical advances, and gender inequities are further perpetuated (Hafkin, 2000; Radloff et al, 2004). According to the Global Knowledge Partnership, ICTs amplify the existing gender divides in communities (Rahim, 2008), and while ICTs have the potential to positively affect women's lives, "technologies introduced into environments characterized by inequality tend to reinforce and even exacerbate it" (Derbyshire, 2003). Gender-focused NGOs and researchers have been raising this issue since an explicit gender and technology charter was adopted at the Fourth World Conference on Women in Beijing in September 1995. However, issues of gender and technology are routinely positioned as side conversations in both the development and technology arenas (Morrell & Sterling, 2006). Meanwhile, women remain 21% less likely to

We are missing opportunities to create ICTD strategies that are gender-equitable, and therefore beneficial, to the entire community. UNESCO's Gender Issues in the Information Society demonstrates this need: "Women represent the main economic force in most developing countries. As economies become more and more information-driven... the involvement of women in the Information Society on an equal footing with men will directly contribute to improving the livelihood of people, making it more sustainable and thereby promoting the social and economic advancement of societies." (Primo, 2003).

While ICT holds incredible potential to help women "leapfrog" the very societal structures that hold them in systemic poverty and lack of empowerment, this potential is rarely realized due to poor implementation strategies. This is not the deliberate aim of the technical development practitioner; she or he cannot easily recognize these unequal gender-based power relations upon a short visit to a community. There may even be women and girls attending a digital literacy program at a nearby school, and undoubtedly, many of the women own cell phones. However, investigating who will have access to the technology that is being deployed, how much it costs to use, where it is being placed in a community, and such factors as literacy levels, language of content, and if women can even use technology without a male relative's permission give the practitioner some beginner's insight into the societal dynamics at hand. No one in ICTD wants her or his project to be a failure or exclude large swaths of the population – especially the most marginalized who happen to also be the key to sustainable community development.

**It is an unbalanced equation:**

- **Women's advancement is key to poverty alleviation in all forms**
- **ICT can be a powerful tool in poverty alleviation in most forms**
- **Women do not have the same opportunities to use ICT as men do, for a variety of cultural issues**
- **If women are excluded from the benefits of technology access and use, they are marginalized even more than they were prior to the introduction of ICT**

The equity argument is daunting. Women's empowerment is not a popular topic for the very reason that people who hold the power in communities often do not like to share it. States and countries have called to ban women from using mobile phones and certain applications (Reuters, 2012; BBC, 2015) and a recent article in a Pakistani newspaper covered the concept of "digital purdah" – how social media perpetuates gender segregation (Schoemaker, 2015). It is worth making economic and efficacy arguments in addition to those about equity, especially when there is such enthusiasm about the transformative potential of technology, while women's rights remain an "evergreen" issue -- perpetually on the table to talk about. This year's GSMA report on the gender gap estimates that "closing the gender gap in mobile phone ownership and use could add an additional \$170B USD to the mobile phone industry by 2020," and quotes McKinsey and Company forecasting that "increased internet access could add 10% or \$300 billion to Africa's GDP by 2025" (Santosham, 2015). There is a 45% gender gap in mobile phone ownership in Niger; South Asia has a cumulative different of 38% - the largest of the region-specific gaps (GSMA, 2015). Increasing women as a user base could benefit both local economies and GDP – if the hurdles of ownership and use can be addressed in a way that does not make women vulnerable to backlash. This is where smart program design and evaluation frameworks come into play – and there are several. Association for Progressive Communications, Bridges.org, ChangeIT, the Grace

Network (Gender Research in Africa and the Middle East into ICTs for Empowerment), and many country-specific women’s technology associations have been working on increasing women’s agency in the context of their cultural realities.

Working to change women’s experiences and perspectives so that they can participate in the ICT revolution and fulfill technology’s potential as a powerful tool to make women more effective change agents is no easy task, but if we want our ICT interventions to work (especially given the failure rate of ICT for Development), we can start by targeting women specifically and explicitly. This means working with men to dispel threats about newly-empowered women, as well as creating a user experience that is accessible and relevant to women. As women make up 2/3 of the world’s illiterate population, this may mean creating alternative inputs so that women don’t pay exorbitant prices for voice-only services – this may be IVR, or gesture based, or a type of symbol shorthand (Dodson, Sterling and Al-Rabban, 2015). More successful uptake of ICT interventions by women only increases the success rate of the ICT project, which is another reason to target women with highly-useful digital services that she will likely teach other women and her children to use. Women’s exclusion from the benefits of ICT needs to move from being an evergreen issue to being the driving force and target for effective, long term poverty alleviation.

There are thousands of ICT for Development applications, especially in the sectors covered in this handbook. Each would likely benefit from an extensive gender equity review. The common denominator is that women don’t have access to mobile technology to the degree we assume they do, and they often do not know what kinds of services and content exists, especially if there is little support for their language or their literacy level. Most importantly, the question of access often hinges on cultural acceptance of women using technology. The following six examples map to the handbook sectors and describe at a high level the utility of ICT in each – which could be extended to all 17 Sustainable Development Goals.

Sector	
Health	Women are the last to spend money on themselves for doctors; good online systems can bring cost-effective point-of-care systems from the hospital to the village or household level for information, diagnosis and self-triage, maternal and child health; women can serve as community health workers, taking mobile phones as portable training centers to remote or poor communities. An underserved health area for women is culturally-appropriate mental health services for those women and girls in conflict zones and refugee camps, where few services exist but rape and GBV are used as a method of social control.
Education	Women with higher education levels have better health, marry later, and have fewer children – all good for their economic status. They also tend to send their daughters to school and refuse traditional gender practices including FGM and dowry. While educational technology has vastly improved learning outcomes, informal education must be fortified and “formalized” for those girls who cannot go to school, due to culture or cost. Online courses, mobile-based learning, and distributed classrooms for all

	<p>subjects and skills level need to be available, especially useful local vocational skills as well exchanging and teaching valuable Indigenous Knowledge, which is often the domain of women and could benefit outside communities.</p>
Environmental Protection	<p>Women are incredibly vulnerable to climate change, as they comprise the majority of the agricultural work force and have access to fewer income-earning opportunities. They are also less mobile due to household and community responsibilities, which include securing food, water and energy – all which have become more challenging with climate change. With better information, women can employ conservation or disaster-mitigation strategies for such events and conditions as soil erosion and deforestation or flash flooding.</p>
Governance	<p>ICT enables women to understand their rights and mobilize online, which can lead to real-world mobilization around advocacy and governance. Several NGOs work with women from the Global South to help ready them to enter politics or community engagement, especially since most communities do not have female role models and little access to fundraising resources. As women are often brought up under systems that discriminate against them, online tools and training help build self-efficacy. Open Data movements in several countries have led to prolific downloading and studying of local and state laws and constitutions, as well as information about elected officials.</p>
Disaster Relief	<p>Mobile money is increasingly being used as a form of humanitarian assistance. GSMA research demonstrates that women receive more remittances than men through mobile phones, because they are traditionally responsible for the food and household budget (GSMA, 2014). Having a great deal of responsibility over managing remitted funds gives women increased agency during a critical time. Information services – and the ability to use them – such as mapping and location services, is also critical to women’s and children’s safety and well-being in a highly vulnerable time.</p>
Agriculture	<p>Access to the many ICT agricultural applications would enable women – already the major agricultural labor force globally – to feed many more of the world’s poor. According to the Food and Agriculture Organization, if women “had the same access to land, technology, financial services, education and markets as men, agricultural production could be increased and the number of hungry people reduced by 100-150 million” (FAO, 2011). Women also grow fewer cash crops than men, which could be bridged by better information on crop planning and pricing.</p>

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