REFLECTIONS OF A DIGITAL DIVIDE

Representations of gender, diversity, and device use in mobile network marketing

A4AI Discussion Papers, Series 1 — September 2021

www.a4ai.org

A4AI ALLIANCE FOR AFFORDABLE INTERNET

WORLD WIDE WEB FOUNDATION

Acknowledgements

The **Alliance for Affordable Internet (A4AI)** is a global coalition working to drive down the cost of internet access in low- and middle-income countries through policy and regulatory reform. We bring together businesses, governments, and civil society actors from across the globe to deliver the policies needed to reduce the cost to connect and make universal, affordable internet access a reality for all.

The **World Wide Web Foundation** was established in 2009 by web inventor Sir Tim Berners-Lee and Rosemary Leith to advance the open web as a public good and a basic right. We are an independent, international organisation fighting for digital equality — a world where everyone can access the web and use it to improve their lives. The Foundation holds the secretariat of the Alliance for Affordable Internet.

The GSMA estimates around 234 million fewer women in low- and middle-income countries use the mobile internet than men ([GSMA, 2021](#)). Throughout much of the world, gender discrimination discourages and sometimes forbids information and communication technologies (ICTs) use by women and non-binary individuals.

This report summarises our investigation of representations of gender and diversity on the front pages of the websites from mobile network operators around the world and considers their impact to influence the digital gender gap. Overall, women's representations on these websites offers an example of hope – where gender discrimination does not impede women's use of ICTs – however, other shortcomings, within regions and across intersections of ethnicity, age, and ability, are apparent.

This research speaks to one example of a broader range of possibilities to address social norms that reinforce the digital gender gap. **Social norms** act as communally-held expectations and practices that relate to the behaviours of a society's members: for example, should women own and use ICTs and what is appropriate use. As all stakeholders work together to respond to the digital gender gap, **marketing representations offer a medium for action by mobile network operators and other companies in the ICT sector to challenge norms that say that a person's gender influences or determines their ability to use these technologies for their benefit.**

The digital divide is sexist.

The development of mobile communication and internet access has created a paradigm shift in how ideas are generated and shared. This has contributed greatly to positive, large-scale social movements by providing a platform where movements for equality, political participation, and democracy have had the opportunity to gain traction. Examples span from the Black Lives Matter movement, *Ni una menos* across Latin America, End SARS in Nigeria, and the farmers' protests in India. The benefits and positive change, however, cannot be fully discussed without acknowledging that the proliferation of mobile use and the internet has, so far, amplified existing inequalities and introduced new ones in the form of the digital divide which is further stratified by different variables of vulnerability including, race, gender, age, and disability.

The **digital divide**, broadly speaking, refers to the difference in access, use, or impact of information that separates those who have access to information and communications technologies (ICTs) from those who do not. Despite the connotation being somewhat binary (the haves and the have-nots), the digital divide is a multifaceted issue with

different aspects of intersectionality, such as race, gender, class, sexuality, age, and ability, contributing to a worsening of outcomes for people who are more vulnerable.

There are three current levels to the digital divide: the first being the difference between the users and non-users caused by a lack of access to infrastructure and generally denotes physical access (Lloyd et al., 2011). The second is the difference between the digital skills and internet use, in that, access is not a matter of simply having possession of the technology the ability to use that technology to maximise one's personal experience forms a key facet of access in the absence of which a divide between the 'information rich' and the 'information poor' appears (Valadez and Duran, 2007). The third-level divide is the differences in outcome whereby one can have access, use, and digital skills but could have different outcomes and experiences (Scheerder et al., 2017). Each level of the digital divide is inextricable from the other.

Levels of the digital divide

» FIRST LEVEL

Disparities in infrastructure and device access to ICTs

» SECOND LEVEL

Disparities in skills and content

» THIRD LEVEL

Disparities in outcomes and experiences

Of the different set of factors that contribute to inequalities, gender discrimination is one of the most significant. Gender differences exist in resources and capabilities to access and use ICTs; they persist regardless of region or socioeconomic status (Pawluczuk et al., 2021).

Existing socioeconomic inequalities between men and women exacerbate the first-level digital divide (Bimber, 2000). Because of pre-existing inequalities, women are less likely to have access to device opportunities, device diversity, peripheral diversity, and device maintenance (van Deursen and van Dijk, 2018). In 2018, an estimated 327 million fewer women than men had a smartphone or could access the mobile internet (OECD, 2018). In 2020, men were 21% more likely to be online than women. The gender disparity is different per region, with Least Developed Countries having a 52% gender gap, one of the widest internet use differences (Web Foundation, 2020). The second level of the digital divide speaks to the skills needed to navigate ICT use. These are both operational – relating to technological literacy – and strategic skills which denote the ability to use ICT for self-improvement (van Deursen et al., 2011). The third level of the digital divide affects the design and deployment of technology which has negative repercussions for the way technology affects women as compared to men (Criado-Perez, 2019). This manifests itself in algorithmic discrimination (Criado-Perez, 2019), sexual harassment

([Barker and Jurasz, 2019](#)), unequal bodily censorship ([Ravary et al., 2019](#)) among several other harms.

Barriers that women face can be categorised into two groups: first, technical and economic barriers and, second, sociocultural and psychological barriers.

Technical and economic barriers include a lack of equal purchasing power to access ICTs for instance. The average price of 1GB mobile broadband in Africa is three times higher than the affordability benchmark of no more than 2% of the average monthly income ([A4AI, 2021](#)). Globally on average, the cheapest new smartphone sells for around US$100 — multiple months' worth of income for millions of women in low and lower-middle income countries ([A4AI, 2021](#)). These barriers, paired with gender pay gaps, are higher for women and mean that the cost to connect requires more of a woman's income than a man on average ([WEF, 2019](#)).

Sociocultural and psychological barriers are a result of gender-based stereotypes , patriarchal norms, and discrimination which affect women's ability to access ICTs. The barriers include traditional gender roles such as unpaid care work in the home which has undermined their education ([Antonio and Tuffley, 2018](#)). This also includes stereotypical notions about women's ability to participate in the development process of ICTs. This is a stereotype more commonly referred to as 'brilliance bias' – the assumption that there are gender-based differences in intelligence that make men more qualified as software engineers or ICT experts as opposed to women ([Storage et al., 2020](#)). This contributes to the 'leaky pipeline' problem where, due to a variety of factors including discrimination, harassment, and unequal compensation, women are less likely to move up the career ladder in STEM fields ([Colatrella, 2011](#)).

How social norms can keep women and girls offline — *Julia Meltzer*

The lack of women's access to the internet or a social environment that normalises it creates a cruel reinforcement loop (see Figure 2 on page 16) that leaves women struggling and disconnected from the online world. Breaking this cycle can undermine harmful cultural norms that keep women from realising their other human rights.

This phenomenon persists across different religious and cultural communities. Among Orthodox Jewish communities, there are "kosher cellphones" which only allow voice calling because religious leaders worried about "the creation of illicit intimacy by telecommunication media" (Rosenburg, 2019). In Pakistan, "family does not approve" is the top reported barrier to mobile internet for women (GSMA, 2020). Across India, because of a fear that women's use of mobile phones could enable promiscuity or erode traditional norms, "women risk damaging their reputation if they use or own a mobile phone" (Barboni et al. 2018).

Globally, ownership of mobile phones is tied to income, education, and religion (Pew, 2019), so a comprehensive study of the cultural elements and social norms that deprive women of mobile connectivity must navigate each of these barriers.

Increasingly, women cite family disapproval as a barrier to mobile device ownership (GSMA, 2019). In order to combat these sociocultural barriers, equity leaders must "work with gender and development organisations that have had decades of experience conducting social norms work, including local organisations with deep context of local norms and past development projects" (USAID, 2021). This is a problem that must use hyper-local, community-specific data and practices to ensure women feel comfortable and supported entering the digital sphere.

In Pakistan, our study found that the three biggest operators each feature an equal or greater number of women as men. This is a profound and important step that more operators in West and Southeast Asia should consider.

Changing social norms takes a long time and resources. We must start early with members of the next generation, targeting children to ensure that girls feel comfortable with and entitled to internet access. Additionally, it is essential that advocacy groups and policymakers demonstrate to private companies that there is economic and market value in expanding their consumer base to include women. This is the biggest missing market share and private companies should be interested in funding efforts that would continue to increase their profits in years to come.

Mobile internet marketing can influence the digital gender gap.

Marketing can reflect or challenge social issues and inequalities through the representations it makes. Marketers may categorise consumers based on social labels, which are often determined by systemic differences in power, such as gender or ethnicity/race. This categorisation permits companies to prioritise marketing to specific groups or ignore groups altogether who may not be viewed as profitable or common targets (Henderson & Rank-Christman, 2016). And, depending on these factors, as well as the importance of diversity as a value internally, the final representations can reaffirm but also challenge inequalities that exist today.

Media has a tremendous impact on our psychology, and it can also help define and determine our role as consumers. Therefore, it's worthwhile to explore how, and if, marketing contributes to the same stereotypes that widen the digital gap. We know that when consumers view themselves depicted with 'undesirable' stereotypes, it negatively impacts their consumption, especially when brands suggest a certain identity is synonymous with a specific product (Henderson & Rank-Christman, 2016). The potential for mobile use and internet marketing to hinder consumption is made clear: depending on which groups are prioritised or neglected, marketing showcases the desired consumer(s), which can in turn be internalised by the consumer. This is how marketing by mobile network operators can influence perceptions of who does and who should have access to technology and the internet. **For operators to successfully challenge inequalities that worsen the digital divide, they must incorporate intentional, inclusive, and intersectional marketing approaches that showcases the full diversity of their consumers.**

Similarly, marketing about the mobile internet is not just about who is represented in promotional material but also what they are depicted doing. In our study, we were concerned with the variations in gender, age, race, and ability, as well as which devices each group was depicted using, for what, and where. These details are essential in our evaluation of the social impact of marketing, as they demonstrate how, and if, our identity influences our role as consumers in mobile internet, according to network operators.

Marketing and media representations have an impact on how people see the world and themselves. The influence of positive representation can be seen by the 'Scully effect,' in which the *Geena Davis Institute on Gender and Media* determined that 65% of the women familiar with the Dana Scully character of the *X Files* TV show who were young at the time when they were watching it, actually pursued careers in STEM (2018). Similar representations could have a positive impact on closing the digital gender gap.

Methodology: How we studied mobile operator websites.

The researchers of this study collected and coded images of device use on the front page of mobile network operators' websites to understand the proportions of media representations of mobile internet use, especially with reference to mobile phones and gender. Research was conducted on the websites of every global mobile network operator with a market share of at least 15% of mobile-broadband capable connections in its country (based on latest available data from GSMA Intelligence) for the latest available annual period. From these webpages, we used screenshots of the front page to code the images of people (as 'actors') on the operators' front pages. These images were then analyzed for perceived gender, ethnicity/race, ability, and age.

Table 1. Variables for marketing representations study

Actor		Location		Device	
Gender	Male, Female, Non Binary, Indeterminate	**Back-ground**	TRUE/FALSE, image has background	**Type**	Basic/Feature Phone, Smartphone, Tablet, Laptop, Desktop, Other
Ethnicity/ Race	Majority, Minority, Indeterminate	**Public Space**	TRUE/FALSE, area appears to be a public space	**Use**	TRUE/FALSE, device held so that the screen could be used
Ethnic/ Racial Group	*Open text, if apparent*	**Indoors**	TRUE/FALSE, area appears to be indoors	**Brand**	*Open text, if apparent*
Disability	TRUE/FALSE, actor presents visible disability	**Urban-isation**	Urban, Rural, Indeterminate		
Age Group	Child (0–18), Young Person (18–25), Adult (25–60), Senior (60+)				

It is noteworthy that gender is not binary and gender perception often does not represent or correlate to gender identity. For the sake of this study about representation, the actors in the images on the operator pages were coded for perceived gender, often including stereotypical understandings of gender presentation like hairstyles and clothing choices. Additionally, we used markers of 'non-binary' for those presenting androgynously and 'no gender' for actors of uncertain gender presentation.

Similarly, other demographic markers relied on assumptions and perceptions to make classifications. For ethnicity/race, actors were primarily coded as 'majority' or 'minority' ethnic and racial group (based on national-level demography), with any further coding of ethnicity/race done on a limited scale. For ability, given the medium of web screenshots, our dataset only refers to visible disabilities; however, this consequently omits non-visible disabilities from our dataset.

From this series of actors, we further coded by location data: when visible, noting whether the actor was indoor, outdoor, in public or in private settings (e.g., an office versus a home). Device information was also gathered, including which actors used which sorts of devices (smartphone, feature phone, laptop, tablet, etc.) and whether they were using the screen or holding the device up to their head. This position of the device was used to understand potential assumptions around using mobile devices just for telephony versus using them for a wider range of activities including applications and the internet. This comprehensive dataset allows for disaggregation across these categories to further understand correlations between demography, geography, and technology.
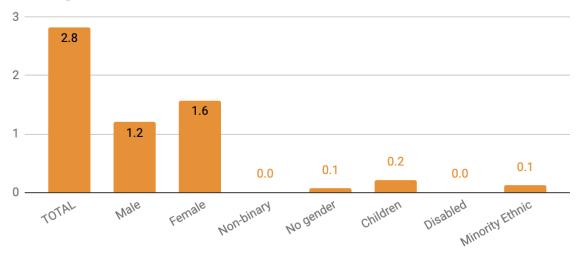
Results: Operators' representations of gender prioritise women's use of mobile technology, although some disparities emerge, especially at the regional level.

This survey of mobile network operator websites spanned 478 operators in 224 markets. In these websites, 1,239 actors were identified as device users and included in the database for perceived demographic information, their location, and contextual information of their device use. Of these, 697 actors were coded as women, 535 as men, two as non-binary, and five with no gender. By ethnicity/race, 1,113 were perceived as belonging to the majority ethnic/racial group in their market, 108 of a minority ethnic/racial group, and ten were not classified.

Despite the digital gender gap observed in mobile and internet usage, this study found that women represent a majority of the device users on operators' front pages. Figure 1 exhibits a significantly higher number of women than men. An average of 1.5 women are shown using a device per operator home page as compared to 1.2 men ($p < 0.0001$). This visibility advantage for women demonstrates one way to increase representations of and normalise women using ICTs and to help normalise ICT use by women.

Figure 1. Average number of actors per website, by group

Source: Laghaei, Meltzer, & Ondili, 2021

In many parts of the world, however, women are still underrepresented as device users on operators' front pages. For instance, in Central and Western Asia and Northern Africa, men account for a majority of the device users found on these pages. This correlates with a significantly larger gender digital divide in countries across the MENA region.

Table 2. Regional Summaries of Gender Diversity in MNO Marketing

	Women	Men	Non-Binary	No Gender	Total
Australia & N. Zealand	**5**	3			8
C. Asia	3	**7**			10
E. Asia	**12**	8		1	21
E. Europe	**10**	4			14
Latin America & Caribbean	**185**	104	2	2	293
Melanesia	**17**	9			26
Micronesia	**16**	10			26
N. Africa	8	**13**			21
N. America	**11**	9			20
N. Europe	**32**	20		1	53
Polynesia	**23**	13			36
S.E. Asia	**43**	33			76
S. Asia	**61**	55			116

S. Europe	**37**	21		58
Sub-Saharan Africa	**189**	174	1	364
W. Asia	23	**31**		54
W. Europe	**22**	21		43

Source: Laghaei, Meltzer, & Ondili, 2021

Intuitively, we might expect the gap in media representations to reflect the gender gap in internet or mobile phone use. A regression of these data, using the 2021 Inclusive Internet Index, however, shows no significant correlation between the gaps in actual use and those in represented use. This could be a sign that countries and regions with significant use gaps are encouraging progress by increasing gender representation.

The study analysed the depiction of persons by location, setting out three broad categories: urban and rural, indoors and outdoors, and public and private. Women and men were shown consistently in all spaces in roughly proportion to their number in the whole sample of all images collected. The largest deviation from this came from public indoor spaces, where women undersampled by around 10.4% and men oversampled by 15.8%. This matches with the frequent depictions of women primarily in home settings (private and indoors) and often interacting with children, while men were more likely to occupy workspaces and professional settings (public and indoors). The context of a setting depicted in an advertisement can adversely contribute to negative gender stereotypes if it is widely skewed toward one gender (Shamim and Hassim, 2021). In turn, these images could reinforce perceptions of what women and men are doing by using ICTs and what is the value of ICT access for different individuals.

When looking at devices and gender, stereotypes prevail among use of devices other than smartphones. Men dominate as users of desktop computers, gaming consoles, and tablets, while women are more frequently seen with feature phones and landline telephones. Only two women are depicted playing video games, and both were playing alongside a male friend or family member.

Understanding the intersections of age and ability — *Mahtab Laghaei*

Women with intersecting identities across age and disability face compounding barriers that inhibit their full participation in mobile internet and phone usage. One in five women are disabled and are more likely to become disabled later in life than men ([UN Women, 2019](#)). Yet, the area exploring disabled women's connectivity and relationship with mobile internet usage is "under-researched and data is virtually non-existent" ([GSMA, 2020](#)). While more disaggregated data is needed for a full understanding of the scope of these differences and how they interrelate, at this point in time, the data for the connectivity of both these groups is sparse.

When we implement an intersectional lens and consider the relationship between gender and disability, or between gender and age, women's disadvantages compared to men echo the same experiences of older people and people with disabilities in terms of access and use ([OECD, 2019](#); [Johannson et al, 2021](#)). In Bangladesh, where the gender gap for mobile ownership is 29%, the gender and disability gap is more than double at 66%, where 54% of disabled men own mobile phones while only 30% of disabled women do ([GSMA, 2020](#)).

Though the barriers to mobile technologies that all women face may overlap, their solutions may be different. For example, the 2020 GSMA report '*The Digital Exclusion of Women with Disabilities*' notes that while the knowledge gap on mobile connectivity has been steadily decreasing among women, the solutions that have aided non-disabled women gain the necessary knowledge has not had the same impact for women with disabilities, where this gap has yet to decrease. **When investigating the mechanisms that contribute to the digital divide, it is essential to use disaggregated data to use an intersectional approach that would address the full diversity of all women, especially the unique challenges facing older women and disabled women.**

We see some of these gaps in digital connectivity reflected among the marketing representations across operators. **Of 1,239 actors, not one woman with a physical disability was depicted. Seniors were the least represented age group at 3%, with only a handful of senior women featured.** These depictions suggest that the representation of both disability and age are neglected even amidst a context of gender-equitable marketing. Even operators working in and among countries with larger senior populations had little to no representation for seniors using mobile technologies. **The omission of these groups from marketing material may only further reinforce the stereotypes and discrimination that maintain the digital gap facing disabled and senior communities.**

Discussion: Operators' websites and marketing offer an opportunity to indirectly shift negative social norms around gender and ICTs.

The mobile industry has taken steps to prioritise women's access to technology. GSMA, the trade body for mobile network operators, [first launched](#) programming and research focused on women's access to mobile technology in 2010. This matches with the topline image of our study's results, where operators globally have included more representations of women using mobile devices over men. This is one step in changing the tone around women's access to, use of, and participation in technology.

Historically, women's contributions to technology have either been diminished or considered not noteworthy ([Colatrella, 2011](#)). This erasure are further aggravated by regional differences, socioeconomic, and cultural values and women's political participation.

ICT industries can only benefit from a pipeline of diverse people who can invent new solutions and come up with new ideas as their experiences are not similar or singular. Women's greater participation in ICT can also allow women to reimagine for themselves traditional social structures, get resources to support them and to challenge patriarchal constructions in the physical world ([Etzkowitz et al., 2010](#)). Women's contribution to ICT should be noted, first, as related *to* but distinct *from* the experience of men: their roles should be seen as invaluable contributions to the economy and community. The participation of women can highlight the ways that women are subordinated to men in the current world, how this subordination is maintained, and how it can be changed. **The inclusion of women not just as consumers but as creators of technology can, in turn, lead to more gender-inclusive technology and gender-inclusive societies.**

The digital gender gap shows us that fewer women are accessing mobile internet compared to their male counterparts. However, our analysis into the marketing materials across operators shows that more women are represented as internet users than men. This difference indicates a deviation from the norm and suggests operators are prioritising who is represented on their sites in a way that moves away from the current unequal reality, although aspects of traditional gender roles persist. This may suggest that operators are considering gender diversity as part of their marketing strategy. Considering the current push for more diverse marketing models, it will be interesting to see similar shifts towards diverse representations of race, age, and ability over time.

Even with the positive news for the top line, some challenges to equal representation of women persist. Our dataset did not contain a single woman with a visible disability.

When coding for minority representation in-country, minority racial representation around the world was mostly white actors in demographically majority non-white countries, contributing in further underrepresentation of non-white women as technology users, especially where they may not be the demographic majority. Together, these representation gaps estrange women of marginalised backgrounds or with a disability because of their intersecting identities and may in turn have limited impact in reaching some of the most marginalised groups in terms of the digital divide and mobile device usage.

Broadly, the analysis revealed that **in some of the regions where gender disparities for device users are harshest, operator pages mirrored this norm and exhibited an underrepresentation of women.** In Northern Africa, Central Asia, and Western Asia, the presence of more men than women are shown on operator pages. This might alienate female potential clients from the represented actors and discourage their use of telecommunications devices.

Even in Scandinavia, a global leader for gender equality (OECD, 2018), we see that women's role in operators' pages is largely tied to family – half of Scandinavian operators whose most prominently featured photo included a woman showed her with her family as compared to one fifth of men with the same featured position. This subtly enforces traditional gender roles and stereotypes that establish women as mothers and men as free individuals. One of the images most prominently featured on an Icelandic operator's website included an image of a woman clinging to a male electrician's leg. Images like this are like the digital divide's 'damsel in distress' trope and convey perceptions of technical ability based gender. Men, on the other hand, were more frequently portrayed as pensive and strong, with images running the gamut from the electrician to the superhero.

Gender norms and chatbots — *Mitchel Ondili*

Chatbots, otherwise referred to as conversational agents (CAs), are becoming more commonly deployed in web-based interactions, usually as a customer service feature for websites, including those of mobile network operators.

A chatbot is a software application which uses natural language to interact with a user and which usually operates in specific domains to address specific scenarios (Dale, 2016). These agents are sometimes coded with humanlike features to increase their relatability. Humanising chatbots may have much to do with creating greater comfort of

interaction with the agents-evoking the sensation of having a discussion with an actual person rather than an algorithm displaying a series of pre-coded responses. While giving the CA's humanoid features can be viewed as a simple, common-sense measure to increase engagement with the site, a concerning pattern of having conversational agents be primarily coded as female has raised questions of perpetuating gender stereotypes and worsening the perception of women's 'roles' in technology.

Applying the Computers-As-Social-Actors (CASA) Paradigm means that human users will perceive computers as social actors and whenever the CAs display specific gendered cues, the human responds in a gendered way as well. Female coded CAs for instance are perceived as more likeable but are often asked questions which are abusive, particularly sexually abusive or which are sexually inclined (Silke ter Stal et al., 2016). The effect of gendering a majority of conversational agents as female includes the corresponding gendered stereotype of women as being subservient. Additionally, rampant abuse of the agents with no consequences in the virtual space leads to antisocial behaviour in the real world toward women (Brahnam and De Angeli, 2012).

CAs are typically coded to respond neutrally to agent abuse although a few CAs have displayed concerning responses (famously Siri used to respond to a derogatory slur with "I'd blush if I could") and the discussion on how to code the CAs to respond to insults and harassments have yielded mixed views (UNESCO, 2019). A suggested remedy has been to have the CA 'push back' expressing discontent for abusive behaviour and chastising the user although this also presents concerns of user experience which may turn a user away from engaging with the CA further (Siegel, 2019). Empathy has also been posed as a response type to agent abuse to reduce any anger and guilt felt by the user and enable them to carry on the interaction with the conversational agent (Chin and Yong, 2019).

Analysing the presence of chatbots in the study
This study also looked at the different text-based conversational agents on the mobile network operators' websites, often found in the corners of webpages or having text meant to direct the reader to engage with the conversational agents. Of the 14 chatbots studied, three were coded male, ten were coded female , and one was coded neutral. The overrepresentation of female coded chatbots is in line with previous studies indicating that people generally prefer female coded chatbots (Brahnam and De Angeli, 2008). Further research in this area can explore why operators chose this approach.

Reflections: Marketing and its representations form part of a comprehensive programme to R.E.A.C.T. towards gender equality in the digital world.

The content pillar in the [REACT framework](#) considers that media shape the visual landscape that constructs gender. Consequently, media and marketing, through its representations, influences the way women see themselves and their roles in technology.

Marketing representations can be used to foster sensitivity to the causes and consequences of change in the social world (of which gender undoubtedly forms a part), change perceptions, and encourage people and societies to be more inclusive. **Adding an intersectional lens means that, for example, women who belong to different ethnic/racial groups, women who are disabled, and women who are otherwise underrepresented and underserved, can see themselves as fully belonging in society — online and offline.**
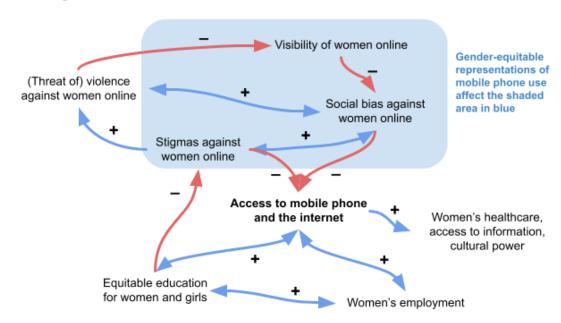
Beyond marketing, other aspects of the REACT framework can impact representations of gender and ICT use as well. Equipping women with necessary technological education by requiring state-funded schools to include mobile and internet training and information is an essential step towards bridging the digital gap. Education remains the most powerful tool to increase digital access and targeting school-age girls can provide life-long positive impacts on assessment of access and relevance.

The 'T' for targets pillar is about setting concrete gender-equitable targets, specifically ones that use an intersectional framework to consider how gender intersects with other forms of oppressions/exclusions beyond gender that may further complicate the digital divide for women and other groups. For example, women with disabilities have one of the lowest rates of mobile and smartphone ownership compared to other groups ([GSMA, 2020](#)). And while the gap in knowledge of mobile internet is decreasing for able-bodied women, it has stagnated for women with disabilities. **Though the needs of all women may not be the same, their solutions are overlapping. To reach universal access, we must use an intersectional lens that investigates how overlapping inequities can further the digital divide.**

The results of this research project illustrate the intersectional aspects of the digital gender gap. Just as there are ranging factors impeding women's access to mobile phones and the internet (ranging from affordability to cultural approval), the expansion of women's access to ICTs and the closing of the digital gender gap has great implications for women's rights. Figure 2 demonstrates many of the core elements of

this system and reveals how closing the digital divide could increase access to healthcare, education, and job opportunities. These positive reinforcement loops of women's access to education, employment, and phone and internet access illustrates that an influx of resources at any of these points could, in turn, increase access to the other resources in question. They could also be an origin point for breaking the cycle within negative feedback loops.

Figure 3. Systems mapping of gender norms and mobile phone use
Source: Laghaei, Meltzer, & Ondili, 2021

This research illustrates a way forward in closing the digital gender gap and the roles and responsibilities across the ICT sector in doing so. The marketing representations of gender and diversity in relation to mobile use offer a specific point of intervention in influencing social norms. **It shows that all stakeholders – governments, private companies, and civil society alike – each hold capacity to influence the way that gender norms around technology are built, maintained, or transformed.**

We are heartened by the positive trend here in marketing representations that depicts a world where women are not held offline because of their gender. However, other limitations of inclusion, particularly around marginalised communities persist. In addition, these representations cannot be the end point but a stepping stone to further changes in the digital gender gap. **Stakeholders should work together in open dialogue to combat negative social norms that discourage ICT use and should act – both in concert and independently – to break these barriers.**