

# Health Messaging using ICTs in Humanitarian Responses

Connecting with Refugees,  
The Digital Gender Gap  
and using SMS

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## Executive Summary

Refugees need to stay connected to family and access information continuously so they often prioritise connectivity costs and acquire and use mobile phones and smartphones - even in camps and rural settings where connectivity is poor. Other than cost and connectivity, difficulties fulfilling ID requirements also prevent refugees from owning mobile phones. A lack of innovations targeting needs of refugees in Africa and the Middle East may also be limiting the use of ICTs in these regions. Age, gender and education levels also affect how much access refugees have to mobile phones and internet.

*What is the extent of the digital gender divide in the 20 countries in Africa and the Middle East where NRC has offices? What percentage of women and adolescent girls have access to mobile phones? What percentage of women and adolescent girls have access to the internet?*

The Digital Gender Gap is significant and growing in Africa and the Middle East. The highest Digital Gender Gap found for mobile phone ownership and internet use were found for Ethiopia at 57% and 72% respectively. Data from GSMA, Gallup and Research ICT Africa was found for 11 countries (out of the 20 where NRC works) and suggest that 24%- 85% of women and girls own a mobile phone in the countries where NRC works. The Gender Gap in internet use in these countries is greater than for mobile phone ownership with the percentage of women using the internet estimated between 1.1% - 66.2%. Gender disaggregated data on the proportion of individuals who own mobile phones and use the Internet was not found for: Central African Republic, Djibouti, Eritrea, Mali, Somalia, South Sudan, Iraq, Lebanon and Syria. It is assumed that security risks in 6 of these countries make surveying difficult. New data analytics could enable measurement of these indicators without needing surveys.

*Using recent cholera outbreaks in Iraq (2016-2017) and Somalia (2016-2017), and Ebola outbreak in West Africa (2014), how were health messages transmitted using SMS? Were women and girls specifically targeted to receive these messages? Were they considered effective in promoting healthy behaviors?*

Evaluations of how of digital technologies impact the health of refugees are scarce (Mesmar, et al., 2016). Evaluations of campaigns using SMS to send health messages following outbreaks of Cholera in Haiti (2010) and Somalia (2012) and Ebola in west Africa (2014) all described the use SMS messaging platforms to send initial information and then the option of additional information or feedback. Some were opt in and one was opt out. Women were not specifically targeted in the accounts found of these campaigns. Design of messaging (frequency, timing, relevance) affected the uptake of these campaigns and in the case of the Red Cross' campaign in Haiti behaviour change was widely reported.

*Which humanitarian agencies are currently using SMS or other digital technologies for health messages? Who are current or potential private sector or media partners that have expressed interest in supporting the use of digital technology for humanitarian responses to health outbreaks?*

Humanitarian agencies that have used or currently use SMS for health messaging include Oxfam, IFRC, UNICEF, Mercy Corps and Doctors without Borders. Private sector partners who have expressed interest in supporting the use of digital technology for humanitarian responses include Microsoft Philanthropies, Ericsson, The Pacific Institute, Souktel, Fontline SMS, Twilio.org, EngageSpark, InSTEDD , Nexleaf Analytics, Vital Wave.

Data suggests that supporting the financial independence and education of women as well as challenging social norms of women's ownership of mobile phones internet use could decrease the digital gender gap. Designing user centred campaigns and services *with* women (including those who do not use ICTs) could help to make them more relevant for women and easy to use.

Challenging social norms

There is some overlap in factors that help ICTs engage refugees, women and populations affected by humanitarian crises. These are: accessibility (connectivity to 2G/3G networks and low cost handsets, SIM and data) and appropriateness of campaigns (inclusive, user centred design, assessment of ICT landscape)

To build trust in messaging programme design should include a multimedia / multichannel messaging, data protection and informed consent and adequate resourcing for responsive 2 way communication.

The inclusive use of information and communication technologies (ICTs) in health messaging has not yet been mainstreamed by the humanitarian sector however tools to help assessment of communication needs and landscapes have been developed by UNHCR (UNHCR) as well as guidelines for running SMS campaigns after natural disasters and disease outbreaks (GSMA Disaster Response, 2013) (GSMA, 2014).

Humanitarian organisations need to build partnerships with the private sector who are already investing in connectivity for refugees. They must also ensure that interventions are well resourced and sustainable.

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## Connecting with Refugees using ICTs

### The impact of ICTs on Refugees

Humanitarian crises unfortunately often result in refugees and recent global trends suggest that the number of refugees will continue to rise (GSMA, 2017 (1)). As mobile phones and internet use become more feasible in humanitarian crises, studies are beginning to emerge on how refugees are using these.

Information and communication technologies (ICTs) help refugees to:

- *Connect with friends and family* identified as the most important need for connectivity by UNHCR staff (UNHCR, 2016).
- *Increase word of mouth information.* A survey in 2013 of Syrian Refugees in Lebanon found that reliance on word-of-mouth as a primary source of information extended to significant reliance on mobile phone and SMS and Whatsapp as channels of information flow inside Lebanon and across the border (Internews, 2013).
- *Be resilient and safe during their journey.* A qualitative study in 2016 of refugees in Greece and Germany found that mobile phones enabled direct contact with other refugees who had already made journeys and gave them access to a trusted network for advice on the best routes, smugglers' contact details, places to stay on the journey, GPS coordinates and how to avoid police to arrive at destinations safely. (BBC Media Action, 2016).
- *Innovate.* A 2015 report on case studies on innovative solutions by refugees recommended that access to resources such as internet and mobile increase the capacity for refugees to innovate and find solutions they can use (Betts, Bloom, & Weaver, 2015).
- *Access and transfer cash* Accessing funds while they are on the move or away from their home.

- **Learn** – learn languages, to continue or retain school education and even university education (GSMA Disaster Response, 2017)

## Refugees' access to ICTs

In 2016 almost 65 million forcibly displaced refugees and internally displaced persons were living without reliable internet and mobile connectivity. 29% of refugee households had no mobile phone at all and were 50% less likely than the general population to have an internet-enabled mobile phone (UNHCR, 2016).

There is significant disparity in connectivity between urban and rural refugees, with 20% of refugees living in rural areas having no connectivity at all and only 17% of rural refugees live in areas being covered by 3G networks. However, over 60% of refugees worldwide, and up to 90% in Jordan and Lebanon, live in urban environments where most refugees do have 2G or 3G mobile coverage and are much more likely have access to internet-enabled phones (68% as opposed to 22% in rural areas) (UNHCR, 2016). A 2016 study of refugees in Jordan, Turkey and Greece found that smartphone ownership is widespread, especially among Syrians, with Android devices being most common and messaging services/platforms are used more than SMS and voice calls. Refugees from less prosperous nations such as Afghanistan were less likely to have a smartphone but some have ordinary mobile phones. (betterplace lab, 2016).

This illustrates that even when refugees live in an area with mobile connectivity, **cost is a significant barrier to becoming or staying connected**: UNHCR found that refugees spend up to a third of their disposable income on connectivity. (UNHCR, 2016) (GSMA, 2017 (1)).

A large proportion of refugees settle in camps, some which remain operational for many years - some large camps in East Africa have been in operation since the 1990s. A recent survey in camps in Uganda and Kenya found that over 90% of respondents across 2 camps owned mobile phones and in one of the camps 44.4% owned a smartphone. The majority of refugees who owned a mobile device earned less than £1 a day highlighting the importance of mobile devices to refugees in camps (HIF, 2018). **There is therefore a significant business case for extending mobile coverage to refugee camps.**

The strongest indicators of access to mobile technology and related services in this study were education, age and connectivity (access to devices and to 3G/4G data services which are higher in urban areas) (HIF, 2018). UNHCR found that **women, the elderly, and less educated are less likely to have access to technology, information, and devices** - findings corroborating other, non-refugee-related studies of ICTs.

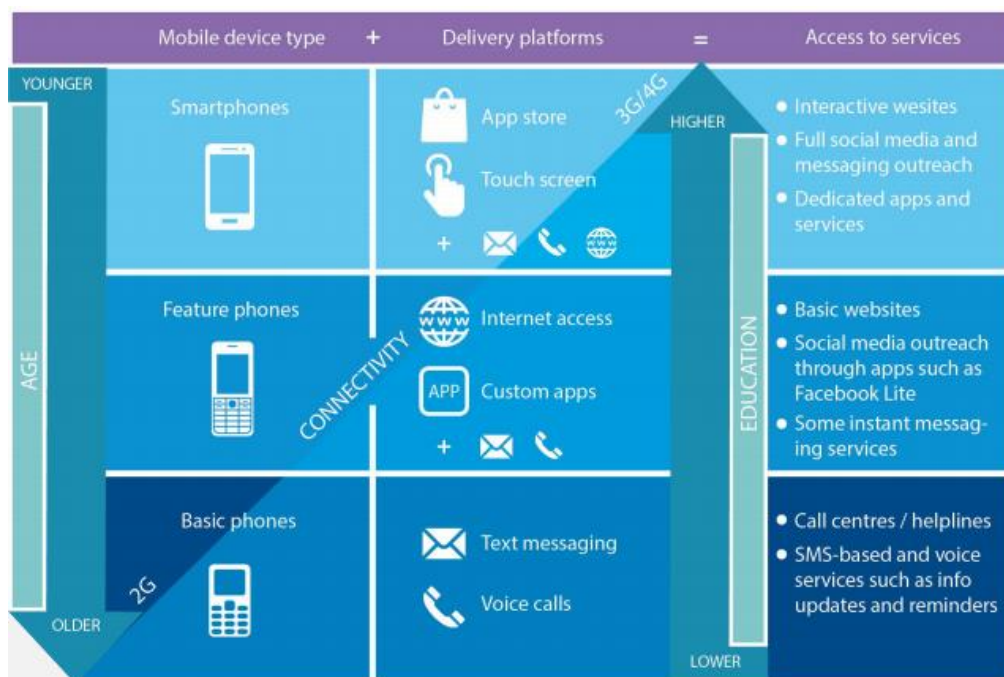


Fig 1: How Refugees' access to services varies with Age, Education and Connectivity - HIF

Even for Syrian refugees for whom smartphones are ubiquitous there are disparities in access such as **primary custodians of phones being usually male and the most frequent users being younger family members** (betterplace lab, 2016).

**Another major barrier to accessing mobile services is the ability to meet SIM registration identity requirements** (GSMA Disaster Response, 2017)

**Refugees are also concerned about surveillance and sousveillance** and factor in security considerations when choosing a platform or service (The Open University, 2016).

## How refugees are using ICTs

**Reliable connection and high bandwidth is needed:** The needs of refugees are found to be very different to those of people in a natural disaster. They need to stay in constant contact with their families and access online tools to secure their basic rights and to source information. These require high bandwidth tasks, not basic phone calls. Refugees in Greece use web-based platforms such as Skype, Viber, and Whatsapp as well as voice or SMS services, which led to a demand for Wi-Fi as well as basic mobile connectivity in camps. (GSMA, 2017 (1)). Refugees connect to Google Maps to navigate land routes, Facebook to find missing loved ones, Western Union to transfer money, and use Vodafone SIM cards to call rescue officials from sinking boats.

**Easy to use, accessible apps are popular:** WhatsApp voice notes are popular with Syrian refugee women in Lebanon as it does not need steady connectivity, is easy to use and does not require literacy. (Talhouk, et al., 2016)

**Email is not popular:** Despite having access to mobile internet devices and connectivity, email was not found to be widely used amongst refugees in Jordan, Turkey and Greece (betterplace lab, 2016) and most refugees in camps in Uganda and Kenya do not have an email address (HIF, 2018).

**Television is trusted and considered safe:** A 2015 Study in Azraq camp in Jordan found that 54% of survey respondents cited television as the most trusted source of media amongst camp residents. Televisions were also viewed as being secure information channels that are not subject to surveillance. Social media was considered the least trusted form of media (UNHCR / REACH, 2015).

## How Humanitarian Agencies are using ICTs to reach refugees

**Current research and activities** on mobile technology for refugees' have focussed largely on connectivity, digital tools and platforms, family reconnection, education and livelihoods / Mobile Money (GSMA, 2017 (1))

**Building tools to understand the ICT Landscape:** UNHCR have used experiences of actors such as CDAC Network, ACAPS and Internews to produce an ICT needs assessment tool to help responders map the ICT ecosystems of refugees (UNHCR).

**Lacking resource and sustainability:** Although the number of digital resources for refugees is growing, a 2016 study highlighted that most are inadequately resourced and therefore unsustainable and that Quick 'Tech fixes' do not work. (The Open University, 2016) For example SMS systems have been used by humanitarian agencies to inform refugees about the time and location of distributions but there are accounts of problems ranging from not receiving the SMS, being texted on the wrong phone number, lack of mobile phone coverage, or not being informed by the owner of the telephone number (Internews, 2013).

**More scope for innovations for Africa and the Middle East:** The majority of refugees are estimated to be in Africa and the Middle East however the majority of mobile innovations designed for refugees since 2015 are only available to refugees in Europe (67%) with only 4% of these being available in Africa (HIF, 2018). There is scope for researching and designing mobile innovations with refugees in Africa and the Middle East.

**More exploration and partnership needed:** GSMA Disaster Response recommend that humanitarian agencies should explore options for using mobile to increase the news and information available to refugees, such as collaborating with technology vendors to disseminate information through bulk SMS messaging and Instant Voice Recognition (IVR). (GSMA Disaster Response, 2017). UNHCR highlight that NGOs and UNHCR are not yet fully taking advantage of mobile apps or SMS platforms and report that the private sector is keen to support refugee connectivity and has started to invest in transformative connectivity initiatives and that there is a need to scale up and expand these partnerships (UNHCR, 2016).

**Supporting connectivity and affordability:** Organisations are also working to provide connectivity and reduce costs of data to enable refugees to find the best ways to use ICTs for their needs.

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## The Digital Gender Gap

The digital gap is “composed of a skill gap and a gap of physical access to Information Technology (IT) and the two gaps often contribute to each other in circular causation. Without access to technology, it is difficult to develop technical skill and it is redundant to have access to technology without first having the skill to utilise it.” (Kularski & Moller, 2012) (Antonio & Tuffley, 2014). Project-based, qualitative evidence has proposed that Information and Communication Technologies (ICTs) are not gender neutral (Hafkin & Huyer, 2007) and through increased commitment by UN agencies and other researching organisations there now exists quantitative data to indicate that in many countries women have less access to ICTs and are using them less than men. This gendered gap in the access and use of ICTs is known as the Digital Gender Gap.

### The Gender Gap in access and use of mobile phones

- There currently remains a substantial gender gap in mobile phone ownership in low- and middle-income countries, with women 10% less likely than men to own a mobile. This translates into 184 million fewer women than men owning a mobile phone across these countries (GSMA, 2018).
- Regionally, South Asia has the largest average gender gap in both mobile ownership and mobile internet use, followed by Sub-Saharan Africa (14% and 34%) and the Middle East and North Africa region (9% and 21%). The Digital Gender gap is far from homogenous within regions (GSMA, 2018).



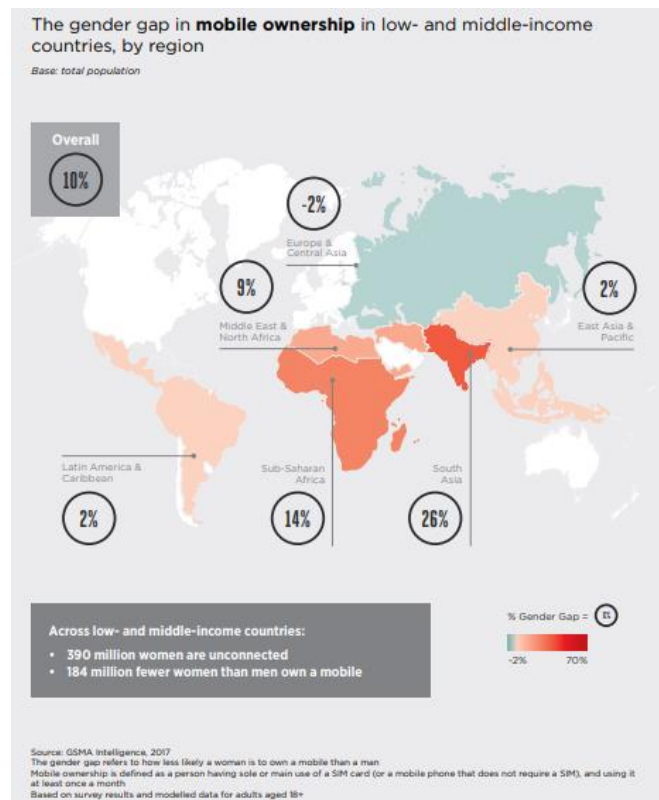


Fig 2: The Gender Gap in Mobile Phone Ownership – GSMA Intelligence 2017

- For both mobile ownership and mobile internet use, the gender gap tends to be wider in rural areas than urban areas. (GSMA, 2018). A 2012 study across 12 African countries found in urban areas there was no significant difference between genders in ownership of mobile phones (Deen-Swaray & others, 2012).
- Even when women own mobile phones, SMS use was found to be lower for women than men in around half of the 23 countries surveyed (GSMA, 2018). (Actual figures not given for all countries)

## The Gender Gap in Internet Use

- It is estimated that from 2016 to 2017 the gender gap in worldwide internet users had reduced slightly from 12% to 11.6%, but in LDCs the gap had increased from 30.9% to 32.9% (ITU, 2016) (ITU, 2017).
- Analysis found where female educational attainment is lower and female income is smaller, particularly relative to handset costs, the gender gap tends to be larger. Also countries with lower overall rates of mobile ownership are more likely to have a larger gender gap in mobile ownership.
- The gender gap in internet users seems to be increasing fastest in Africa, growing by 4.6% from 2013 to 25.3% in 2017. (ITU, 2017)
- In Arab States estimates show the gender gap in internet users has decreased by 1.9% from 2013 to 2017. (ITU, 2017)
- 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.
- Women are less aware of mobile internet compared to men, which significantly limits their uptake, particularly in Africa and Asia. Self-reported awareness of mobile internet was higher for men than women in 13 of 15 surveyed countries in Asia and Africa, compared to only 3 of 7 countries in Latin America.
- The gender gap in mobile internet use is greater than the mobile ownership gap in 19 of the 23 surveyed countries (GSMA, 2018) .



Region	%Mobile Phone Ownership Gender Gap (GSMA)			%Internet use Gender Gap (ITU)			
	2015	2017	Trend	2013	2016	2017	Trend
Africa	13	14	Growing	20.7	23	25.3	Growing
Middle East	8	9	Growing	19.2	20	17.3	Shrinking
WORLD				11.0	12.2	11.6	Shrinking
LDCs / LMICs	14	10	Shrinking	29.9	30.9	32.9	Growing

Table 1: The Digital Gender Divide in Africa, the Middle East and LDCs compared to the World

Annex I shows data found on gender gaps in mobile phone ownership and internet use in the countries in Africa and the Middle East where NRC works. Data across all countries is not available from one source, year or methodology.

## The Digital Gender Gap in Africa and the Middle East

The first thing to note is that data on the digital gender gap in the countries where NRC works in Africa and the Middle East comes from several sources using different methodologies across several years (2011-2017). Most reliable data and indicators on ICT access and usage come from developed countries with the resources to gather them (Hafkin & Huyer, 2007) and despite efforts by ITU to collect sex disaggregated data on mobile phone ownership (SDG Indicator 5.b.1) and internet use (SDG Indicator 17.8.1) from UN member states through annual questionnaires, there has been a lag in territories supplying this data.

In the countries where NRC works in Africa and the Middle East, mobile phone penetration amongst women ranges from 10.4% in Ethiopia to 85% in Kenya and internet use amongst women ranges from 1.1% in Ethiopia to 67% in Palestine.

The gender gap varies greatly within each region but is mostly greater in internet use than mobile phone ownership except in Tanzania and Iran where a higher proportion of women use the internet than men. This negative gender gap in internet users is exceptionally large in Iran where according to figures from the World Bank, the proportion of female internet users is 31% higher than the proportion of male internet users. (World Bank, 2016)

The only data showing a negative gender gap in mobile phone ownership was for Cameroon from Research ICT Africa's 2012 data (Deen-Swaray & others, 2012).

No gender disaggregated data was found for 9 out of the 20 countries in Africa and the Middle East where NRC works. These are: Central African Republic, Djibouti, Eritrea, Mali, Somalia, South Sudan, Iraq, Lebanon and Syria. It is reasonable to assume that security concerns restricted efforts to collect data in 6 of these countries which are currently affected by conflict.

Eritrea has exceptionally low connectivity and ranks bottom of ITU's ICT Development Index (ITU, 2017 [1]) and Djibouti whilst being one of the best connected for international fibre cables, has poor domestic infrastructure and expensive broadband (Budde.com, 2018).

The one source of data that was found on connectivity in Lebanon did not survey farmers or servants or residents in areas with heavy Hezbollah presence and this has likely affected the very high percentage of women found to own a smartphone and use the internet (92% and 93% respectively) (Northwestern University in Qatar, 2017).

Fluctuations in population also made it hard to make estimates in some countries like Jordan (GSMA, 2015).

## The future of measuring the Digital Gender Gap

ITU continues to measure SDG indicator 5.b.1 (the proportion of individuals who own a mobile telephone, by sex) and sex disaggregated data for internet users through its annual survey sent to member states. It is proposed in a recent report that new data analytics could enable the use of call records to measure this indicator instead of time consuming and costly household surveys (UN Women, 2018). This has been

explored using data from Facebook which corroborates digital gender gap trends (Fatehkiaa, Kashyapb, & Weberc, 2018)

## Barriers to women's access and use of ICTs

Barriers to women's access and use of ICTs from self-reported questionnaires across countries and regions include:

- **Affordability** including handsets tariffs, data and handling fees<sup>1,2</sup>
- **Accessibility** to network coverage, hardware, electricity, agents and ID<sup>1</sup>
- **Usability, skills and confidence** using equipment and services<sup>1</sup>
- **Safety and Privacy** including theft, harassment, fraud<sup>1</sup>
- **Relevance of services, content, products and policies**<sup>1</sup>
- **Cultural and social norms** surrounding gender and ICTs<sup>3</sup> (often underreported)

These barriers are complex and interconnected by their relationships to income, education and rurality and by underlying gender norms.

**The Education and Income Gender Gap correlates to the Digital Gender Gap** Analysis of GSMA Intelligence's Consumer Survey 2017 found that as women's education and income levels increase, the gender gap in mobile ownership decreases (GSMA, 2018). ITU also highlight that differences in levels of education and school enrolment - reflected in the gender parity index (GPI), which measures the relative proportions of girls and boys enrolled in school - are important factors contributing to why more men than women use the Internet. High GPI is often accompanied by other indicators of gender equality such as a high proportion of women in the labour force (ITU Development, 2018). Affordability is by far the most commonly reported barrier to using mobile phones reported by both men and women (GSMA, 2015), however it is suspected that this barrier disproportionately affects women wherever they have less financial independence due to a gender gap in income and education (World Economic Forum, 2014). Using Research ICT's survey data from Africa in 2008, when only considering men and women who are literate, actively working or studying and who belong to the top 25% income group, the ratio of women versus men turns around for Internet usage in four of the 13 analysed countries and for mobile phone usage, the ratio of women to men changes in 9 out of 13 countries (Hilbert, 2011).

**Social norms underlie gender gaps in education, income and uptake of ICTs.** Cultural or social norms related to gender can lead to negative reactions to mobile phone ownership from male family members along with privacy concerns (that mobiles allow family members to 'keep track' of them). In a survey of 2,500 low income women across Egypt, India, Papua New Guinea and Uganda, 82% of married women who owned mobile phones reported a disadvantage of ownership was that it made their husband suspicious. 74% of married women who did not want a mobile phone said it was because their husbands would not allow it. In more conservative regions, it is considered immodest for women to be seen with a handset in public. In the majority of married households surveyed, the husband is the main user or owner of the handset and as head of household can facilitate or restrict access (GSMA mWomen, 2012).

The effects of culture and norms, along with the attitudes and stereotypes that accompany it, was most frequently cited as a barrier to internet access by participants of a survey by IGF (71% of participants selected it as a barrier to meaningful access for women) (Internet Governance Forum, 2016).

People often gain exposure to the Internet at their schools and workplaces. But in many developing countries, fewer girls than boys go to school, and all over the world, fewer women than men participate in the formal labour force (Intel, 2013)

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<sup>1</sup> (GSMA, 2015) (GSMA, 2017)

<sup>2</sup> (Deen-Swaray, Gillwald, Morrell, & Khan, 2012)

<sup>3</sup> (GSMA mWomen, 2012)

Gender roles technology is still perceived 'a male thing' – **this lack of representation** is likely to contribute to the lack of solutions to addressing gendered barriers.

**The role of rurality on income, education and social norms** Rurality appears to exacerbate the digital gender gap (Deen-Swararray & others, 2012) (GSMA mWomen, 2012) (GSMA, 2018) and it has been found that in Africa the gender gap in mobile phone access becomes insignificant in urban areas (Deen-Swararray & others, 2012). This may be linked to lower incomes in rural areas, different education and connectivity infrastructures in these settings as well as social norms discouraging women to use mobile phones in rural areas (GSMA, 2018) (Deen-Swararray & others, 2012). It is proposed that homogeneity and limited exposure in rural areas can limit awareness of alternative gender roles and discourage challenging these gender norms (Evans, 2015). When all other factors (age, income, occupation and education level) are equal, an urban woman is 23% more likely to own a phone than a rural woman. When actual disparities in these variables are figured in, the urban women surveyed are twice as likely to own a phone as rural women (GSMA Development Fund, 2010). Lack of exposure could lead to less awareness of the mobile phone's features and benefits, resulting in lower adoption. Notably, borrower rates are nearly four times higher in rural areas compared to urban areas. This demonstrates that whilst the gap in ownership rates is large between rural and urban areas, the gap in usage rates is significantly lower.

**Perceptions on the relevance of ICTs to women** Women with low incomes, regardless of literacy level, reported in an international survey that they did not find the SMS service useful (GSMA mWomen, 2012). A 2010 survey of more than 2,000 women surveyed across Bolivia, Egypt, India and Kenya found that the perceived lack of need for a mobile phone was the second most commonly given reason for not owning or borrowing a mobile phone. A third of women who reported not needing a mobile phone because they have a local social circle also feared the level of literacy (basic or technical) required to use mobiles. (GSMA Development Fund, 2010). Analysis of data from the GSMA Intelligence Consumer Survey 2017 found that of people who did not use mobile internet, more women than men reported that they did not use mobile internet because it is not relevant to them, that they did not know how to use the internet on a mobile or that they had safety and security-related issues. This suggests that not knowing about how to use mobile internet may be contributing to fears about security as well as not seeing it as relevant to them.

This may be because they lack information on what is available which in turn appears to be linked to formal education levels.

## Opportunities to reduce the digital gender gap

**Unspent Universal Service and Access Funds (USAFs)** which are typically financed through mandatory contributions by telecommunications providers may be contributing to existing barriers to internet uptake. In Africa there is currently at least US\$177 million sitting unspent in USAFs across the 13 African countries where financial details are available. (World Wide Web Foundation, 2018).

**Digital technologies that facilitate economic inclusion and financial independence could encourage more women to invest in these technologies.** Digital platforms are providing women with greater access to markets, knowledge and flexible working arrangements which can result in higher female employment rates than in traditional industries (e.g. female the proportion of female drivers is higher in the United States for Uber (14%) than for traditional taxis (8%)). Mobile money allows making financial transactions from SIM card to SIM card without a formal bank account (OECD, 2018).

**Using communication programmes to addressing drivers of change** A review of 61 communication programmes found that these are an effective way to challenge gender discriminatory practices. (K4D, 2017) (ODI, 2014) (ODI, 2015). BBC Media Action write that media and communication can influence 10 drivers of change: Knowledge and Understanding; Attitudes and beliefs; Motivation; Norms; Observation; Support, Skills, Efficacy, Discussion and Dialogue and participation BBC Media Action. Social and Behaviour Change Communication is a field that has Social and Behaviour Change Communication Toolkit.

Economic Change, Education, Migration and displacement, Communication and Media, other tech change and political mobilisation are all seen as drivers of change towards pro gender equality norm-change (ODI, 2015)

Annex II contains recommendations on how donors and the development community can address women's barriers to using ICTs.

Annex III shows organisations addressing the digital gender gap

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## Using ICTs for Health Promotion in Humanitarian Contexts

A 2016 review of the landscape of digital technologies used by humanitarian actors and affected populations found that humanitarian actors are using a number of ICTs to reach displaced populations directly with information and tools to improve their health.

ICTs used by humanitarian actors included:

- Digital classrooms and digital story telling
- Electronic voucher (evoucher) for distributions
- Low cost Raspberry Pi computers loaded with health resources to assist with informal face to face learning
- SMS; SMS "hubs", solar chargers including for interactive live radio and television programs
- Social Media e.g Facebook and Twitter pages for refugee camps
- and even 3D printing for prosthetics.

The kind of health outcomes these focussed on include: addressing post-traumatic stress disorder; accessing health services, antenatal care, pharmaceuticals, water, sanitation and hygiene products, Improving living conditions as well as promoting environmental health solutions and protection from violence and abuse.

The review found a lack of evaluation of these technologies including their impacts on health and their potential risks and recommends rigorous evaluation of future uses of these technologies.

The report also noted that technology use is on the rise by affected populations and in many cases they are the innovators. It recommends that responses should strive to create dialogue between technology designers and populations affected by humanitarian crises to gain deeper understanding of the population's context, health beliefs, and use of technology to increase the relevance and sustainability of innovations. (Mesmar, et al., 2016).

Humanitarian agencies have been working develop field ready solutions that can be used in times of crisis:

Internet of Good Things (IoGT), a set of mobile-ready resources and applications made accessible for free via a network of distribution partners and provides access to regularly updated educational content and lifesaving information. Topics and issues on IoGT include maternal health, hygiene, emergency information on diseases such as Zika, Yellow fever and Cholera, HIV and sexual health advice for adolescents, Child Online Protection, positive parenting techniques and more.

Oxfam have been looking at scalable humanitarian ICTs through their Scaling Humanitarian ICTs Network (SHINE). They identified a need to build a picture of general good practice principles while being mindful of appropriate design in the face of contextual nuances; the need to be driven by programme objectives viewing ICTs in their enabling role; and the importance of human processes as well as technical ones.

Connectivity still poses a significant challenge for the adoption of ICTs and there remains high demand for solutions which can work at least partially offline.

(Oxfam, 2017)

## The Use of ICTs during the 2014 Ebola Response

The Ebola outbreak in West Africa in 2014 prompted a number of humanitarian organisations to use ICTs to provide health promotion messaging. Early communications failed to include 2 way communications to encourage engagement and locally appropriate solutions. The lack of information around the disease then led to fear and confusion and local media did not have any training in emergency health communication.

BBC Media Action trained local radio stations, media, government and humanitarian officials in media and communication for the Ebola Outbreak. They produced several radio programmes (short public service announcements, magazine programmes; live radio programmes; radio drama episodes); WhatsApp for listeners to ask questions to producers and Facebook for hosts to source stories and spark debate. As part of the SMAC consortium BBC Media Action also worked through trusted members of communities like religious leaders and local radio stations to try to trigger behaviour change. An evaluation found that **what prompted behaviour change was:**

- Communication reflecting people's needs, concerns and voices
- Positive communication that encouraged discussion and action
- Consistent information across all platforms that recognised people's situations
- Building and maintaining trust
- Tailored responses involving local media
- Communicating in the languages used by local audiences
- Using social media as part of a response
- Reflecting reality and confronting editorial dilemmas

(BBC Media Action, 2016)

As part of their coordination of Ebola messaging, GSMA produced a standardized and endorsed mobile response to address the requirements of governments and populations within all affected countries. They recommended using countrywide SMS to deliver correct information about Ebola endorsed by WHO to all mobile phone subscribers to counter rumours. Provision of a short code phone number is recommended for further information. When called this triggers a USSD or IVR which then allows callers to report a case or request information. A ministry of Health help desk was also recommended for feedback. Sample messages were included and PR and marketing was recommended.

### Product illustration and user journey



Fig 3: Suggested User Journey for SMS messaging for Ebola Response – GSMA Disaster response, 2014

GSMA recommended that information available to populations at risk to Ebola must be:

- **Timely:** In newly affected countries, launched within 48 hours of the detection of an Ebola case
- **Accurate and credible:** sourced from the WHO, and adapted for mobile messaging, language and context.
- **Approved by local authorities:** messages need be endorsed by local health authorities, as facilitated by the WHO as part of their effort to support government initiatives.
- **Reach critical mass of users in a short time:** use of mobile dissemination to reach a significant percentage of the population with consistent, correct information in the shortest time possible.
- **Be easy to understand and share:** WHO translation into local languages enables comprehension and mobile texts allow for recipients to share immediately

(GSMA, 2014).

Annex IV lists humanitarian agencies and technology designers who have been involved with ICTs for Health Promotion in Humanitarian contexts.

## The role of Mass Media in Humanitarian Response

Humanitarian agencies should partner with mass media broadcasters during humanitarian crises to ensure verified information is being broadcast and to reach mass audiences quickly with accurate, practical information.

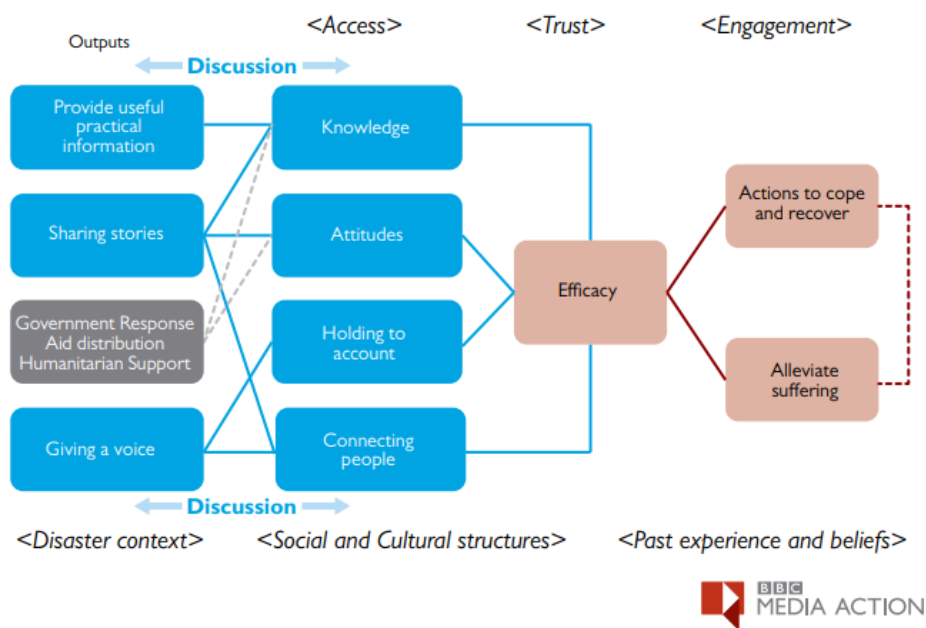
Mass-scale media is more effective in sharing universal information rather than in providing specific localised details as this can compromise accuracy, perception of trust and relevance. Evaluations showed that listeners did want specific localised information which are best disseminated by local media partners .

Mass media broadcasters can partner with local broadcasters and humanitarian agencies to facilitate two-way communication with crisis affected people (for logistics and scale) and enable follow up. Two-way communication can psychologically help crisis affected people by making them feel connected (with others in their situation, practitioners and decision-makers) and by giving them a voice and enable follow up. It can also help holding decision maker to account to prevent possible frustration.

Mass humanitarian broadcasts are especially effective at supporting psychosocial outcomes which give hope and confidence (efficacy) to people in crisis and this can be critical to enabling people to respond effectively.

(BBC Media Action, 2015)





## The Use of SMS for Health Promotion in Disease Outbreaks

The following recommendations are from evaluations of Red Cross' TERA SMS platform's use in Haiti for health messaging during a Cholera outbreak and Oxfam's m-link SMS platform used in Somalia in also for health messaging following Cholera outbreak.

### The need for 2-way communication

As identified by UNHCR Innovation Service "No messaging is ever 'one-way'" and the option of inbound messaging is a critical feature towards building dialogue with communities (UNHCR, 2017). For Oxfam's 2012 pilot project for Cholera messaging in Somalia using the mLink (Textit-based) platform, respondents suggested that community feedback via text should be included in future programming (Oxfam, 2013). The TERA system used by Red Cross in several countries uses "fuzzy" keyword recognition to automatically respond to a variety of questions (IFRC, 2012) and in Haiti was used in conjunction with an Interactive Voice Response (automated) phone system to provide free information in Creole and also to record feedback from callers, conduct surveys and even quiz callers via their keypad. This helped Red Cross to identify where there was growing need of aid. 70 million messages sent through TERA prompted 1 million people to respond and ask for information or help. This was the first time an interactive voice response (IVR) system was used in a humanitarian context.

### Subscription / Opt in or blanket messaging and Data protection

Continuing the idea of fostering 2-way communication, targeted individuals should be given the option of opting out of mass messaging as well as opting in. This also gives individuals the ability to give and remove consent for their data to be used. Humanitarian programmes should protect individuals' data and should seek informed consent to use it. (ICRC, 2017)

The TERA platform used internationally by the Red Cross is unique in that it can send SMS messages to every mobile phone that is switched on in a specified geographical area. Given the large numbers of messages it is likely to send and in order to avoid delivering unwanted messages, TERA can be configured to allow subscribers to send a keyword to the system to either receive or not receive messages (IFRC). Government support and compliance with SMS marketing guidelines should be sought for such "opt-out" campaigns.

Where an Opt-in or subscription is needed, promotion of the SMS service is necessary. Oxfam found that mobilisation for registration by local NGO field workers was more effective at increasing registration than mass communication. (Oxfam, 2015).



## SMS Platforms available

ANNEX V contains a comparison of 8 SMS platforms that have been used in humanitarian contexts (CartONG / UNHCR, 2015). Key requirements for SMS platforms specified by UNHCR are:

- Must support one-to-many messaging as well as one-to-one messaging
- Must support two-way-communication
- Must be able to send text messages in more than one alphabet
- Must be able to send text messages to at least 40 countries
- The platform must be a self-managed solution, i.e. program staff can send and receive messages and surveys themselves, without having to go through a service provider
- No software development skills or similarly advanced IT skills are necessary to use/install the platform.

## Cost

As credit cost is a key barrier to the use of mobile phones, messaging should ideally be free to the end user to encourage participation in SMS campaigns.

Oxfam refunded \$1 to anyone who signed up to their 2012 Cholera SMS campaign in Somalia to pay for credit (which came to about 60 cents) (Oxfam, 2013). In their subsequent Polio prevention SMS campaign in Somalia, a short code was set up where any messages sent to this code were paid for by the project so there was no cost to the community members and mobile credit cost was no longer a barrier (Oxfam, 2015). It was suggested that future projects could even consider incentives to complete the hygiene education modules such as distribution of hygiene items (UNICEF, 2015).

Red Cross discussed costs of sending SMS messages using the TERA platform with partnering mobile operators in Haiti and Sierra Leone who were able to offer a free SMS service at no cost to the user or the project. The corporate relationship was key to making the TERA platform operable and affordable.

## Message Content

Despite SMS content by its nature being short, it needs to be accurate, easy to understand, easy to remember and timely as messages need to maintain interest and value.

Even though of Oxfam's 2013 SMS Polio prevention campaign in Somalia had high retention and completion rates, it resulted in 25.4% of respondents in the household survey at the end of the campaign not knowing the causes of Polio. Feedback found frustrations around length and number of messages sent (each beneficiary required 70 messages to complete all the interactive sessions). Oxfam recommend that messages should be packaged to suit different phases to avoid losing people's attention after the "novelty" factor wears off. Communities should be consulted around the length of modules and when they want to receive messages. This should include regular check-ins on the usefulness of messages and better use of analytics functions to understand and be responsive to behaviours. Messages should also be designed and translated to suit different dialects. (Oxfam, 2015).

When the TERA platform was used for health messaging in Sierra Leone, a standard operating procedure (SOP) was developed and agreed by the Red Cross, the Ministry of Health and Sanitation (MoHS), Office of National Security (DM) department, and National Telecommunications Commission. The SOP set out what messages to send, the length of the messages, interval of sending and content.

## Multi-channel communication including household visits

Both evaluations of Red Cross' use of TERA in Haiti found that information heard through several sources increased the chances of it being trusted, remembered and acted upon and IFRC's 2013 World Disaster Report recommends that SMS should always work alongside a suite of other communication channels. Even though mobile phone use is highly prevalent in Haiti, the SMS and telephone systems were seen as part of a larger strategy that included a radio show, Twitter posts, a travelling sound truck, billboards, posters, flyers and many direct visits and events organized by volunteers (IFRC, 2013). Ideally this trust in media should be

established in advance of any disaster (IFRC, 2012). Alternative channels of communication will be necessary wherever there are barriers of literacy and unfamiliarity with using SMS.

Oxfam found in focus groups in Somalia that they were competing with spam and community members expressed a need for reassurances that messages were genuine – for example by messages from elders and workshops for IDPs. Oxfam recommended that visits for face-to-face hygiene promotion for targeted household might be a way to counteract the drop out they encountered from their hygiene education modules. Surveys indicated that many households received their information primarily from school-aged children, which suggested an opportunity to adapt the project for schools. (Oxfam, 2015) UNHCR also urges responders to ensure that different channels are consistently established as components of the whole information and communications ecosystem to ensure the integrity of information being shared and a consistent experience for the individual. (UNHCR Innovation Service, 2017)

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## Steps to design SMS Health Promotion Messaging in Humanitarian Contexts

GSMA Disaster Response have gathered learning from humanitarian agencies that have used SMS messaging during humanitarian responses to natural disasters and have developed guidelines for SMS protocol during natural disasters (GSMA Disaster Response, 2013) and also for the Ebola outbreak (GSMA, 2014). UNHCR have also been sharing learning from delivering SMS messaging to refugees (UNHCR). These can be distilled into the following steps in designing an SMS Health Messaging campaign in humanitarian contexts:

1. **Survey the ICTs Landscape** Survey connectivity, infrastructure and users to ascertain their needs, habits and preferences regarding ICTs and health information. Use surveying toolkits like [World Bank Engendering ICT Toolkit](#) and [USAID Gender and Information Communication Technology \(ICT\) SURVEY TOOLKIT](#)
2. **Define Programme Goals** – Coordinate with other organisations to define where your messaging fits in relation to other messaging campaigns that are happening - to avoid duplication or ensure consistency.
3. **Seek partners.** Mobile Phone Operators, Ministry of Health, Local NGOs with links to community networks, Media partners, innovation developers
4. **Select technologies to design a multimedia, multichannel strategy.** Work with what already exists particularly those that have been used by humanitarian actors and with your target population. USSD and IVR technologies will allow subscribers to access additional information, beyond text messages received via SMS blast. This can prevent subscribers being inundated with too much information via SMS, and provide a voice option via IVR. Although mass-scale media broadcasts cannot provide localised information they can be effective in helping people feel more connected with others going through the same experience and providing confidence to act in the face of crisis. Look at HCCC's [Toolkit for Designing A Social And Behaviour Change Communication Strategy](#)
5. **Design 2-way communication channels into your campaign.** The government's mobile industry regulator, in conjunction with the Ministry of Health and mobile operators, can enable the allocation of a national emergency zero-rated short code through which citizens in an affected country can access validated information, report suspected cases or seek treatment referrals. Provide a support desk. Where Ministries of Health have set up help desk facilities for disease management, mobile operators can provide access to these help desk facilities by patching through calls made to the allocated short code.

6. **Plan the duration of the campaign and organise the capacity to manage 2- way communication.** Ministries of Health could consider setting up a call centre/customer care desk at national, regional, district, or hospital level, in line with available resources.
7. **Ensure Opt in and Opt out options are available** and ways to ensure target populations are informed on how their data is used and that they give consent.
8. **Work with target populations to design** a service that is attractive, practical and accessible to them
9. **Ensure message content is vetted, relevant, timely, simple, actionable and branded** and consult target populations to design the number and frequency of messages.
10. **Ensure language and literacy barriers are addressed** – this could mean using Integrated voice recognition technologies. Consult target populations on preferred channels of communication. Messages should be available in languages that can reach the widest population possible.
11. **Test your SMS service works with your target population before rolling out** Test SMS service, branding, Include women, people who can't read and the elderly.
12. **Aim to keep communications cost-free to recipients.** Work with partners to find ways to do this. Consider financial or NFI incentives as sometimes affected populations expect something in return
13. **Monitor the public health situation regularly and quickly adapt messaging to respond.**
14. **Evaluate the campaign against behaviour change outcomes.**
15. **Share learnings with other organisations** to enable responses to learn from your experience

See Annex VI for the GSMA Disaster Response recommendations for different stages of SMS campaigns.

## Summary of working with ICTs

Use of ICTs	What Works	Barriers	Resources
Connecting with Refugees	<ul style="list-style-type: none"> <li>- 2G/3G network and electricity more readily available in urban areas but can be set up in camps</li> <li>- Free Wifi</li> <li>- Utilising existing word of mouth networks</li> <li>- Trusted and secure platforms and services</li> <li>- Understanding communication needs</li> <li>- Coordination and strategy</li> <li>- Adequate resourcing</li> <li>- Using Multiple Media Channels</li> <li>- Dialogue and Feedback</li> <li>- Designing solutions with communities</li> <li>- Factual, objective and actionable information</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of 2G/3G network</li> <li>- Lack of electricity</li> <li>- High cost of handsets and data</li> <li>- Exclusion of women, the elderly and less educated</li> <li>- Difficulties obtaining identity requirements for SIM registration</li> <li>- Concerns of surveillance</li> </ul>	<p><a href="#">UNHCR Communicating with Communities Guide</a></p> <p>Connectivity for Refugees Report (UNHCR, 2016)</p>
Connecting with Women	<ul style="list-style-type: none"> <li>- Affordable handsets tariffs, data and handling fees</li> <li>- Accessible network coverage, hardware, electricity, agents and ID</li> <li>- Usability, skills and confidence using equipment and services</li> <li>- Safety and Privacy including from theft, harassment, fraud</li> <li>- Relevant services, content, products and policies</li> <li>- Addressing gender norms of ICTs</li> </ul>	<ul style="list-style-type: none"> <li>- High costs</li> <li>- Poverty</li> <li>- Poor Financial independence</li> <li>- Lack of Literacy and education</li> <li>- Poor access to network coverage, hardware, electricity, agents and ID</li> <li>- Lack of skills and confidence using equipment and services</li> <li>- Theft, harassment, fraud on ICTs</li> <li>- Services, content, products and policies not seen as relevant</li> <li>- Exclusive cultural and social norms surrounding gender and ICTs</li> </ul>	<p><a href="#">World Bank Engendering ICT Toolkit</a></p> <p><a href="#">USAID Gender and Information Communication Technology (ICT) SURVEY TOOLKIT</a></p> <p><a href="#">BBC Media Action Gender and Media Toolkit</a></p> <p><a href="#">GSMA's toolkit for researching women's internet access and use</a></p> <p><a href="#">APC's Gender Evaluation Methodology for Internet and ICTs</a></p>
Connecting with people affected by	<ul style="list-style-type: none"> <li>- Think through the risks of sharing certain information on a mass scale.</li> <li>- Leave no room for misunderstandings. Pre-test content with audiences</li> </ul>		<p><a href="#">BBC Media Action's guide for working with broadcasters in humanitarian crises</a></p>

Humanitarian Crisis	<ul style="list-style-type: none"> <li>- Work with partners whom you know to be reliable and unlikely to distort information to serve their own political or other interests.</li> <li>- Co-ordinate with other agencies to ensure consistency.</li> <li>- If you are giving financial support to broadcasters, try to avoid distorting market rates.</li> </ul>		<a href="#">UNICEF Behaviour Change Communication in Emergencies Toolkit</a>  <a href="#">CDAC Guide to Assessing Information and Communication Needs in Humanitarian Response</a> (Mesmar, et al., 2016)
Health Promotion in Humanitarian Contexts	<ul style="list-style-type: none"> <li>- Designing for a range of literacy levels (technological and language)</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of evaluation of ICTs</li> <li>- Top-down paternalistic approach to development of ICT innovations</li> <li>- issues of privacy and equity</li> </ul>	
SMS for Health Promotion in Developing Countries	<ul style="list-style-type: none"> <li>- Basic services, often using voice or SMS, which are <ul style="list-style-type: none"> <li>- affordable,</li> <li>- easy to use,</li> <li>- require little bandwidth, and work with feature phones over the 2G network</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Maintenance and SMS costs</li> <li>- Mobile network connection fluctuation</li> <li>- Potential misuse or private use of SMS</li> <li>- Lack of timely responses</li> <li>- Lack of financial incentives</li> <li>- High mobile phone turnover</li> <li>- Language barriers</li> </ul>	(Abroms et al, 2015),  (Déglise , Suggs, & Odermatt, 2012) GSMA MHealth Toolkit (GSMA, 2017 (2))
SMS for Health Promotion in Humanitarian Contexts	<ul style="list-style-type: none"> <li>- Knowledge / Assessment of the ICT landscape</li> <li>- Partnerships with MNOs and Government and local NGOs</li> <li>- Multimedia / multi-channel communication strategy</li> <li>- 2 way communication</li> <li>- Data Protection and options to opt out or opt in</li> <li>- No cost or incentive to opt in</li> <li>- User Centred Design - designed with users</li> <li>- Timely, Accurate messages approved by local authorities and easy to understand and share</li> </ul>	<ul style="list-style-type: none"> <li>- Poor resource and capacity for 2 way communication</li> <li>- Not delivering on expectations</li> <li>- Blanket messaging without feedback channels</li> </ul>	GSMA Guidelines for the Use of SMS in Natural Disasters - (GSMA Disaster Response, 2013)

## Conclusion

In order to reach as many refugees as possible with health promotion, multimedia, multichannel approaches should be considered. Multimedia approaches not only give more opportunity to be heard first time around but also reinforce messages and build trust. They also enable greater accessibility by people of varying abilities with varying access to ICTs.

The ICT landscape globally is changing fast yet is highly contextual so requires assessment and monitoring at country level. The same can be true of humanitarian crises. Amongst this instability refugees innovate for themselves using ICTs and their needs, expertise and preferences should be drawn from when humanitarian agencies design ICT solutions.

While humanitarian agencies such as UNHCR, and ITU and the mobile phone industry's trade body GSMA are making efforts to monitor the uptake of these technologies, the use of ICTs to communicate with displaced populations in humanitarian response has not yet been mainstreamed as standard channels of communication in humanitarian responses. This may (rightly) be due to cost and capacity to run such services or poor availability and uptake of these technologies. More can be done by humanitarian agencies to build partnerships with mobile network operators to prepare for humanitarian messaging campaigns and to support availability

and uptake of ICTs. Digital educational messaging services need to be planned with care and require appropriate commitments of time and money to deliver.

As evaluations of campaigns using SMS for health messaging in disease outbreaks (such as Cholera and Ebola) are shared, the best practices for such campaigns are emerging with UNHCR providing guidelines for recommended SMS platform capabilities and GSMA Disaster Response providing guidance in programme design. Humanitarian agencies should pro-actively contribute to these endeavours.

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## Recommendations

1. **Support initiatives to monitor penetration of ICTs where there are gaps in data:** this includes data in conflict affected countries, amongst refugees and gender desegregated data.
2. **Survey local ICT landscapes** including how women and refugees use ICTs: how they access hardware, what applications they use, how they share information and what their perceptions are about ICTs. Also survey those who cannot read or have disabilities. Work with in country partners to monitor the ICT landscape. Find out which messaging platforms and technologies are working successfully. Draw from expertise such as [CDAC's guide to assessing information and communication needs](#) and [USAID's Gender and Information Communication Technology \(ICT\) Survey Toolkit](#)
3. **Build partnerships with Mobile Operators and Government** to prepare for health messaging before crises happen and to get local contextual expertise, permissions or concessions when planning a campaign.
4. **Prioritise a simple user journey over simple backend processes**
5. **Use a multi-channel approach to build trust** - avoid using SMS messaging campaigns in isolation and always incorporate into a wider programme including widely accessible and trusted media considering especially those who cannot read, with low incomes or who are geographically isolated.
6. **Communication should ideally be 2-way** for messaging and design of campaigns to be responsive and timely to needs.
7. **Ensure there is capacity to provide timely responses.** Failure to do so could endanger trust.
8. **Promote services** which require opting in/ registration and use different channels of media to direct target populations towards sources of information and advice. Work through local respected leaders, social networks or broadcasters with reach.
9. **Consider financial incentives** (NFI distribution, refunds for credit)
10. **Involve your audience in the design of messaging and user journeys.** Make extra effort to include refugees and women **Develop culturally and gender-sensitive messages and approaches in the languages of the target population.** Transmitting messages through intermediaries, developing a voice recognition system, or using pictograms or graphs may be worthwhile solutions to language and literacy barriers.
11. Message content should be:
  - a. Accurate and credible
  - b. Practical (using action words)
  - c. Relevant – focus on topics people want to know about
  - d. Well branded to stand out from spam.
12. **Share evaluations of ICT based humanitarian campaigns**



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## Bibliography

- Abroms et al. (2015). *Developing and Pretesting a Text Messaging Program for Health Behavior Change: Recommended Steps*.
- Antonio, A., & Tuffley, D. (2014). The Gender Digital Divide in Developing Countries. *Future Internet*.
- BBC Media Action. (2016). *Using media and communication to respond to public health emergencies: lessons learned from Ebola*.
- BBC Media Action. (2016). *Voices of Refugees - Information and Communication Needs of Refugees in Greece and Germany*.
- Berman, A., Figueroa, M., & Storey, J. D. (2017). Use of SMS-Based Surveys in the Rapid Response to the Ebola Outbreak in Liberia: Opening Community Dialogue. *Journal of Health Communication International Perspectives*, 22.
- betterplace lab. (2016). *ICT4Refugees: A report on the emerging landscape of digital responses*.
- Betts, A., Bloom, L., & Weaver, N. (2015). *Refugee Innovation - Humanitarian innovation that starts with communities*.
- Broadband Commission. (2017). *Recommendations for action: bridging the gender gap in Internet and broadband access and use*.
- Budde.com. (2018). *Djibouti - Telecoms, Mobile and Broadband - Statistics and Analyses*.
- Burjorjee, D., & Bin-Humam, Y. (2018). *Working Paper: New Insights on Women's Mobile Phone Ownership*. CGAP.
- CartONG / UNHCR. (2015). *Comparison of SMS Platforms*.
- Deen-Swararray, M., & others. (2012). *Lifting the veil on ICT gender indicators in Africa*. Research ICT Africa & University of Cape Town.
- Déglise, C., Suggs, L., & Odermatt, P. (2012). Short Message Service (SMS) Applications for Disease Prevention in Developing Countries. *Journal of Medical Internet Research*.
- Evans, A. (2015). *Why is support for gender equality mainly growing in urban areas?* Retrieved from Oxfam Blogs: From Poverty to Power: <https://oxfamblogs.org/fp2p/support-for-gender-equality-is-growing-but-why-is-this-mostly-in-urban-areas/>
- Fatehkaa, M., Kashyap, R., & Weber, I. (2018). *Using Facebook ad data to track the global digital gender gap*.
- GSMA. (2014). *Blueprint: Ebola Mobile response*.
- GSMA. (2015). *Bridging the gender gap: Mobile access and usage in low and middle-income countries*.
- GSMA. (2017 (1)). *The Importance of Mobile for Refugees: A Landscape of New Services*.
- GSMA. (2017 (2)). *GSMA mHealth Design Toolkit*. Retrieved from <https://www.gsma.com/mobilefordevelopment/programme/mhealth/mhealth-design-toolkit-ten-principles-launch-develop-scale-mobile-health-services/>
- GSMA. (2017). *2017 Mobile Industry Impact Report: Sustainable Development Goals*.
- GSMA. (2018). *The Mobile Gender Gap Report 2018*.
- GSMA Disaster Response. (2013). *Towards a Code of Conduct: Guidelines for the Use of SMS in Natural Disasters*.
- GSMA Disaster Response. (2017). *Mobile is A Lifeline: Research Nyarugusu Refugee Camp, Tanzania*.
- GSMA mWomen. (2012). *Striving and Surviving: Exploring the Lives of Women at the Base of the Pyramid*.
- Hafkin, N., & Huyer, S. (2007). Women and Gender in ICT Statistics and Indicators for Development. *Information Technologies and International Development, Volume 4, Number 2, Winter*.
- Herbert, S. (2017). *Digital development and the digital gender gap*.
- HIF. (2018). *Innovating mobile solutions for refugees in East Africa*.
- Hilbert, M. (2011). Digital gender divide or technologically empowered women in developing countries? A typical case of lies, damned lies, and statistics. *Women's Studies International Forum Volume 34, Issue 6*, 479-489.
- ICRC. (2017). *Handbook on Data Protection in Humanitarian Action*.
- ICRC[2]. (2017). *Humanitarian Futures for Messaging Apps - Understanding the Opportunities and Risks for Humanitarian Action*.
- IFRC. (2012). *Case Study: Two-Way SMS Communication with Disaster Affected People in Haiti*. CDAC Network Media and Tech Fair, March 2012.
- IFRC. (2013). *World Disasters Report 2013: Focus on technology and the future of humanitarian action*.
- IFRC. (n.d.). *Trilogy Emergency Response Application (TERA) Information, questions & answers*.
- IGF. (2016). *IGF BEST PRACTICE FORUM ON GENDER: GENDER AND ACCESS (2016)*.
- Internews. (2013). *Lost: Syrian Refugees and the Information Gap*.
- ITU. (2016). *Measuring the Information Society Report 2016*.
- ITU. (2017 [1]). *ICT Development Index 2017*.
- ITU. (2017). *ICT Facts and Figures 2017*.

- ITU Development. (2018). *ICTs, LDCs and the SDGs Achieving universal and affordable Internet in the least developed countries*.
- Kinyanjui, J. W. (2015). *Mobile Phone Based Applications in Implementing Cholera Prevention and Control Education in Complex Humanitarian Emergencies - A Feasibility Study in Mogadishu, Somalia*.
- Korenblum, J. (2012). *Mobile phones and crisis zones: how text messaging can help streamline humanitarian aid delivery*. Retrieved May 2018, from <https://odihpn.org/magazine/mobile-phones-and-crisis-zones-how-text-messaging-can-help-streamline-humanitarian-aid-delivery/>
- Kularski, C., & Moller, S. (2012). The digital divide as a continuation of traditional systems of inequality. *Sociology*, 5151, 1–23.
- Mesmar, S., Akik, C., Talhouk, R., Olivier, P., Elhajj, I., Elbassuoni, S., et al. (2016). *The impact of digital technology on health of populations affected by humanitarian crises: Recent innovations and current gaps*.
- Northwestern University in Qatar. (2017). *Media Use in the Middle East, 2017*.
- Oxfam. (2013, Jan 31). *Oxfam Blogs: Mobile phones help tackle cholera in inaccessible parts of Somalia*. Retrieved May 2018, from <https://www.oxfam.org.uk/blogs/2013/01/mobile-phones-help-tackle-cholera-in-inaccessible-parts-of-somalia>
- Oxfam. (2015). *Oxfam Evaluation Report: Using Mobile Phones for Polio Prevention in Somalia*.
- SAVE. (2016). *Listening to communities in insecure environments*.
- Steeves, H., & Kwami, J. (2017). Interrogating Gender Divides in Technology for Education. *Studies in Comparative International Development*, 52(2), 174-192.
- Talhouk, R., Mesmar, S., Thieme, A., Balaam, M., Olivier, P., Akik, C., et al. (2016). *Syrian Refugees and Digital Health in Lebanon: Opportunities for Improving Antenatal Health*.
- The Open University. (2016). *Mapping Refugee Media Journeys Smartphones and Social Media Networks*.
- UN Women. (2018). *Gender Equality and Big Data - Making Gender Data Visible*.
- UNHCR. (n.d.). Retrieved from Information and Communication Needs Assessment Tool: <http://www.unhcr.org/innovation/information-and-communication-needs-tool/>
- UNHCR / REACH. (2015). *Mass Communications in Azraq Refugee Camp*.
- UNHCR. (n.d.). *10 things to consider before rolling out two-way SMS*. Retrieved May 2018, from UNHCR Innovation Service: <http://www.unhcr.org/innovation/10-considerations-for-sms/>
- UNHCR. (2016). *Connecting Refugees - How Internet and Mobile Connectivity can Improve Refugee Well-Being and Transform Humanitarian Action*.
- UNHCR. (2016). *Connecting Refugees: How Internet and Mobile Connectivity can Improve Refugee Well-Being and Transform Humanitarian Action*.
- UNHCR. (2017, Nov). *Set up a system to manage two-way SMS in two minutes*. Retrieved May 2018, from UNHCR Innovation Service: <http://www.unhcr.org/innovation/two-way-sms/>
- UNHCR Innovation Service. (2017, January). *Communicating with Communities, or Individuals?* Retrieved May 2018, from <http://www.unhcr.org/innovation/>: <http://www.unhcr.org/innovation/communicating-communities-individuals/>
- UNICEF. (2015). *WASH Field Note November 2015 Mobile Phone-Based Hygiene and Sanitation Promotion in Somalia*.
- World Economic Forum. (2014). *The Global Gender Gap Report 2014*. Retrieved March 2018, from [www3.weforum.org](http://www3.weforum.org/docs/GGGR14/GGGR_CompleteReport_2014.pdf): [http://www3.weforum.org/docs/GGGR14/GGGR\\_CompleteReport\\_2014.pdf](http://www3.weforum.org/docs/GGGR14/GGGR_CompleteReport_2014.pdf)
- World Wide Web Foundation. (2018). *Universal Service and Access funds - An Untapped Resource to Close the Gender Digital Divide*.



## ANNEX I: Data on the Digital Gender Gap in Countries where NRC works

Territory	Mobile Phone Ownership			Internet Usage		
	% Male Population who are Mobile Phone / Account Holders <sup>4</sup>	% Female Population who are Mobile Phone / Account Holders <sup>4</sup>	% Mobile Phone Gender Gap = (% men owning mobile phones – % women owning mobile phones) / % men owning mobile phones	% of Male Population who are Internet Users <sup>7</sup>	% of Female Population who are Internet Users <sup>7</sup>	% Internet Gender Gap = (% men who use internet – % women who use internet) / % men who use internet)
<b>SUB-SAHARAN AFRICA</b>	72% <sup>5</sup>	61% <sup>5</sup>	14% <sup>5</sup>	24.9% <sup>1</sup>	18.6% <sup>1</sup>	25%
	<ul style="list-style-type: none"> <li>A 2012 study found that a gender gap existed more so in use than access.</li> <li>There was no significant difference between genders regarding the ownership of mobile phones in urban areas. (Deen-Swarrray &amp; others, 2012)</li> </ul>			The gender gap in use in internet use is widening in Africa – more than any other region (ITU)		
Cameroon	44.2% <sup>6</sup>	44.9% <sup>6</sup>	-2%	45% <sup>7</sup>	36% <sup>7</sup>	20%
DRC	36% <sup>8</sup>	24% <sup>8</sup>	33%			
Ethiopia	24% <sup>6</sup>	10.4% <sup>6</sup>	57%	3.9% <sup>6</sup>	1.1% <sup>6</sup>	72%
Kenya	92% <sup>5</sup>	85% <sup>5</sup>	8%	57% <sup>7</sup>	20% <sup>7</sup>	65%
Nigeria	76.5% <sup>6</sup>	54.9% <sup>6</sup>	28%	66% <sup>7</sup>	36% <sup>7</sup>	45%
Tanzania	81% <sup>5</sup>	73% <sup>5</sup>	10%	3.4% <sup>6</sup>	3.5% <sup>6</sup>	-3%
Uganda	56.2% <sup>6</sup>	34.5% <sup>6</sup>	39%	61% <sup>7</sup>	21% <sup>7</sup>	66%
<b>MIDDLE EAST</b>			9% <sup>5</sup>	47.7% <sup>1</sup>	39.4% <sup>1</sup>	17%
Iran				26% <sup>9</sup>	34% <sup>9</sup>	-31%
Jordan	Data unavailable due to fluctuations in population, including from the recent influx of Syrian refugees		21% <sup>8</sup>	Results from a survey of students in one University pointed to the existence of DGG in Jordanian society.		
Palestine				78% <sup>10</sup>	67% <sup>10</sup>	11%
Yemen	61% approx. <sup>11</sup>	39% approx. <sup>11</sup>	22% approx. <sup>11</sup>			

<sup>4</sup> ITU Fact and Figures 2017

<sup>5</sup> GSMA Intelligence 2017, GSMA Connected Women (2018) 'The Mobile Gender Gap Report 2018'

<sup>6</sup> Research ICT Africa, 2012 (Deen-Swarrray & others, 2012)

<sup>7</sup> World Wide Web Foundation, 2015

<sup>8</sup> GSMA Connected Women, 2015

<sup>9</sup> ITU / World Bank, Little Data Book on Gender, 2016

<sup>10</sup> Pew Research Centre Spring 2015 Global Attitudes survey. Q70 & Q72

<sup>11</sup> Gallup 2016 World Poll Data – approximate reading from chart in Burjorjee and Bin-Humam (2018) 'New Insights on Women's Mobile Phone Ownership'

## ANNEX II: Addressing barriers to women's access and use of ICTs

Barrier	Recommendations for Donors and Development Community
<b>Cost / Poor Affordability</b> -cost of mobile handsets is the greatest barrier overall. <sup>12</sup> -insufficient income to pay for data, or cannot afford a device <sup>13</sup>	Support affordability efforts to increase access (e.g., Alliance for Affordable Internet). <sup>14</sup>
	Consider targeted, subsidised programmes for women to get access to mobile (e.g., subsidising handsets, microloans) <sup>14</sup>
	Develop initiatives for achieving affordable Internet access for women and girls <sup>15</sup>
	Support approaches that help ensure that the cost of data and devices for accessing the Internet is affordable to women and girls <sup>15</sup>
	Address the gender inequality underlying many barriers to Internet access; for example, by investing in girls' education or women's access to finance <sup>16</sup>
<b>Accessibility / Delivery issues</b> (network quality and coverage and agent or operator trust)	NGOs should consider whether beneficiaries or trusted local NGO staff would benefit from becoming agents for mobile operators. <sup>14</sup>
	Advocate and support efforts to increase network quality and coverage for women in low- and middle income countries. <sup>14</sup>
	Support efforts to increase network coverage, capacity and quality and access to existing capacity, particularly in areas where a significant proportion of the population are women. <sup>14</sup>
	Support the provision of safe and accessible public access facilities to serve women and girls <sup>17</sup>
	Ensure that existing Internet access initiatives give women a seat at the table and that they incorporate a full package of needs: hardware, software, connectivity, training, support <sup>16</sup>
<b>Low Capacity and Skills</b> Low literacy, English literacy, digital (technical) literacy and confidence. <sup>8</sup>	Fund mobile technical literacy training for women across multiple country programmes. <sup>14</sup>
	Encourage national governments to include technical literacy training for women on their ICT agenda. <sup>14</sup>
	Invest in capacity-building initiatives to increase women and girls' digital literacy and confidence. <sup>15</sup>
	Ensure digital literacy initiatives consider women's needs, interests and contexts to encourage meaningful use of the Internet, maximising its value to women and minimising risks <sup>15</sup>
	Provide women with opportunities to develop digital skills through different channels, including public facilities and existing initiatives. Support women to learn on their own <sup>15</sup>
	Support making online content more accessible to women with limited literacy, language and ICT skills. Ensure that women with lower literacy are included in the pilots and testing <sup>15</sup>
	Support and promote female role models as leaders and Internet users within communities <sup>15</sup>
	Integrate digital and information literacy into existing programs targeting women and girls <sup>16</sup>
	Invest in bringing technology and long-term training to the hardest to reach populations, such as low-income and rural women <sup>16</sup>
<b>Privacy, safety, security and harassment concerns</b>	Public awareness campaigns to draw attention to harassment of women via the mobile phone. <sup>14</sup>
	Provide research and additional insights into issues around security and harassment on mobile for women in low and middle-income countries <sup>14</sup>
	Support piloting of programs to address women-specific needs, such as for "safe" access points like women-only Internet cafes, and government measures to increase online safety <sup>16</sup>
<b>Poor availability of relevant content</b> Useful/ preferred content not available in first language. <sup>8</sup>	Build awareness of the potential benefits that can realistically be achieved through women and girls' access to and use of Internet <sup>10</sup>
	Develop quality, non-stereotypical services, applications and content relevant to women and girls <sup>15</sup>
	Involve women from diverse backgrounds, including from low income groups and those who do not make use of ICTs, in the design and testing of content, applications and services <sup>15</sup>
	Develop and share content relevant to women, as well as "safe" online communities that encourage expression while addressing pornography and other appropriateness concerns <sup>16</sup>
<b>Cultural and social norms surrounding gender roles especially in rural areas</b> <sup>9, 18 19 20</sup>	Conduct research on the threats and cultural and social norms that prevent women from accessing and using the Internet in different contexts, including those online <sup>15</sup>
	Increase awareness of the threats that prevent women and girls from accessing and using the Internet (targeting both men and women in education and awareness activities) <sup>15</sup>
	Support and invest in applications, services and other measures that make it safer for women and girls to use the Internet, addressing issues of harassment, abuse and violence <sup>15</sup>
	Make it easy and safe for women and girls to report online abuse (and ensure that reports are responded to) while ensuring that other rights and freedoms are upheld <sup>15</sup>

<sup>12</sup> Women who have less financial independence than men may feel this barrier disproportionately. (GSMA, 2018) The Mobile Gender Gap Report 2018.

<sup>13</sup> (IGF, 2016) IGF Best Practice Forum on Gender: Gender and Access (2016).

<sup>14</sup> (GSMA, 2015) Connected Women: Bridging the gender gap: Mobile access and usage in low and middle-income countries.

<sup>15</sup> (Broadband Commission, 2017) Recommendations for action: bridging the gender gap in Internet and broadband access and use.

<sup>16</sup> Intel (2013) Women and the Web: Bridging the Internet Gap and Creating New Global Opportunities in Low and Middle-Income Countries

<sup>17</sup> Internet cafes in developing countries are often dominated by boys and men, and girls and women are discouraged from entering. (Herbert, 2017)

<sup>18</sup> (GSMA mWomen, 2012) Striving and Surviving: Exploring the Lives of Women at the Base of the Pyramid.

<sup>19</sup> Boys prioritised for technology use at home, online gender-based violence, restrictions to movement. (IGF, 2016)IGF Best Practice Forum on Gender: Gender and Access (2016).

<sup>20</sup> Boys report having greater financial resources to spend at cafes, while girls are expected to contribute more time and money to the family. (Steeves & Kwami, 2017) , p.185

### Annex III: Organisations Investigating and Addressing the Digital Gender Gap

Organisation	Interests	Type of Organisation
Equals Global Partnership	<p>The Global Partnership for Gender Equality in the Digital Age, a coalition of programmes dedicated to women and girls in technology with a vision of harnessing the power of modern information and communication technologies (ICTs) to accelerate global progress to bridge the gender digital divide. It includes ITU, UN Women, GSMA, International Trade Centre, United Nations University and several Research Group Participants including:</p> <ul style="list-style-type: none"> <li>Berkman Klein Centre For Internet And Society At Harvard University</li> <li>Royal Holloway, University Of London</li> <li>Digital Asia Hub</li> <li>International Telecommunication Union</li> <li>United Nations University</li> <li>LIRNEasia</li> <li>International Gender Studies Centre, University Of Oxford</li> <li>University Of Pennsylvania</li> <li>London School Of Economics</li> <li>University Of Ghana</li> <li>Women In Global Science &amp; Technology</li> <li>Gender Center Of Graduate Institute Of Geneva</li> <li>USC Annenberg School For Communication And Journalism</li> <li>University Of Macau</li> <li>Dialog On Information Society In Latin America (Dirsi)</li> <li>IDRC</li> <li>Research ICT Africa</li> <li>University Of The Western Cape, Women's And Gender Studies Department</li> <li>University Of Washington, Communications</li> <li>University Of Washington, Ischool</li> <li>Latin American Postgraduate Institute Of Social Sciences (FLACSO)</li> <li>Oslo And Akershus University College Of Applied Sciences</li> <li>Chinese University Of Hong Kong</li> <li>Kaist American University In Cairo</li> <li>Center For Gender Equity In Science &amp; Technology Of Arizona State University</li> </ul>	UN/ Private / Academic
GSMA	GSMA is a telecom industry advocacy group. GSMA Intelligence is the definitive source of global mobile operator data, analysis and forecasts, and publisher of authoritative industry reports and research. Their data covers every operator group, network and MVNO in every country worldwide – from Afghanistan to Zimbabwe. It is the most accurate and complete set of industry metrics available, comprising tens of millions of individual data points, updated daily.	Private
ITU	International Telecommunication Union. The United Nations specialized agency for information and communication technologies – ICTs. TU was founded in Paris in 1865 as the International Telegraph Union. It took its present name in 1934, and in 1947 became a specialized agency of the United Nations and is leading the ICT sector towards the UNs SDGs.	UN
The United Nations Foundation	Links the UN's work with others around the world, mobilizing the energy and expertise of business and non-governmental organizations to help the UN tackle issues including climate change, global health, peace and security, women's empowerment, poverty eradication, energy access, and U.S.-UN relations.	UN
Orbicom	Orbicom is an international network that links communications leaders from academic, media, corporate and government circles with a view to providing for the exchange of information and the development of shared projects. Orbicom's mandate derives from UNESCO's New Communications Strategy unanimously adopted at the 1989 General Conference. Orbicom is supported by internationally-based institutions, media, governments and corporations.	Public / Private

Organisation	Interests	Type of Organisation
Intel	Intel Corporation is one of the world's largest producers of semiconductor chips. It is the inventor of the processors found in most personal computers. The Intel® She Will Connect program—a corporate social responsibility/development assistance initiative—aims to close the Internet gender gap around the globe.	Private
World Wide Web Foundation	The World Wide Web Foundation was established in 2009 by web inventor Sir Tim Berners-Lee to advance the open web as a public good and a basic right. They have produced Digital Gender Gap Audit Scorecard Toolkit <a href="http://webfoundation.org/docs/2016/12/WRO-Digital-Gender-Gap-Audit_Toolkit.pdf">http://webfoundation.org/docs/2016/12/WRO-Digital-Gender-Gap-Audit_Toolkit.pdf</a>	NGO
Women and the Web Alliance	Public-private partnership stemming from She Will Connect programme spearheaded by Intel. Today, the alliance is leveraging the networks and resources of our several partners (currently eight) to introduce more than 100,000 15- to 25-year-old Kenyan and Nigerian women and girls to the Internet and engage them in using it as a tool for social and economic empowerment. Partners are: <ul style="list-style-type: none"> <li>• Intel Corporation (see above) Intel is a NetHope supporter.</li> <li>• USAID Funds Women and the Web Alliance through the Global Broadband and Innovations (GBI) Alliance, a partnership between USAID and NetHope. Within USAID, GBI falls under USAID's newly created U.S. Global Development Lab.</li> <li>• NetHope is the alliance's overall program manager under the GBI partnership with USAID. NetHope is a nonprofit consortium of more than 40 leading international humanitarian aid organizations working with leading high-tech firms to leverage innovations in information and communications technology to improve the human condition worldwide.</li> <li>• UN Women is the United Nations organization dedicated to gender equality and the empowerment of women.</li> <li>• Internews is an international nongovernmental organization that fosters independent media and access to information worldwide. Internews' expertise includes ensuring safe access to the Internet for women and girls.</li> <li>• World Pulse an award-winning social network connecting women worldwide for change.</li> <li>• World Vision is a Christian humanitarian organization.</li> <li>• Women in Technology in Nigeria (WITIN) was an original partner that provided networking, entrepreneurship, and professional development opportunities for women through technology.</li> </ul>	Private / Humanitarian / NGOs
APC	APC (Association for Progressive Communications) is both a network and an organisation. The APC network has 58 organisational members and 37 individual members active in 78 countries. Strategic priorities are: Access Rights, A feminist internet, Governance, use and development	
Africa's Voices	Design mixed methods research projects that are grounded in social science theories, engage citizens through digital channels, and deliver robust, credible evidence to inform development and governance programmes.	
CIPESA	Funded by DfID, CIPESA (The Collaboration on International ICT Policy in East and Southern Africa) focuses on decision-making that facilitates the use of ICT in support of development and poverty reduction. CIPESA has positioned itself as a leading centre for research and analysis of information aimed to enable policy makers in the region to understand ICT policy issues, and for various multi-stakeholders to use ICT to improve livelihoods.	

## ANNEX IV: Organisations interested in supporting ICTs for Health Messaging for Humanitarian responses

Who	Interests	Type of Organisation
Oxfam	Developed the M-Link SMS platform for Polio prevention messaging in Somalia and have an ICT in Programme team. Launched in 2014, the Scaling Humanitarian ICTs Network (SHINE) a three year multi-country programme dedicated to exploring how Information Communication Technologies (ICTs) can add value to activities through the humanitarian project cycle through improving the quality and efficiency of humanitarian aid.	Humanitarian
Red Cross (IFRC)	IFRC partnered with wireless telecommunications company Trilogy International Partners to produce the TERA SMS platform which it has rolled out internationally by partnering with mobile operators. Their 2013 World Disaster Report focussed on technology and the future of humanitarian action and have co- produced a report on messaging apps in 2017. (ICRC[2], 2017)	Humanitarian
UNICEF	UNICEF's Innovation interests include Access to information, Real Time Information and Product Innovation. 14 Innovation Labs around the world, a dedicated Innovation Unit in New York, a Global Innovation Centre in Nairobi and teams in San Francisco and Copenhagen. Funding SMS programmes such as Oxfam's Polio prevention programme in Somalia. Supported the development of RapidPro the open source software is a platform for building mobile-based applications - including Oxfam's m-link. Their 'Internet of Good Things' product is a set of mobile-ready resources and applications made accessible for free via a network of distribution partners and provides access to regularly updated educational content and lifesaving information.	Humanitarian
UNHCR	UNHCR's Innovation Service has produced guidelines for communicating with refugees including via SMS. UNHCR started disseminating information via SMS in 2012 in the Za'atari camp. UNHCR's Ascend uses Frontline Cloud to send out mass SMS messages or surveys to refugees while keeping a digital record of responses. UNHCR has a 'Connectivity for Refugees' initiative.	Humanitarian
Medecins Sans Frontieres / Doctors without Borders	MSF used SMS platform Twilio in Zimbabwe in 2015 to keep patients informed about appointments at HIV clinics. In 2014 Doctors without Borders proposed using mobile phone technology to report symptoms and to receive immediate feedback about the health services during the Ebola outbreak.	Humanitarian
Mercy Corps	Mercy Corps used engageSPARK platform to send 1,000,000+ automated calls and SMS messages to teach financial skills to 20,000 Filipino typhoon survivors. Mercy Corps did this by sending an engaging 12-episode soap opera drama to the survivors using SMS text messages and automated phone calls.	Humanitarian
Urban Refugees	URBAN REFUGEES is developing SMS Up, a group messaging service that enables users to send SMS messages to multiple recipients using a single mobile phone number. This tool will enable refugees to: Share time sensitive information, Self-organize easily via SMS, Easily find support	NGO
Microsoft Philanthropies	Technology for Social Impact team formed in 2017 focuses on how to use Microsoft technological services and assets to support the NGO and humanitarian community. It aims to empower displaced people and humanitarian organisations.	Private Sector
The Pacific Institute	Pacific Institute conduct research and education to create a healthier planet and sustainable communities. Their WASH SMS Project is creating a highly accessible communication and monitoring system that uses readily available mobile phones to collect and disseminate information that can fill multiple data needs.	Non Profit
Souktel	Build custom digital solutions (including content delivery and mobile network setup) that transform projects and change lives.	Private
Fontline SMS	A messaging engagement tool designed to help you easily send, receive and manage SMS workflows. With Frontline, you can apply smart automation and engagement to the world's most-used communications tool - mobile messaging.	Private Sector

Who	Interests	Type of Organisation
Twilio.org	Twilio is a system that makes SMS and Voice messaging programmable so you can build apps. Twilio has been used to build SMS based social networks for refugees and an SMS based ambulance and emergency care provider system.	Private Sector
EngageSpark	A messaging system including SMS surveys, SMS “blasts”, SMS auto reply. Have worked with IOM, Mercy Corps, UNICEF, MSF, UNHCR	Private
Refugee Text	Work with trusted organisations to deliver critical information refugees need via automated messages using a Chatbot Management System	Private
Ericsson	Run the global education initiative Connect to Learn Programme launched in 2010 by the Earth Institute of Columbia University, Millennium Promise and Ericsson to scale up access to quality secondary education, in particular for girls, by providing scholarships and bringing ICT to schools in remote, resource-poor parts of the world, over mobile broadband. Ericsson has worked with REFUNITE to create the world’s largest missing persons platform for refugees.	Private
Vodafone Foundation	Vodafone’s Instant Network Emergency Response deploys people and technology to provide free communications and technical support in areas affected by natural or humanitarian disaster. Their Instant Network Schools project enables young refugees and teachers to access digital educational content and the internet	
Google	supporting refugeeinfo.eu	Private
Zain	Leading mobile telecommunications provider in the Middle East and North Africa.	Private
Facebook	Recently announced partnership with Zain and UNHCR to bring connectivity to over 700,000 refugees in Jordan and provide free, open and high-speed Wi-Fi internet connectivity to refugees in Jordan for five years. Internet.org is a Facebook-led initiative aiming to bring internet access and the benefits of connectivity to those that don’t have them. Free Basics by Facebook provides people with access to basic websites for free – like news, job postings, health and education information, and communication tools like Facebook. The Connectivity Lab at Facebook is developing ways to make affordable internet access possible in communities around the world.	Private
Nethope	NetHope acted as a rapid first responder in Ebola-affected countries, providing communications equipment and deploying connectivity solutions that unified disparate sources of humanitarian care.	
InSTEDD	InSTEDD (Innovative Support to Emergencies Diseases and Disasters) have worked on developing short codes for text messaging post-disaster and during disease outbreaks, participatory disease surveillance and IVR. This includes Trek Medics’ text-based platform which saves lives by providing critical emergency response in developing countries without 911 infrastructures.	Non-profit
Nexleaf Analytics	Transforming regular mobile phones into leading-edge data-collection instruments by combining the ubiquity of mobile networks with sophisticated server-side analytics.	NGO
Grameen Foundation	Developed the open source MOTECH mHealth platform which connects eHealth systems (e.g. OpenMRS and DHIS2), frontline worker systems (e.g. CommCareHQ) and communication systems (e.g. IVR, SMS and email).	NGO
Bill & Melinda Gates Foundation	Funded MOTECH (see above). Included innovations in technology including ICTs in their “Big Bets” for 2015	NGO
Digital Humanitarian Network	A consortium of Volunteer & Technical Communities (V&TCs). Since it was founded in 2012, the DHN has provided crisis informatics, visualization, mapping and technical development to a range of formal actors.	Humanitarian
CDAC (Communicating with Disaster Affected Communities)	Strengthen the humanitarian sector to provide timely, accurate, and reliable information to people preparing for or affected by disasters. Members include Action Aid, BBC Media Action, Save the Children, ICRC, UNHCR, UNICEF, UNOCH. Disasters and Emergencies Preparedness Programme (DEPP) has developed The Emergency Media and Communications texting system is an SMS feedback system to allow people affected by crises to communicate directly with emergency responders in emergency settings.	NGO

Who	Interests	Type of Organisation
The Peace and Conflict Journalism Network (PECOJON)	CDAC Network Member has developed a new SMS feedback system that allows disaster responders to capture and analyse feedback from mobile phone users. emMcommTXT allows mobile phone users to send a message to a hotline number in the Philippines free of charge. The feedback is recorded into a database, which allows for data to be segregated through various categories. The software can create graphs and other analytics to review the feedback gathered, highlighting priority issues, informing the responses that are required and programming decisions.	NGO
BBC Media Action	Media Action make content, strengthen capacity and illustrate to policy makers and influencers how media and communication can help improve governance and health and strengthen resilience and humanitarian response. Media Action have used mobile phones to empower community health workers in India through IVR.	NGO
Internews	Internews' expertise includes ensuring safe access to the Internet for women and girls and helping them protect themselves against online risks. They have used SMS to detect and manage rumours on Ebola in as close to real-time as possible. Their Humanitarian Information Service (HIS) provided a mechanism for Gazans to communicate with aid agencies and get the information they need through radio broadcasts and SMS/mobile communication. Internews and its partners HealthMap and FrontlineSMS:Medic provided timely health information to and from community (and health workers) in the Korogocho slum area of Nairobi.	NGO
Vital Wave	Clients and partners work with Vital Wave to understand specific industries and set appropriate strategies, implement and manage programs, and institutionalize programs within a broader national and regional ecosystem. Vital Wave has developed tools and methodologies for large-scale ICT4D service delivery in low-resource environments.	Private
Emergency Telecommunications Cluster	The Emergency Telecommunications Cluster (ETC) is a global network of organizations that work together to provide shared communications services in humanitarian emergencies. It is one of the 11 clusters designated by (IASC).	UN
WHO	WHO have run a Global Observatory for eHealth initiative since 2005. Supported "mDiabetes" platform in Senegal which was adapted for Ebola messaging. Supported global initiative "Be Hea@lthy Be mobile" jointly with ITU. Projects in other countries include a mCessation programme to reduce tobacco smoking in Costa Rica and an mCervical cancer programme in Zambia.	UN
ITU	Collaborated with WHO In 2013 on "Be Hea@lthy Be mobile" initiative to help all governments build mobile technology into their health systems for the prevention and management of noncommunicable disease. However, the technology platform itself represents an opportunity to target almost any disease.	UN
GSMA	GSMA has a Disaster Response Innovation Fund. GSMA Disaster Response has compiled best practices for SMS in disaster response and The Importance of Mobile for Refugees.	Trade Body
mHealth Alliance	Launched by the UN Foundation, which houses the Alliance, and the Rockefeller and Vodafone Foundations in 2009, the mHA is dedicated to enabling quality health at the farthest reaches of wireless networks. By building public-private partnerships that address health needs in underserved communities, the mHealth Alliance and its partners are developing new ways for mHealth to increase the availability, accessibility, and effectiveness of health information and services. Founding partners include the GSM Association, and the US President's Emergency Fund for AIDS Relief (PEPFAR). They produce key mHealth publications on topics ranging from patient privacy to the mobile gender gap to technology standards and more. They now run the Knowledge for Health (K4Health) platform for sharing of knowledge on the topic of mHealth	Public - Private
The Health Communication Network	Partnership includes UNDP, WHO, BBCB Media Action, The Wellcome Trust, Oxfam NOVIB and several universities. Also an online networking space where people using media and communication strategies for action on poverty and other major issues share and learn.	NGOs / Academic



## ANNEX V: SMS Platforms

Table from UNHCR / CartONG (2015) 'Comparison of SMS Platforms'

Most platform providers emphasized that some missing features could be added through customization. However, for the purpose of this document only features that are available out of the box were considered.

Feature	TERA	Textit	Voto mobile	Commcare	Echo mobile	Frontline	Magpi	Telerivet
<b>GATEWAY</b>								
Android app to send/receive SMS	N	Y	Y	Y	Y	Y	Y	Y
Third party SMS aggregator	N	Y	Y	Y	Y	Y	Y	Y
Out of the box SMS aggregator	Y	N	Y	N	N	N	Y	Y
<b>SMS SERVICES</b>								
Broadcast messages	Y	Y	Y	Y	Y	Y	Y	Y
Send and receive messages to/from individuals	Y	Y	Y	Y	Y	Y	Y	Y
Triggerable by know or unknown contact	Y	Y	Y	Y	Y	Y	Y	Y
Message templates	Y	Y	Y	Y	Y	Y	Y	Y
Personalisation through variables	N	Y	Y	Y	Y	Y	N	Y
Send SMS based on recipients current location	Y	N	N	N	N	N	N	N
<b>Scheduling</b>								
Specific time	Y	Y	Y	Y	Y	N	Y	Y
Relative time	N	Y	Y	Y	Y	N	Y	Y
Recurring	N	Y	Y	Y	Y	N	Y	Y
<b>Surveys/polls via SMS</b>								
Single question surveys	Y	Y	Y	Y	Y	Y	Y	Y
Multiple questions per survey	N	Y	Y	Y	Y	N	Y	Y
Input via formatted messages	N	Y	N	Y	Y	N	Y	Y
Input via guided questions	N	Y	Y	Y	Y	N	Y	Y
Missed call input	N	Y	Y	N	Y	Y	N	Y
Skip logic	N	Y	Y	Y	Y	N	Y	Y
Emulator	N	Y	Y	N	N	N	Y	Y
Offline mobile data collection app	N	Y	N	Y	Y	N	Y	N
<b>IVR / AUDIO MESSAGES</b>	N	Y	Y	Y	Y	N	Y	Y
<b>CONTACT MANAGEMENT</b>								
Self sign-up/unsubscribe	Y	Y	Y	Y*	Y	Y	Y	Y
Groups	Y	Y	Y	Y	Y	Y	Y	Y
Custom attributes for contacts	N	Y	Y	Y	Y	Y	Y	Y
<b>DATA MANAGEMENT AND ANALYSIS</b>								
Visualization tools	Y	Y	Y	Y	Y	Y	Y	Y
Data export	Y	Y	Y	Y	Y	Y	Y	Y

## ANNEX VI: GSMA Program Design Recommendations

GSMA Disaster Response produced the following guidelines specifically limited to Short Messaging Service in natural disaster contexts. (GSMA Disaster Response, 2013).

### General Guidelines for SMS programmes

1. Consider whether SMS is the most appropriate vehicle for the information you are trying to disseminate or collect. Assess the wider media and communications landscape and local context.
2. Do not launch an SMS service unless you have the ability [and capacity/resources] to act on incoming information. Failure to do so risks raising expectations unreasonably. Possibly to a dangerous level and diminishes the credibility of your service.
3. Consider that solid and coordinated partnerships (between humanitarian organisations, mobile operators and target communities) are required to make an SMS service successful yet the capacity and incentives of partners may vary.
4. Design with the end-user in mind. Focus on value and simplicity to beneficiaries and user-centric design rather than solely minimising work on the backend.

### Recommendations for rollout of an SMS service

1. Consider the broader local media environment and context, mobile phone ownership and distribution (especially gender and age access), literacy, coverage and reliability of networks.
2. SMS platforms should ideally be set up prior to major disasters. Systems should be highly robust and reliable with backup systems. Professional organisations should host the servers.
3. Existing national SMS systems should not be duplicated.
4. Plan regular contact with Mobile Network Operators. Identify a single point of contact in each organisation.
5. Short code sharing by multiple organisations should be considered to avoid duplication or contradiction.
6. A centralised coordinating body should be identified to streamline SMS services in an emergency.
7. MNOs should make every effort to offer text-in services at no cost.
8. It is not optimal architecture for an NGO to host low level network connections. Always work directly with MNOs or network connectivity providers authorised by MNOs.
9. Consider that MNOs are bound by legal regulations governing the way information is allowed to be sent.
10. Plan the monitoring and evaluation of the impact and appropriateness of the service.

### Recommendations for SMS Service Launch /Delivery

1. Identify a time period in which your service will be useful and your resources available. Try to estimate an end date and sustainability plan for your service.
2. Identify the decision-makers and protocols for the campaign.
3. Information about short codes should be clear and simple with clear coordination throughout the campaign. Different sources should give consistent messaging.
4. Multimedia, multi-channel promotional campaigns around the SMS campaign may be needed.

5. To avoid raising false expectations, messaging should clearly state who is sending and receiving the message and for how long the service will be in place. Clearly and repeatedly publicise the function of your service and do not change your mission without reassessing the communication ecosystem and notifying the public.
6. SMS Information for disaster affected populations need to be Opt-In services if possible and SMS Broadcasts should be easy to opt out of.
7. Personal identifying information should not be made public unless consent is given by those texting into a service. The raw content of text messages should remain confidential and hosted on a secure platform. Retention of personal data should be limited to a specific time and should not be given to third parties without consent. Local privacy and data protection regulations should be followed.
8. Content to be shared should be verified before it is shared or be clearly marked as unverified.
9. SMS Content should be relevant, actionable, timely so should be targeted by location and situation.

#### Recommendations for Phase out / Hand off of a SMS Service

1. Where longer-term service management will be handed over to local partners, ensure they have sufficient training and capacity.
2. Changes in service content or pricing must be clearly stated to service users.
3. Consider the relevance and validity of content over time. If the nature of the service shifts with the end of crisis, content, partnerships and value need of the service should be reviewed.
4. Anonymised data gathered over service delivery period could be relevant and useful for informing future responses or other areas. Consider how and where this information is stored, protected and how it might be utilised in the future.
5. If the SMS service is no longer operational, ensure that beneficiaries expectations are managed regarding long term service provision.
6. Documenting lessons learned from service delivery to inform the next round of service planning and knowledge sharing between stakeholders is key to improving impact of these services.
7. These recommendations should be tailored to reflect realities of specific responses. Strengthened partnerships and coordination between and within Mobile Operator and Humanitarian Communities

## ANNEX VII: UNHCR Intervention options to enhance availability, affordability and usability of internet and mobile connectivity

 <p>Availability Interventions</p> <p>Network infrastructure and reliable electricity</p>	<ol style="list-style-type: none"><li>1. Advocate for MNO Infrastructure</li><li>2. Advocate to Governments for Infrastructure and Access</li><li>3. Advocate to ISPs/Alternative Technology Companies for Infrastructure</li><li>4. Make Targeted Investments in Infrastructure</li></ol>
 <p>Affordability Interventions</p> <p>Accessible or subsidised pricing</p>	<ol style="list-style-type: none"><li>5. Negotiate Refugee Specific Plans and Discounts</li><li>6. Subsidise Devices and Mobile/Internet Plans</li><li>7. Deploy and Expand Community Internet Access Centres</li></ol>
 <p>Usability Interventions</p> <p>Digital literacy, training and access to relevant services</p>	<ol style="list-style-type: none"><li>8. Develop and Implement Training Programs</li><li>9. Enable an Ecosystem for Digital Service Delivery</li><li>10. Facilitate Development of Refugee Relevant Content</li></ol>