

COMMENTARY

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# Promoting digital humanitarian action in protecting human rights: hope or hype

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## Abstract

The digital transformation has affected every aspect of human being by bringing fundamental changes in technology, culture, operations, and principles of creating new products and services in the framework of economic globalization and innovations. Humanitarian action has not been left out either as the implementation of digital solutions provides large-scale opportunities to enhance the performance of humanitarian practices and, as a result, the capability to save more lives of people affected by armed conflicts or disasters, migrants, and refugees. In this commentary, we are focused on such a vulnerable subject as human rights, freedoms, and dignity protection in the digital domain of humanitarian assistance since it is inextricably linked to risks and threats of being a member of the digital world. We consider and synthesize the experience of parties involved into the valuable work on humanitarian action and highlight the lessons from the past as well as decisions taken in the present to fundamentally update and adapt humanitarian assistance to confidently meet challenges while protecting its fundamental principles and add value to humanitarian missions.

**Keywords:** Digital, Humanitarian action, Human rights, Digital Geneva Convention, Data protection

## Introduction

Technology plays a much larger role in the digital era than it did for previous generations (Hashim 2018) and is letting businesses maintain ongoing and experience-driven relationships with individual consumers in ways that were impossible before (Biltz et al. 2019). In this context, the digital era contributes to the significant changes in understanding the relevant perspectives in international humanitarian law and related humanitarian practice. Sandvik et al. (2014) emphasized that technology is substantially perceived as a transformative tool to alter the humanitarian action foundations (Capgemini Consulting 2019). For instance, Microsoft will invest \$40 million to apply artificial intelligence (AI) to humanitarian issues as to a program on disaster-response, needs of children across the world, issues affecting refugees, and human rights problems (Lerman 2018).

The rationale for consideration of current transformation in practices of humanitarian action is also in the fact that the growing trend of digitalization in emerging economies, as well as in affected countries, is fundamentally changing the context and ways in which humanitarian assistance is executed (Stoll 2017; Dave 2017; Casswell and Hamilton 2019). Usage of messaging apps, social networks, media platforms, and mobile money by people that are affected by humanitarian crises, critical situations, disasters, and accidents is being actively introduced (Lunt 2017; Kaspersen and Lindsey-Curtet 2016; Bouffet 2017). However, while the digital technologies provide new opportunities for communication in complex situations, the humanitarian and volunteer organizations do not have appropriate standards or internationally agreed and approved ethical norms for their deployment that in combination with people's living conditions, specific culture of developing countries, social and material inequalities, and women's rights problems can cause serious obstacles in facilitating humanitarian support.

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Furthermore, since the complementarity and mutual influence inform the interaction between international humanitarian law and international human rights law (Droege 2008), then the digital trends entrenched in humanitarian practice affect the entire spectrum of humanitarian assistance, as well as human place and rights in this framework.

Considering the relevant scope of digital humanitarian action, this commentary is aimed to ask questions on the crucial area of human rights, freedoms, and dignity protection in the context of digital humanitarian assistance through analysis of global experience and revealing the issues and limitations on the latest technology implementation to support the human rights-orientated humanitarian practice.

## Digital humanitarian action perspectives

### Mobile technology and messaging apps

It is an undeniable fact that mobile phones as well as installed messaging apps, such as WhatsApp, Facebook Messenger, WeChat, KakaoTalk, and Telegram, have become an integral part of our lives since they allow users to send and receive a wider range of data than it is possible using mobile phone networks.

As these apps grow in popularity, their usage in emergencies is also on the rise (Lunt 2017). Some studies predict that smartphone subscriptions will almost double from 3.4 billion to 6.3 billion by 2021, meaning that most adults on earth will have access to some form of connected mobile device (Thomas 2016). New research, led by the International Committee of the Red Cross (ICRC), also suggests messaging apps could play a crucial role in humanitarian work in the future (Stoll 2017). From this, communities affected by harsh living conditions, war, and natural disasters can rely on these platforms to keep in touch with each other, have access to up-to-date information and connect with humanitarian facilities and volunteers to report on a difficult or life-threatening condition that requires emergency humanitarian assistance.

Importance of discussed digital solutions in the area of humanitarian assistance can be emphasized by a case in West Africa where the British Broadcasting Corporation (BBC) World Service turned to messaging apps in 2014 to broadcast public health information regarding Ebola, reaching 19,000 subscribers in various local languages. Furthermore, in Yemen, people affected by war are now able to contact the ICRC using WhatsApp to report security incidents and request urgent assistance (Lunt 2017). In drought-stricken Somaliland, a WhatsApp group called Daryeel, "Caring", is directly connecting "donors" with affected relatives and their communities (Bouffet 2017). The results are significant: "600 water trucks sent out, monthly food packages for 864 families

across 39 villages, and a total of USD 255,000 donated by Somali diasporas from around the world" (Bouffet 2017). According to the ICRC report, titled Humanitarian Futures for Messaging Apps, Israeli-based humanitarian non-governmental organization IsraAID uses a WhatsApp group for staff communications in each of the 19 countries in which it actively works to share information quickly (ICRC and The Engine Room and Block Party 2017). There are no doubts that positive practices on messaging apps usage can be adapted and expanded by humanitarian, volunteer and non-governmental facilities, aid workers, and leaders of messaging apps market.

### Humanitarian apps

In the framework of digitalization, implementation of advanced information systems, such as humanitarian apps, contributes to tackling a wide range of problems (Lunt 2017; Hill 2018). In many cases, usage of humanitarian apps is to ensure timely coordination, agile, and precise response to urgent situations.

For instance, 4W (Who, What, Where, and When) maps were developed to provide information for the planning of humanitarian assistance, covering the critical questions, such as who is doing what, where, and when. Tracking of humanitarian responders, automated updating of their location and responsibilities were piloted for Nepal, Vanuatu, and the Philippines (Comes and de Walle 2016). Further, KoBoToolbox, developed by the Harvard Humanitarian Initiative, is a free suite of tools for humanitarian data collection to be used in challenging environments (KoBoToolbox 2009). TraceRx platform is positioned as a well-known humanitarian supply chain solution. In large-scale emergencies, such as the earthquake in Nepal in April 2015 and the hurricane in Haiti in October 2016, Humanitarian ID was used to perform the humanitarian contact lists management (United Nations Office for the Coordination of Humanitarian Affairs 2015; Stewart 2015).

As the digital state-of-the-art solutions, the mentioned platforms together with messaging apps contribute to response coordination and communication between affected communities, volunteers, and aid workers to provide the integrated digital environment for transparent and timely humanitarian assistance. However, to address the full complexity of processes on humanitarian action, the dedicated logistics information systems are required to complement the generic humanitarian information systems (Comes and de Walle 2016).

### Drones in humanitarian assistance

The advanced unmanned aerial vehicle (UAV), also known as a drone, is an item whose flight is controlled either autonomously by artificial intelligence, computers,

or a pilot on the ground. The UAVs received worldwide media attention since they had a significant range of applications, such as usage for military purposes in Pakistan (US Army), aid work development in Africa (Matternet), and parcel delivery in Germany (DHL Paket), as well as throughout the world (DHL Customer Solutions and Innovation 2014). The promising directions of drone application in humanitarian crises are the following: mapping, delivering essential items to hard-to-access locations, monitoring environmental changes, supporting damage assessments, etc. (Fondation Suisse de Déminage 2016). Humanitarian organizations have started to use UAVs, including in Haiti and the Philippines to provide real-time information and situation monitoring, public information, search and rescue, etc. (United Nations Office for the Coordination of Humanitarian Affairs 2014). In this way, different types of drones ensure accurate and up-to-date data on demand, helping representatives of humanitarian missions to make more informed decisions. However, some issues, such as data protection, should be addressed during application of drones.

### **Damoclis gladius: human rights scope**

Despite the active development of new technologies, the emergence of innovations, the digitalization of processes in all areas of our lives, including humanitarian action, the human rights issues are adapting to current conditions, entailing challenges behind. It is required to consider the scope of problems related to the human rights protection in the context of digital humanitarian action.

### **The price of access to digital solutions: gender gap**

1.7 billion women now own a mobile phone in low- and middle-income countries (LMICs), and over a billion use the mobile internet. However, a significant gender gap in mobile phone ownership and usage exposes women to the risk of being left behind in an increasingly digitized world. In this context, females in LMICs are 10% less likely to own a mobile phone than a man. The variations within specific regions and countries are significant (Downer 2019). Furthermore, women in South Asia are 26% less likely to own a mobile than men and 70% less likely to use mobile internet (Rowntree 2018). In India, 67% of men own personal mobile phones, but only 33% percent of women do (Vota 2019). The reasons for this situation are as old as time and associated with such obvious barriers such as the availability of new technologies, cultural, religious and social background, and attitude to women's rights.

The exclusion of women refugees and internally displaced women from the digital world and societies would negatively affect the possibilities to be rescued from dangerous situations and to express the rights to

life, liberty, and security of a person, as it is stated in the Universal Declaration of Human Rights (1948).

The existence of such trends requires the immediate identification of cause-and-effect relationships and concerted action to remove obstacles to women's equal access to mobile services in the context of countries, where the gender gap is greatest. Mobile operators, software developers, humanitarian facilities, and non-governmental organizations (NGOs) can work together to promote policies and initiatives aimed to reduce the cost of phones or enhance work on mitigation of the impact of cultural traditions and social norms on their use, such as awareness sessions, informative talks, and seminars.

### **Hashtag: women humanitarians**

The role of women humanitarians should be emphasized as they are also vulnerable to the dangers and perform the precious work in the conditions of armed conflicts, nature disasters, hunger, and humanitarian catastrophe, risking their health and lives. Subject of women humanitarians' vulnerability has been brought to light in discussions of #AidToo movement, inspired by #MeToo and opposed to the sexual harassment, exploitation, and abuse. Widespread reports of sexual misconduct in humanitarian contexts threaten women humanitarians' own safety and security (O'Donnell 2019) and confirm the violations of inviolable human rights.

In the current context, there is a need to actively address the issues of gender equality in humanitarian action and protection of women from sexual harassment and abuse in order to ensure respect for women rights and dignity, since, according to Article 2 of Universal Declaration of Human Rights (1948), "everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status". Furthermore, the specific limitations should not affect the access of women humanitarians to the digital solutions developed to enhance the effectiveness of their work under the changing environment.

### **Double-headed barrel: digital media and communications**

One of the most important links that connects those who need humanitarian assistance with those who are interested in responding is digital media and communications, integrating mobile mass communication with the Internet. According to Lobb and Mock (2007), during humanitarian response efforts, the mass media serves as the primary informational intermediary, informing donors, and policy-makers as well as the non-affected public.

The role of digital mass media can be revealed by a case of one of the worst human disaster in Sri Lanka in 2004, such as a tsunami. The media of Sri Lanka reacted in the immediate aftermath of the tsunami and transferred all programming to coverage of the disaster. However, after a while, instead of reporting the real scope of problems faced by the affected population, journalists concentrated on “political intrigue and scandal” (Mortensen 2006). This case shows the extent to which digital media may influence the international community’s understanding of the problem. According to Lobb and Mock (2007), “...disaster and crisis response often is hampered by poor communication.” In the context of humanitarian action, it is necessary to improve relations with the media in such a way that the disseminated information concerns real problems and contributes to the fastest response of international organizations, NGOs, policies, etc. to provide appropriate assistance to the communities affected by the crises. The involvement of the media in addressing issues of humanitarian support, the expansion of published studies, commentaries, and articles covering current problems and obstacles and joint efforts of leading decision-makers, can facilitate the development of a reliable basis for strengthening the synergy effect in the provision of humanitarian assistance.

#### **Changed nature of conflict: humanitarian action digitalization threats**

While digital solutions provide the capabilities to respond to crises in a better way, if mismanaged, these same technologies risk exposing users to violations of their rights (Hill 2018). Usage of cyberspace and the latest technology as a serious weapon is emphasized through the growing scope of cyberattacks, influencing the safety and security of civilian populations, for instance, the negative consequences that affected the healthcare and other civil infrastructures across the world by the WannaCry attack (Guay and Rudnick 2017).

Further, the messaging apps actualize problems related to data protection, privacy, and security since the information environment is often contested, and misinformation, propaganda, and rumors travel swiftly (Roby 2017), particularly, in the case of armed conflicts and disasters. For humanitarians, the risks of mobile app usage are associated with submitting or providing the permission to access the personal information, such as name, location, contacts, email address, and photos. The negative side is that this allows the provider of messaging app to collect a significant information on the user, including his daily routine, personal preferences, and list of trustees.

Social media is a related topic since the generated social media data (i.e., content) or metadata (i.e., description), even it is for humanitarian purposes, can be an

object for commercial exploitation and provide information on the user’s sort of activity, political, social and religious affiliations, sexual orientation, etc. (ICRC and Privacy International 2018).

Despite the fact that humanitarian aid is to serve people in crises, during use of advanced drones, cash transfer programs, mobile networks, or telecommunications, all parties involved, including humanitarian organizations, are exposed to the risks of data interception, tracking, or access by unauthorized persons with bad intentions. The ambiguity of the situation is also in the fact that legislation around the protection of metadata and data is not uniform worldwide, and the places where humanitarian facilities operate tend to be under-enforced, or under-legislated (Bouffet and Marelli 2018). Thus, the gap created in the field of information protection and legal norms in the era of digitalization can be used to violate human rights, his freedoms, and create threats to his life, whether he is a humanitarian worker, volunteer, or a refugee.

#### **Reducing entropy**

Since protecting personal data is a pillar of protecting life, rights, and dignity, there is a required need to identify the ways to mitigate or balance risks in the context of humanitarian action digitalization.

#### **Time-tested solutions for new challenges: Digital Geneva Convention**

As far as we know, the last (i.e. fourth) Geneva Convention (1949) formed an important contribution to the International Law in the humanitarian domain, as well as to the protection of civilians affected by war. Considering the transformation of society, world digitalization and globalization, the subject of Geneva Convention adaptation for the current conditions is highly relevant and has been proposed by Microsoft to promote international cooperation and to prevent warfare in cyberspace (Tworek 2017). The Digital Geneva Convention would be aimed to play the central role in safeguarding civilians around the world from state-led or state-sanctioned cyberattacks during peacetime (Microsoft 2017). Thus, this initiative is a call to action in the context of a new digital community to update and adapt rights and obligations to the current realities.

An important part of the changes is also the policies of companies, operating in the framework of digitalization, and their initiatives on the corporate social responsibility (CSR) that include cause promotion, cause-related marketing, corporate social marketing and philanthropy, community volunteering, and socially responsible business practices (Kotler et al. 2012).

### Learning from the mistakes: digital data protection

The principle of “do no harm” is considered the minimum requirement underlying all policies and approaches in humanitarian assistance (Cappgemini Consulting 2019). In this context, some attempts to protect personal data and information transmitted through messaging apps are performed by their developers. For instance, the founder of the Telegram app, Pavel Durov, launched the messenger in 2013 with the promise of end-to-end encryption (ICRC and The Engine Room and Block Party 2017) of data without any possibility to be read by the company itself. The International Committee of the Red Cross (ICRC and Privacy International 2018) also deals with the issue of metadata protection in the framework of humanitarian action.

At the same time, the updated privacy policy of WhatsApp in 2016 suggested that WhatsApp would share users’ personal data with “the Facebook family of companies” for three purposes: business analysis, system security, and targeted advertising (ICRC and Privacy International 2018). It was alleged that WhatsApp was sharing users’ personal data with Facebook without a fair notice or a legitimate legal basis. However, in 2018, WhatsApp committed to not sharing EU (European Union) users’ personal data with Facebook prior to the implementation of the General Data Protection Regulation (ICRC and Privacy International 2018). WeChat and KakaoTalk have been also publicly criticized after revelations of potential collaboration with governments in response to requests for user data (ICRC and The Engine Room and Block Party 2017).

All parties involved in humanitarian action provision should understand the importance of the need to prevent the leakage of personal data and violations of privacy, as the potential negative consequences for people’s lives and rights are significant. Thus, much depends on the decision-makers within the companies, their internal and external policies as well as appropriate support from the government. According to Kaspersen and Lindsey-Curtet (2016), it is essential to provide “proactive discussion on global standards for collecting, sharing and storing data in times of crisis – and a zero-tolerance for attempts to penetrate these organizations to gain insights into people at their most vulnerable”. The problems associated with the humane use of the latest technologies in humanitarian assistance should be raised for discussion by the international community in order to identify ways for covering the humanitarian principles such as humanity, neutrality, impartiality, and independence (United Nations Office for the Coordination of Humanitarian Affairs 2012) in the era of digitalization.

### Conclusions

The key objective of this commentary has been to consider the scope of humanitarian action in digital domain and to reveal the bottlenecks that affect effectiveness of humanitarian assistance through the human rights violation and threats posed by the era of digitalization. From this, the following conclusions can be formulated.

The fundamental changes in the provision of humanitarian assistance, concerning the development of digital technologies and state-of-the art solutions, may have a direct impact on the sustainability of the fundamental principles of humanitarian practice and human rights. Ignoring these issues by the international community costs the lives of hundreds and millions of people affected by the crisis, humanitarian catastrophe, or war. A timely incorporation of cyber threats into legal, social, and political frameworks should be accompanied by active actions by the politicians, world government leaders, NGOs, humanitarian organizations, volunteers, services providers, leaders of CSR initiatives, etc. to consider the whole scope of challenges faced by both crisis-affected populations and aid workers who are genuinely involved in saving lives and also vulnerable. Hence, a Digital Geneva Convention would become one of the effective platforms to formalize the norms and standards in prevention the illegal actions with the aim to secure cyberspace. Ensuring the protection of digital data and information is a key concern for all parties involved in humanitarian action.

Furthermore, the responsible approach is needed to improve the knowledge of people affected by armed conflicts, refugees, or migrants on the use of new technologies, as well as aid workers and volunteers, to ensure the most secure and ethical use of digital devices for operational two-way communication, reliable coordination, and management. The continuous coverage of the real problems faced by humanitarian missions in mass media, social media platforms, scientific articles, blogs, etc. as well as a joint search for solutions should be provided.

The specific risks are an integral part of our lives, however, we cannot ignore the new opportunities that would help to enhance the performance of humanitarian action and create an environment that is friendly to human rights, freedoms, and dignity.

### Abbreviations

BBC: British Broadcasting Corporation; CSR: Corporate social responsibility; EU: European Union; ICRC: International Committee of the Red Cross; LMICs: Low- and middle-income countries; NGO: Non-governmental organization; UAV: Unmanned aerial vehicle; USD: United States Dollar

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DMA investigated the scope of considered issues, analyzed key trends, provided recommendations, and edited the paper. MSA summarized the results and formulated the conclusions. All authors read and approved the final manuscript.

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### References

- Biltz M, Carrel-Billiard M, Daugherty PR, Hadar E, Liongosari ER (2019) The post-digital era – technology trends and needed research. [https://www.researchgate.net/publication/333186238\\_The\\_post-digital\\_era\\_-\\_technology\\_trends\\_and\\_needed\\_research](https://www.researchgate.net/publication/333186238_The_post-digital_era_-_technology_trends_and_needed_research). Accessed 15 June 2019.
- Bouffet T (2017) How messaging apps are changing the way people respond to humanitarian crises. <https://news.itu.int/how-messaging-apps-change-humanitarian-responses/>. Accessed 5 Sept 2019.
- Bouffet T, Marelli M (2018) The price of virtual proximity: how humanitarian organizations' digital trails can put people at risk. <https://blogs.icrc.org/law-and-policy/2018/12/07/price-virtual-proximity-how-humanitarian-organizations-digital-trails-put-people-risk/>. Accessed 20 Aug 2019.
- Capgemini Consulting (2019) Technological innovation for humanitarian aid and assistance. European Parliamentary Research Service, Scientific Foresight Unit (STOA), Brussels, European Union. <https://doi.org/10.2861/545957>
- Casswell J, Hamilton Z (2019) Navigating the shift to digital humanitarian assistance. <https://www.rescue.org/resource/navigating-shift-digital-humanitarian-assistance>. Accessed 02 Mar 2020.
- Comes T, de Walle BV (2016) Information systems for humanitarian logistics. In: Kovacs G, Spens K, Haavisto I (eds) Supply chain management for humanitarians: tools for practice. Kogan Page, London, pp 257–284
- Dave A (2017) Digital Humanitarians: how Big Data is changing the face of humanitarian response. *Bioeth Inq* 14:567–569
- DHL Customer Solutions & Innovation (2014) Unmanned aerial vehicle in logistics: a DHL perspective on implications and use cases for the logistics industry. [https://www.dhl.com/content/dam/downloads/g0/about\\_us/logistics\\_insights/DHL\\_TrendReport\\_UAV.pdf](https://www.dhl.com/content/dam/downloads/g0/about_us/logistics_insights/DHL_TrendReport_UAV.pdf). Accessed 20 Sept 2019.
- Downer M (2019) Bridging the mobile gender gap for refugees: a case study of women's use of mobile phones in Bidi Bidi Refugee Settlement and Kiziba Refugee Camp. GSM Association. <https://reliefweb.int/sites/reliefweb.int/files/resources/m4hgendergaprefugeecontexts.pdf>. Accessed 5 Sept 2019.
- Droege C (2008) Elective affinities? Human rights and humanitarian law. *Int Rev Red Cross* 90(871):501–548
- Fondation Suisse de Déminage (2016) Drones in humanitarian action: a guide to the use of airborne systems in humanitarian crises. <https://reliefweb.int/sites/reliefweb.int/files/resources/Drones%20in%20Humanitarian%20Action.pdf>. Accessed 12 Sept 2019.
- Guay J, Rudnick L (2017) What the Digital Geneva Convention means for the future of humanitarian action. <https://www.unhcr.org/innovation/digital-geneva-convention-mean-future-humanitarian-action/>. Accessed 15 Aug 2019.
- Hashim H (2018) Application of technology in the digital era education. *Int J Counsel Educ* 1(2). <https://doi.org/10.24036/0022a0002>
- Hill C (2018) Digitalisation in humanitarian assistance: towards a stronger response. <https://europa.eu/capacity4dev/articles/digitalisation-humanitarian-assistance-towards-stronger-response>. Accessed 15 Aug 2019.
- ICRC, Privacy International (2018) The humanitarian metadata problem: "Doing no harm" in the digital era. <https://www.privacyinternational.org/report/2509/humanitarian-metadata-problem-doing-no-harm-digital-era>. Accessed 15 Aug 2019.
- ICRC, The Engine Room and Block Party (2017) Humanitarian futures for messaging apps. International Committee of the Red Cross, Geneva
- Kaspersen A, Lindsey-Curtet C (2016) The digital transformation of the humanitarian sector. <https://blogs.icrc.org/law-and-policy/2016/12/05/digital-transformation-humanitarian-sector/>. Accessed 15 Aug 2019.
- KoBoToolbox (2009) Official Website. <https://www.kobotoolbox.org/>. Accessed 20 Sept 2019.
- Kotler P, Hessekiel D, Lee N (2012) Good works: marketing and corporate initiative that build a better world and the bottom line. Wiley, New York
- Lerman R (2018) Microsoft to invest \$40 million in AI technology for humanitarian issues. <https://phys.org/news/2018-09-microsoft-invest-million-ai-technology.html>. Accessed 20 July 2019.
- Lobb A, Mock NB (2007) Dialogue is destiny: managing the message in humanitarian action. *Prehospital Disast Med* 22(5):423–428
- Lunt A (2017) Messaging apps: the way forward for humanitarian communication? <https://blogs.icrc.org/law-and-policy/2017/07/25/messaging-apps-way-forward-humanitarian-communication/>. Accessed 25 July 2019.
- Microsoft (2017) Microsoft policy papers: a Digital Geneva Convention to protect cyberspace. <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RW67QH>. Accessed 20 Aug 2019.
- Mortensen G (2006) Corruption in emergencies: what role for media? Anti-Corruption Resource Centre, U4 – CMI. Bergen. <https://www.cmi.no/publications/file/2564-corruption-in-emergencies-what-role-for-media.pdf>. Accessed 10 Sept 2019.
- O'Donnell M (2019) #WomenHumanitarians: research and recommendations behind the hashtag. <https://www.cgdev.org/blog/womenhumanitarians-research-and-recommendations-behind-hashtag>. Accessed 28 Sept 2019.
- Roby C (2017) Opportunities and risks for messaging apps in the development sector. <https://www.devex.com/news/opportunities-and-risks-for-messaging-apps-in-the-development-sector-89596>. Accessed 20 Aug 2019.
- Rowntree O (2018) GSMA connected women – the mobile gender gap report. GSM Association. [https://www.gsma.com/latinamerica/wp-content/uploads/2018/05/GSMA\\_The\\_Mobile\\_Gender\\_Gap\\_Report\\_2018\\_32pp\\_WEBv7.pdf](https://www.gsma.com/latinamerica/wp-content/uploads/2018/05/GSMA_The_Mobile_Gender_Gap_Report_2018_32pp_WEBv7.pdf). Accessed 25 Sept 2019.
- Sandvik K, Jumbert M, Karlsrud J, Kaufmann M (2014) Humanitarian technology: a critical research agenda. *Int Rev Red Cross* 96(893):219–242
- Stewart R (2015) Humanitarian coordination and information management. sector update. <https://www.usaid.gov/sites/default/files/documents/1866/Humanitarian%20Coordination%20and%20Information%20Management%20Sector%20Update%20-%20October%202015.pdf>. Accessed 02 Mar 2020.
- Stoll P (2017) Messaging apps: an untapped humanitarian resource. <https://www.icrc.org/en/document/messaging-apps-untapped-humanitarian-resource>. Accessed 3 Sept 2019.
- The Geneva Conventions (1949) International Committee of the Red Cross (ICRC), Geneva. <https://www.icrc.org/en/doc/assets/files/publications/icrc-002-0173.pdf>. Accessed 20 Aug 2019.
- Thomas D (2016) Smartphone use forecast to beat feature phones this year. Financial Times Limited. <https://www.ft.com/content/8ef32186-2807-11e6-8ba3-cdd781d02d89>. Accessed 3 Sept 2019.
- Tworek H (2017) Microsoft is right: we need a Digital Geneva Convention. <https://www.wired.com/2017/05/microsoft-right-need-digital-geneva-convention/>. Accessed 27 Aug 2019.
- United Nations Office for the Coordination of Humanitarian Affairs (2012) OCHA on Message: Humanitarian Principles. [https://www.unocha.org/sites/dms/Documents/OOM-humanitarianprinciples\\_eng\\_June12.pdf](https://www.unocha.org/sites/dms/Documents/OOM-humanitarianprinciples_eng_June12.pdf). Accessed 8 Aug 2019.
- United Nations Office for the Coordination of Humanitarian Affairs (2014) Policy development and studies branch: unmanned aerial vehicles in humanitarian response. <https://www.unocha.org/sites/unocha/files/Unmanned%20Aerial%20Vehicles%20in%20Humanitarian%20Response%20OCHA%20July%202014.pdf>. Accessed 25 Sept 2019.
- United Nations Office for the Coordination of Humanitarian Affairs (2015) Official Website, Humanitarian ID. <https://about.humanitarian.id/>. Accessed 20 Sept 2019.

Universal Declaration of Human Rights (1948) United Nations General Assembly.  
[https://www.ohchr.org/EN/UDHR/Documents/UDHR\\_Translations/eng.pdf](https://www.ohchr.org/EN/UDHR/Documents/UDHR_Translations/eng.pdf).  
Accessed 25 Sept 2019.

Vota W (2019) Why does South Asia have the world largest mobile phone  
gender gap? [https://www.ictworks.org/south-asia-mobile-phone-gender-gap/  
#.XbAyR-gzblU](https://www.ictworks.org/south-asia-mobile-phone-gender-gap/#.XbAyR-gzblU). Accessed 25 Sept 2019.

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