DIGITAL HUMANITARIANISM:
HOW DO SOCIAL NETWORKING COMMUNITIES CONTRIBUTE TO
HUMANITARIAN RESPONSE AFTER DISASTER?

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This dissertation is submitted in partial fulfilment of the Masters of Art in Development and Emergency Practice, Oxford Brookes University.
IN MEMORY OF MY FATHER...
STATEMENT OF ORIGINALITY

This thesis is the result of my own independent work and investigation, except where otherwise stated. Other sources are acknowledged by explicit references.

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Statement of Ethics Review Approval

This dissertation involved human participants. A Form E1B1 for each group of participants, showing ethics review approval has been attached to this dissertation as an appendix.

This dissertation was supervised by Professor David Sanderson, BA (HONS), Dip Arch, MSc, PhD.
ABSTRACT

‘If something happens somewhere in the world – regardless of whether it is banal or profound – someone will tweet about it’ (Murthy, 2013, p. 20). This is more than ever a reality in a world where technological advances have made global communication much easier. In the networking age, the ubiquitous influence of social networks and the emergence of new online humanitarian actors arising from the Volunteer and Technical Communities, are bringing a whole new dimension to the humanitarian response after disaster.

This study explores the kind of influence social networking communities can have on disaster response management operations. The study reviews some of the successful applications of social networks and deployments of online humanitarian volunteers. Through interviews with key informants, it seeks to delineate the kind of influence social networking communities may have on humanitarian response. Also, it poses a reflection on the next generation of humanitarian response after disaster, by assessing how these social networking communities are likely to reshape the ways in which humanitarian aid after disaster is provided.

The research concludes that humanitarian organisations are at a technological crossroads. New actors from the online community are populating the humanitarian landscape. Humanitarian organisations must find ways to adjust to the social network age and make the most of its opportunities. The research also offers five recommendations to help in leveraging social networking communities for the next generation of humanitarian action. These relate to simulations, partnership opportunities, verification procedures, evidence-based research and training.
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LIST OF ACRONYMS

CaLP – Cash Learning Partnership
CNN – Cable News Network
DDG – Digital Data Gathering
DHN – Digital Humanitarian Network
FEMA – Federal Emergency Management Agency
GIS – Geographic Information Systems
IPEd – Institute of Professional Editors
ICTs – Information Communication Technologies
INGO – International Non-Governmental Organisation
ITU – International Telecommunication Union
NGO – Non-Governmental Organisation
OCHA – Office for the Coordination of Humanitarian Affairs
SMS – Short Message Service
UN – United Nations
V&TCs – Volunteer and Technical Communities
GLOSSARY OF KEY TERMS

**Big data**: Term used for a collection of data sets so large and complex that it becomes difficult to process using on-hand database management tools or traditional data processing applications.

**Blog**: Online journal written by individuals. The term derives from ‘web log’.

**Crowd-sourcing**: The action of using the online communities to collect and aggregate a wide range of information.

**Data mining**: The process of extracting information from a data set, analysing it and transforming it into useful information for further use.

**Electronic payment systems (e-payment)**: Systems that allow for the electronic of transfer of cash through devices like mobile phones or smart-cards.

**Facebook**: A popular social network site launched in February 2004 by Mark Zuckerberg. As of May 2013, Facebook has over 1 billion active users worldwide.\(^1\)

**FrontlineSMS**: A free open-source software used to distribute and collect information via text messages (SMS).\(^2\)

**Geofeedia**: A search engine for geo-tag social media content.\(^3\)

**Geo-tagging**: The process of adding geographical information to various media such as photo, video, websites or SMS messages.

**Geo-location**: The practice of assessing the location of an object or a person.

**Hashtag**: Refers to a key word or topic that is prefixed with the symbol #. Hashtags are commonly used on social networking sites as a way of grouping messages with a common topic.

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\(^2\) See [http://www.frontlinesms.com](http://www.frontlinesms.com)

\(^3\) See [http://corp.geofeedia.com](http://corp.geofeedia.com)
**Information Communication Technologies (ICTs):** Refers to technologies that provide access to information through telecommunications. This includes the Internet, mobile communication technology, mobile phones, radio and other communication mediums.

**Instagram:** An online photo and video sharing service.

**LinkedIn:** Popular social networking website for professionals.

**Mobile technology:** Technology such as mobile phones, portable laptops, and Internet communication devices that allow people to access unlimited information from virtually anywhere.

**Post:** An individual’s contribution to an Internet site such as a single article on a blog or a status update on a social network.

**RapidSMS:** A free and open-source framework for data collection, logistics coordination and communication, leveraging basic short message service (SMS) mobile phone technology.

**Skype:** A peer-to-peer Internet telephony network that offers free voice and video conferencing.

**Social Media:** Describes the online technologies and practices that people use to share opinions, insights, experiences and perspectives. Social media can take many different forms, including text, images, audio, and video.

**Social network/social networking:** The process of building online communities that allow greater interaction on websites. For this research social network or social networking refers to various means of collecting crowd-sourced humanitarian information. For example, mobile communication technology which supports SMS/text message, social media including Facebook, Twitter etc, or open sourced tools such as Ushahidi. This list is non-exhaustive.

**Tagging:** A type of metadata in the form of a descriptive key word or term associated with or assigned to a piece of information.

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4 See [http://corp.geofeedia.com](http://corp.geofeedia.com)
**Topsy**: A real-time search engine for social media. It indexes and ranks search results based on the most influential conversations.

**TweetDeck**: A social media dashboard for the management of Twitter accounts.

**Twitris**: A Semantic Social Web application that facilitates the understanding of social perceptions.

**Twitter**: An online social networking service created in 2006 that enables users to share text-based messages of up to 140 characters. These messages are known as ‘tweets’. As of May 2013, Twitter has over 500 million registered users and is generating over 400 million tweets daily.

**YouTube**: The most widely used video-sharing service in the world.

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5 See [http://topsy.com](http://topsy.com)
6 See [http://tweetdeck.com](http://tweetdeck.com)
7 See [http://knoesis.org/projects/twitris](http://knoesis.org/projects/twitris)
chapter one

INTRODUCTION

This chapter introduces the topic of this dissertation, outlining the background, the significance, the aim and objectives of the study along with the research questions, the limitations and the methodology.

Figure 1.1 Flooding in Uttarakhand, India. A view of the Hindu holy town of Kerdanath on 18 June 2013 (The Associated Press, 2013).
1.1 Background
Continuous advances in communication technologies mean that ‘soon everyone on Earth will be connected’ (Schmidt and Cohen, 2013, p. 26). This claim by Jared Schmidt and Jared Cohen in their book ‘The New Digital Age’ may seem overstated, but considering the rapid boom of technologies globally it is not such an abstract idea.

Currently, almost 40% of the world’s population is online according to the most recent statistics from the International Telecommunication Union (ITU, 2013). Mobile technology – mobile cellular and mobile broadband – with over 6.8 billion mobile subscriptions9 (ibid), has become the dominant tool of communication in many regions of the globe. As shown in Figure 1.2 Europe has the highest rate, followed by the Americas, Asia and the Pacific. In Africa, about 16% of the population are using the Internet. Twitter, Facebook, YouTube10 and many other online platforms have become part of daily life for an increasing number of people.

Figure 1.2 Percentage of people who use the Internet. Europe has the highest rate, followed by the Americas, Asia and the Pacific. In Africa, 16% of the population are using the Internet. Data source: (ITU, 2013). Graphic: (The New York Times, 2013).

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9 This figure refers to the number of mobile subscriptions and does not indicate the number of mobile phone owners. In many cases, individuals may have more than one mobile subscription at once.
10 See Glossary of key terms, page x.
How is the communication revolution affecting the humanitarian methods of operations? Undoubtedly, modern communication technologies have changed the way people live, work and interact with each other. For Schmidt and Cohen – two experts from Google who recently published ‘The New Digital Age’ – modern technology platforms are changing the society more than one could think. They assert that ‘[n]ever before have so many people been connected through an instantly responsive network; the possibilities for collective action through communal online platforms (as consumers, creators, contributors, activists and in every other way) are truly game-changing’ (Schmidt and Cohen, 2013, p. 22).

The explosion of information communication technology tools has changed the way humanitarian organisations operate. Something like 30 years ago humanitarian operations methods included push-to-talk radio, paper forms on clipboards or push pins on maps. Although some of these traditional methods are still in use today, increasingly humanitarian actors use emails, SMS/text messages, smart phones applications, Geographic Information Systems (GIS) or social networks to coordinate their day-to-day work.

This is particularly the case in the emergency preparedness sector. For example, technologies are used to analyse market data, monitor food availability, to send early warning messages, to speed up deliveries or to monitor cash payment distribution.

Similarly, the emergence of social networks\footnote{Refers to the various means of collecting crowd-sourced humanitarian information. For example, mobile communication technology which supports SMS/text message, social media including Facebook, Twitter etc, or open source tools such as Ushahidi. This list is non-exhaustive. In this dissertation, the terms social networks, social networking communities and social networking platforms are used interchangeably.} suggests new opportunities for the humanitarian actors managing the emergency response operations. Humanitarian organisations are beginning to familiarise themselves with the different aspects of social networks. They are recognising that social networks are more than just a tool to amplify their messages or stimulate support and donations.

Disasters are inherently highly complex and challenging environments for humanitarian actors (Wisner \textit{et al.}, 2012). Intervening during a disaster requires a comprehensive understanding of the situation and the context. There are many accounts showing that in the aftermath of a disaster social networks can contribute to this situational understanding by providing a real-time picture of what is happening.
Indeed, social media are notably used by people in the front lines of natural events or directly affected by disasters to call for help, look out for information, publish photos and texts about their personal experience, or to communicate with friends and family members.

A report from the US Government Federal Emergency Management Agency (FEMA) notes that more than 20 million Twitter posts related to Hurricane Sandy in 2012 were published during or immediately following the hurricane’s landfall in New Jersey and New York (FEMA, 2013, p.15). The report further notes that social media activity remained high despite the loss of mobile phone service during the peak of the storm.

Much has been made of the potential of global connectivity, communication technologies, social networking and open-source platforms for the humanitarian sector. A study published by the Office for the Coordination of Humanitarian Affairs (OCHA), ‘Humanitarianism in the Network Age’, suggests that innovation and technologies offer the opportunities to save more lives and to find better ways to communicate and to meet the needs of affected populations. The report states that communication technologies represent a ‘fundamental shift in power from capitals and headquarters to the people aid agencies aim to assist’ (OCHA, 2013, p. 2). In other words, communication technologies are the opportunity to put the community first, which is one of the frontline of the humanitarian action principles.

The information network age also gave birth to the new groups of humanitarian actors that are the Volunteer and Technical Communities (V&TCs) – or the online humanitarians. The assumptions about the power of communication technologies and social networks to help humanitarian response have been based largely on the emergence of these V&TCs during the Haiti Earthquake in 2010. This was even considered as one of the unexpected lessons from the disaster (Harvard Humanitarian Initiative, 2011).

The continuing technological revolution means that more people have access to communication technologies; and more people have access to more information. Similarly, more people are becoming the sources of this information themselves. The benefits can be both ways believe Coyle and Meier (2009). Considering the premise that information is a basic need in humanitarian response – as stated by the International Federation of the Red Cross in its World Disaster Report 2005 (IFRC, 2005) – people affected by disaster can benefit from the flow of information. Equally, the scope for effective relief can be greater for humanitarian organisations who can take advantage of the technological opportunities, argue Coyle and Meier (ibid).
Recognising the immense potentials of social networking activities in time of disaster some agencies and humanitarian aid organisations have started to investigate how these communication technologies can be leveraged for disaster management response. However, it appears that there are still many barriers to break down before moving to the next generation of humanitarian assistance.

1.2 Significance of the study
Given the extent to which social networks are universally used and as social media gain in maturity, it is worth reflecting on the potentials of these networks for humanitarian organisations responding to disasters. What are the perspectives of humanitarian actors towards those new humanitarian actors emerging from social networking communities? What are the barriers to the application of social networks in disaster response? In which ways are social networks influencing the humanitarian assistance after disaster? Do they bring any added value to traditional humanitarian relief efforts? Can social networks contribute to better humanitarian response?

The motivation for this dissertation is based on two assumptions, which will be explored throughout this research. The first assumption is that in a world of increasingly informed, connected and self-reliant communities, social networking communities play a vital role and have the potential to contribute to improve the humanitarian response after disaster. The second assumption is that there is a general lack of understanding among humanitarian actors towards the abilities of social networking communities for disaster response management.

1.3 Aim and objectives
The aim of the study is to examine how social networking communities contribute to humanitarian response after disaster.

The specific objectives are to:
1) map the current application of social networking communities in humanitarian response after disaster
2) assess how social networking communities can advance the concept of participation in humanitarian response
3) assess the kind of influence social networking communities may have for the humanitarian relief efforts after disaster
4) suggest areas which are likely to reshape the ways in which humanitarian aid after disaster is provided in the future.

1.4 Research questions
The core content of this research aims to answer four main research questions, which are:

1) What is the current application of social networking communities in humanitarian response after disaster?
2) In which ways are social networking communities advancing the principle of participation in humanitarian response?
3) What kind of influence can social networking communities have on humanitarian relief efforts after disaster?
4) How are social networking communities likely to reshape the ways in which humanitarian aid after disaster is provided in the future?

1.5 Methodology
This study was conducted between June and September 2013. It is centred on primary data collected through semi-structured interviews with key informants and secondary data collection and analysis from publicly available literature or public records such as statistics. The choice of combining primary and secondary data helps set the context and provides a general background to the study (Matthews and Ross, 2010). The literature review and the analysis of the key informant interviews both shape the core content of the study.

1.5.1 Literature Review
The objective of the literature review is to investigate academic literature on the evolution of information communication technologies in the digital age and assess the application of social networks in humanitarian assistance.

There is not yet a substantial body of academic literature specifically related to social networking and disaster response activities, which have rapidly increased in scale and scope in recent years. For this study, academic literature about digital technology was used to further my understanding of the kind of influence technology has in everyday life. In addition, various types of industry literature found through Internet search – such as global synthesis reports, lesson papers, evaluations and case studies – were consulted and reviewed to map the current practice in the area of social networks for disaster response. These key web resources include publications from a diverse range of UN entities, INGOs, NGOs, personal blogs from humanitarian professionals, as well as independent...
development and humanitarian research organisations such as the Harvard Humanitarian Initiative.

1.5.2 Key Informants Interviews
The primary research was conducted through key informants semi-structured interviews. This data collection method offers flexibility and provides an opportunity for direct interaction with the participants (Matthews and Ross, 2010). Moreover, key informants can provide valuable information due to their familiarity with the topic and their expertise in the area relevant to this research (Marshall and Rossman, 2011). As such, the semi-structured interviews conducted for this research allow participants to share their personal experiences and express their perspectives towards the use of social networks in disaster response.

An interview guide was used to facilitate the interviewing process (Matthews and Ross, 2010). This guide identifies all the points to be covered in the interview and offers the flexibility for additional questions according to the participant’s expertise and knowledge of the field of the study. The main questions and follow-up questions were developed based on the concepts and issues discussed in the literature review. They covered four areas of interest capturing: 1) the key informant’s experience in using social networks for disaster response purposes, 2) their perception of the role of social networks for disaster relief operations, 3) the challenges and main barriers to using social networks in disaster response management, and 4) their views on the future of humanitarian response in the network age.

The same questions were used with each interviewee. However, in some cases new questions were added to triangulate information mentioned by a previous participant.

1.5.3 Selection of participants
First, nineteen potential participants were contacted. They were selected through Internet search, personal contacts and snowball effect. It was essential that the participants had first-hand experience of using social networks in humanitarian disaster response and came from a range of working experience. A total of ten key informants – eight males and two females $^{12}$ – accepted the invitation to be interviewed. They are from a range of international non-

$^{12}$ The selection of participants was not intended to be gender bias. The fact that there are eight males and two females does not indicate that the sector is male dominated. Throughout the research it was noted that a good number of women are actively involved in social networking activities for humanitarian sector. The sample for this study only reflects the participants available for interview at the time.
governmental organisations, coalitions, online humanitarian volunteers groups and academic/researchers.

The interviews were conducted between 27 June and 26 August 2013, through Skype. They were recorded using audio and video recording devices for analysis purpose. The interviews were on average 40 minutes long.

The interviews were extremely informative and interviewees felt free to discuss successes and failures of social networks for humanitarian purposes. All interviewees found that the research was timely and they generously directed me towards other sources of information or other participants.

1.5.4 Monitoring of social media

In addition, the methodology consisted of regular monitoring of Twitter feeds and participation in group discussions on LinkedIn. As such, online activities of each of the key informants were followed on Twitter, LinkedIn or personal blogs. The social media dashboard TweetDeck was used to filter and monitor social media feeds.

On LinkedIn, I became a member of various group discussions such as ICT for Emergency, Humanitarian & Disaster Network Technology and Humanitarian Crisis mappers’ networks. These groups are typically formed of humanitarian professionals from all around the world and represent a great opportunity to obtain more qualitative data. An invitation to discuss the topic was posted in each of these groups to gather different point of views.

Monitoring of social media feeds during events that happened in the period of writing the dissertation was also performed. Freely available tools such as TweetDeck, Topsy and Geofeedia were used to search using specific hashtags and extract tweets. An example of this extraction is presented in chapter three.

13 See Glossary of key terms, page x.
14 See Glossary of key terms, page x.
15 See Glossary of key terms, page x.
16 See Glossary of key terms, page x.
**1.5.5 Analysis**

The information sourced from the key-informants’ interviews contributes to the core content, informs the assumptions and draws the conclusions. The data gathered from the interviews was analysed with regard to the main research questions.

Once the interview process was completed, each conversation was transcribed to facilitate the analysis. Only the sections relevant to the study were fully transcribed and the more relevant quotes extracted. A short summary was also written for each interview for easy reference.

The analysis framework consisted of extracting pertinent quotes from each interviewee and sorting them into an Excel spreadsheet. A coding system relating to the four areas of interest mentioned in section 1.5.2 was created. A bibliography of terms pulling out key words and themes from each interview was also generated. This was a good way of drawing out the common theme with a more objective lens. A graphical representation of these key words is presented in chapter three.

**1.6 Scope and limitations**

There are a number of limitations related to this study, and these were acknowledged when possible. Some of the limitations relate to the bias, the time constraints and the resource restrictions. For instance, due to time constraints, and to avoid adding unnecessary complexity, I decided to restrict my research on desk-base, which therefore allows for the production of a limited amount of quantitative data.

As social networks are a relatively new concept, it was difficult to assess to what degree these tools are being used on the ground by humanitarian organisations. It seems that only a limited number of organisations currently use crowd-sourcing tools in their emergency management operations. Thus finding field-based staff that could provide key insights on social network usage has proved to be difficult. Therefore, rather than attempting to measure the success of networking tools, the research focuses on the analysis of social network capabilities.

Regarding the review of the literature, there are limited data currently available relating to the level of knowledge that humanitarian actors have about existing use of digital technology. Although social networking communities have been active for many years, the number of case studies and independent evaluations of such tools remain very limited.
Furthermore, studies on the impact and the effectiveness of social networks in humanitarian response are very limited, if non-existent. This was pointed out many times by some of the participants.

The constantly evolving nature of digital technology, and the requirement that much of the data has been collated from non-peer reviewed online sources, could also be considered as a limitation to the research.

With regard to the monitoring and analysis of social media activity using free online tools, the lack of technical knowledge about these tools and the vast amount of data to be processed may be considered as a limitation.

It is understood that there is an extraordinarily wide range of initiatives that cannot reasonably be captured in this research. Therefore, the objective was to choose a representative set of initiatives to draw a fairly comprehensive analysis of the use of social networks in humanitarian response.

The study also recognises that there are valuable concerns regarding the rise of the social networks and in some cases the threats they may represent in terms of protection of individuals. Digital technology enables the sharing of a vast amount of information, most of the time private information. This may be of a great concern for humanitarian organisations using such technology in post crisis situations. However, the research does not specifically address the issue of protection or data privacy.

The research does not address either the use of social media for fundraising or advocacy purposes.

Regardless of its limitations, this study offers key insights into ways in which social networking communities can contribute to better humanitarian response after disaster.

1.7 Chapter outline

The present research is organised in four chapters. Chapter one is the introductory chapter. It provides a brief introduction to the topic and explains why I decided to conduct this research. The reader can also find details on the methodology and the analytical framework used as well as some of the limitations.
The next two chapters represent the core content of the study. **Chapter two** contextualises the growth of information communication technologies within the humanitarian sector. It also looks more specifically at the emergence of social networking communities and discusses how these platforms can potentially change the game in the humanitarian sector.

It then continues in **chapter three** which draws a comprehensive picture of how the digital generation is reshaping the ways in which the humanitarian sector respond to disasters. The content of this chapter is based in part on the literature review and predominantly on interviews with key informants. The chapter outlines and discusses some of the opportunities and challenges for the next generation of humanitarian action in the digital age.

The final chapter, **chapter four** provides conclusive discussion about the future of humanitarian action in the networking age and suggests some recommendations for humanitarian aid in the networking age.
chapter two

DIGITAL HUMANITARIANISM

This chapter discusses the prospect of social networking communities for the humanitarian sector. The chapter first provides a broad overview of the growth in information communication technologies. It then looks more specifically at the emergence of social networking communities and assesses how these networks influence the humanitarian sector operational models.

Figure 2.1 Area affected by Typhoon Labuyo (Utor). Typhoon Labuyo made landfall in the Philippines on 11 August 2013, leaving four people dead and more than 36,000 displaced, according to the civil defence (NDRRMC/EPA, 2013).
2.1 The increased reach of communication technology

The rise of Information Communication Technologies (ICTs) has characterised the last two decades. For Eric Schmidt and Jared Cohen, authors of ‘The New Digital Age’, (2013) there have been two major transformative trends in recent history. These are the mass adoption of the Internet and the remarkable growth of mobile communication technology.

Mobile technology is not the commodity of the wealthiest countries any more. It is universal. Indeed, in recent years mobile technology has become one of the most rapidly adopted technologies worldwide. According to the International Telecommunication Union (ITU) (2013), the mobile cellular penetration rates will soon reach 100%. The ITU estimates the number of mobile cellular subscriptions worldwide at more than 6.8 billion (see Figure 2.2). That is almost as many mobile cellular subscriptions as people in the world\(^{17}\)! However, this does not mean that almost everyone on Earth owns a mobile phone. These figures reflect

![Figure 2.2 Growth of mobile cellular subscriptions. Figure extracted from The world in 2013: ICT facts and figures (ITU, 2013).](image)

the number of mobile subscriptions only, and must be interpreted taking into account that in many cases individuals may have more than one mobile-cellular subscription at once.

The ITU estimates that in 2013, 2.7 billion people – 39% – of the world’s population use the Internet (ibid). Advances in the mobile broadband sector facilitate access to the Internet in many regions. The sector has experienced the most dynamic growth in the last two years,

\(^{17}\) The Population Reference Bureau estimates the world population at more than 7.1 billion. See [http://www.prb.org](http://www.prb.org) (Accessed 31 August 2013).
with penetration rates ranging from 46% in the Americas, to 22% in Asia-Pacific and 11% in African regions. Africa is the region presenting the highest growth penetration rates, with an increase from 2% in 2010 to 11% in 2011. As for the number of mobile-broadband subscriptions in developing countries, it has more than doubled between 2011 and 2013. It went from 472 million to 1.16 billion.

For some observers, the potential for the use of communication technologies in emergency management is greatly enhanced by this rapid growth of mobile cellular and broadband usage around the globe (Coyle and Meier, 2009). It becomes easy to imagine the enormous potentials for relief efforts when one thinks that an individual living in the poorest and farthest regions of the globe can now be connected to the rest of the world through a device that fits in the palm of a hand. It is expected that mobile technology will become more accessible in poorer countries in the future.

The Broadband Commission for Digital Development recognises the need to ensure that populations of developing countries can fully participate in ‘tomorrow’s emerging knowledge societies’ (ITU, 2012). In October 2011, the Commission made the commitment to achieve universal access to broadband infrastructures by 2015. The four targets adopted by the Commission cover broadband policy, affordability and uptake.

Mobile phones are now able to do much more than telephone calls and text messages: they can take photographs, browse the Internet, and enable the users to access social networking sites, among others. These features of mobile technology can increase tremendously the number of potential sources of information in an emergency.

For humanitarian organisations, the surge in mobile phone ownership in low income countries means that it has become easier to communicate more effectively with communities affected by disasters or conflicts (Coyle and Meier, 2009). From basic SMS messaging, to mobile cash transfers, Geographical Information Systems (GIS), crowd-sourcing and social networking, empirical evidence shows that mobile technology has played a pivotal role in many areas of humanitarian action in recent years.
Open-source platforms such as FrontlineSMS\textsuperscript{18} or RapidSMS\textsuperscript{19} are among the solutions used by humanitarian organisations to send out text messages providing information to households and communities, to receive feedback and complaints, or to communicate with field workers. The experience of three Infoasaid\textsuperscript{20} projects using text messages to communicate with communities in Isiolo, Taita Taveta and Wajir County, in Kenya, illustrates the effectiveness of such methods of communication. An evaluation conducted in 2012, concludes that the projects were effective in improving aid deliveries and providing a link between the communities and relief committees that did not exist previously (Chapelier and Shah, 2013).

Advances in technology also facilitate the management and delivery of cash transfer programmes. Electronic payment systems (e-payment) are now commonly used as a modality of humanitarian assistance. A report released in 2012 by the Cash Learning Partnership (CaLP)\textsuperscript{21} identified, at the time of its publication, some 25 programmes using e-payment systems. Despite some challenges, the CaLP report notes that the e-payment systems provide more efficient and reliable delivery mechanisms than the traditional methods. Among other things, the benefits highlighted by the report include improved security for staff and recipients, reduced leakage, improved reconciliation and control of expenditure, greater speed and efficiency of transfer, reduced costs for the agency and recipient, and the potential for realising wider impacts for the recipient (Smith \textit{et al.}, 2011).

Albeit not perfect, mobile communication technologies have greatly improved the ways in which data is collected and shared by humanitarian organisations. Wherever they are in the world, practitioners can now have access almost instantly to information from a vast array of sources. For instance, through mobile-broadband technology a programme manager based in Paris can access real-time information about food distribution in a remote village in Africa. The CaLP report notes that digital data gathering (DDG) tools have proven to increase efficiency, speed and accuracy of data collection (ibid, p. 29). Traditionally, needs assessments relied heavily on data produced by the countries receiving assistance. Often,

\textsuperscript{18} See Glossary of key terms, page x.  
\textsuperscript{19} See Glossary of key terms, page x.  
\textsuperscript{20} DFID-funded project implemented by a consortium of two media development organisations—Internews and BBC Media Action. The project ended in December 2012, but the tools and resources developed are still accessible. For more information, see http://infoasaid.org.  
\textsuperscript{21} The Cash Learning Partnership (CaLP) is composed of Oxfam GB, the British Red Cross, Save the Children, the Norwegian Refugee Council and Action Against Hunger / ACF International. Its objective is to support capacity building, research and information-sharing on cash transfer programming as an effective tool to help deliver aid in times of crisis. See, http://www.cashlearning.org.
these data may be unreliable. More than ever, these needs assessments are driven by the communities themselves, providing real-time information.

2.2 Humanitarianism in the network age

Over the past couple of years, a growing number of disaster-affected communities have demonstrated their ability to organise their own relief efforts through Twitter and Facebook. For example, in Sudan, groups of young people used social media to try to draw attention to thousands of floods victims in August 2013. They formed campaigns on social media to appeal for aid as days of heavy rain left many without shelter, food and clean drinking water (AlJazeera, 2013).

Similarly, on 6 July 2013, when a runaway train packed with crude oil derailed and exploded in the historic centre of Lac-Megantic in Canada, killing 47 (The Gazette, 2013), the community massively turned to Facebook and Twitter to look for missing people and start organising the aid response (see Figure 2.3 and Figure 2.4).

Schmidt and Cohen (2013) state that the current technological revolution has the potential to makes global communication much easier. Thus, it may be argued that the technological revolution emphasises the premise of participation by crisis-affected populations in humanitarian action. This is one of the standards set by the Code of Conduct of the International Red Cross and Red Crescent Movement and NGOs in Disaster Response Programmes. Article 7 of the Code of conduct stipulates:
'Ways shall be found to involve programme beneficiaries in the management of relief aid. Disaster response assistance should never be imposed upon the beneficiaries. Effective relief and lasting rehabilitation can best be achieved where the intended beneficiaries are involved in the design, management and implementation of the assistance programme. We will strive to achieve full community participation in our relief and rehabilitation programmes’ (ICRC, 1994).

To that extent, one may view the multiplicity of ICT tools and social networking platforms as shifting the power from aid agencies to disaster-affected communities. In its publication ‘Humanitarianism in the Network Age’, the United Nations Office of the Coordination of Humanitarian Affairs (OCHA) describes modern communication technologies as an opportunity to create a true partnership in which citizens, communities and humanitarian actors come together to collect data from a wide array of sources, analyse and share that information with one another, and ultimately act on that information to save lives and prevent suffering (OCHA, 2013, p. 26).

In many ways, communication technologies can help strengthen the bottom up approach, which has become the heart of humanitarian assistance and early warning systems in recent years. As observed by Coyle and Meier (2009), among others, social networking platforms constitute a shift from a one-to-many form of communication—traditional media such as television and radio for example—to a many-to-many approach.

In this way, social networks differ from any other forms of communication channels. Not only do social networks give the ability to communicate a message to various audiences, but they also allows users to participate in a conversation, as illustrated in the Figure 2.5 (p. 19). This example shows how social networks can help coordinating the requests for help and the offers for help. During the emergency response to the Oklahoma tornado in May 2013, the Kno.e.sis research team from the Wright State University used an application they have developed – Twitris – to match the tweets calling out for help to those offering help.

23 Stands for the Ohio Centre of Excellence in Knowledge-enabled Computing (Kno.e.sis) at the Wright State University. See http://knoesis.wright.edu/aboutus.
2.2.1 The generation of citizen journalists

The rise of social networking platforms such as Facebook (2004), YouTube (2005) and Twitter (2006), where the online content is generated by the users of the service, has changed our social behaviours, reason some experts. In his reflection on the role of Twitter and the changes in social communication over time, Dhiraj Murthy (2013) argues that social networks like Twitter ‘can be viewed as accelerating the reach of McLuhan’s global village, not only in terms of connectedness, but, importantly, in terms of awareness of other villages’.

In other words, technological advances and global connectivity have opened the world to the third world countries. Citizens of those countries can now have access to better education and markets. More importantly, they have greater opportunities to be heard by the rest of the world. Potentially, these voices can be amplified exponentially through social media (ibid: p.
20). This was demonstrated during the ‘so-called’ ‘Arab Spring’\(^{24}\) for example, where social media platforms were the main means of communication of activists in the Arab world.

One of the noticeable transformations spawned by social networks is certainly this generation of ‘citizen journalists’ – citizens updating the rest of the world on any events. This is considered a game-changer in the media industry. The introduction of Twitter in 2006 has radically changed the ways in which traditional media operate. Over time, Twitter has proved to spread news much faster than traditional media. The phenomenon has forced some media outlets into taking up the role of an aggregator rather than a traditional reporter (Schmidt and Cohen, 2013, pp. 166-167).

Recognising the advantage of the news-gathering capabilities of citizens, CNN – one of the most popular news broadcasters in the United States – created the iReport\(^{25}\) application in 2006. The citizen journalism initiative allows people from around the globe to contribute to news stories.

**2.2.2 Welcome to the era of Big Data!**

Social networks have drastically increased the amount of publicly available information. The figures on the amount of data shared on social networks are mind-bending. On a daily basis, more than 140 million tweets are created; 1.5 billion pieces of content are shared on Facebook; 2 million videos are added on YouTube and 5 million images are added on Flickr (see Figure 2.6).

![Figure 2.6 Daily content published on the Internet. Excerpt from Contently (Contently, 2012).](http://ireport.cnn.com)

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\(^{24}\) The term used to describe the wave of civil uprisings that erupted in the Arab world at the end of 2010 and during the first half of 2011.

\(^{25}\) See [http://ireport.cnn.com](http://ireport.cnn.com)
In 2012, the International Data Corporation estimated the volume of digital content at more than 2.7 zettabytes\textsuperscript{26}. That is 2,700,000,000,000,000,000,000 bytes (Gens, 2011). To put that into perspective, if all the digital information in the world were placed on CDs, they would form five separate piles, each of which would reach to the moon (Cukier and Mayer-Schoenberger, 2013). This volume is expected to reach eight zettabytes by 2015.

During disaster response, big data means the opportunity to access a large volume of information either from SMS/text messages, phone calls, photos, videos, graphics, maps and all other social media content. Empirical evidence from recent disasters indicates that witnesses or people directly affected by a disaster are increasingly turning to social media as a primary source of information.

Networking platforms are used to call for help, look out for public information, publish photos or texts about their personal experience, and communicate with friends and family. An analysis of the use of social media in disaster by the University of San Francisco’s Online Masters of Public Administration programme found out that 20% of disaster survivors contact emergency responders via social media (Allen, 2013).

Hurricane Sandy that hit the United States in November 2012 generated an incredible amount of social media activity. In the two-week period following the landfall, Twitter users in New York and New Jersey areas shared more than 20 million Sandy-related posts (FEMA, 2013, p. 15).

The data visualisation in Figure 2.7 (p.22) gives a powerful picture of the magnitude of social networks activity during a disaster. It displays 23,581 photos uploaded to Instagram in Brooklyn area during Hurricane Sandy on 29-30 November 2012. The visualisation was created by two researchers who analysed the photo-sharing application Instagram (Hochman and Manovich, 2013b). This does not mean that all the pictures shared were relevant to the disaster, but it demonstrates that social network interactions remain high during a disaster.

Some may question the value of that type of information for disaster response managers. While many accounts seen on social media are anecdotal, there are reasons to believe that valuable information can be extracted from those feeds. Commenting on the value of tweets

\textsuperscript{26} One zettabyte is one sextillion bytes. To give an idea of the magnitude, 1,000 gigabytes equal one terabyte; 1,000 terabytes equal one petabyte; 1,000 petabytes equal one exabyte; and 1,000 exabytes equal 1 zettabyte. See http://www.whatsabyte.com (Accessed 31 August 2013).
Figure 2.7 Radial visualisation of Instagram. This graphic shows 23,581 photos uploaded to Instagram in Brooklyn area during Hurricane Sandy (29-30 November 2012). The photo’s distance from the centre (radius) corresponds to its mean hue; the photo’s position along the perimeter (angle) corresponds to its time stamp (Hochman and Manovich, 2013a).

for disaster response, a leading expert in the field, Patrick Meier (2012), refers to a study which analysed over 64,000 tweets generated during Thailand’s major flooding in 2011. The results of this study indicate that about 39% of the tweets analysed were about situational awareness, including location-based water levels, traffic and road conditions for example; and about 8% were about requests for assistance. This means that close to half of all the tweets analysed – about 30,000 – contained pieces of information that could potentially be used by humanitarian organisations.

This is certainly much more than what they can gather with their traditional assessments methods. However, very few organisations have the capacity to handle the ‘information fire hoses’ that represent social networking communities (Harvard Humanitarian Initiative, 2011).

2.3 The emergence of online humanitarian actors

The ubiquitous use of social media has given birth to a new generation of online humanitarian actors who have sought to play a pivotal role in emergency relief operations. More than ever we see groups of Volunteer and Technical Communities (V&TCs) – for example Crisis Mappers network, Humanity Road, Standby Task Force, GISCorps, Humanitarian OpenStreetMap Team, MapAction, Geeks Without Bounds, to name a few –
applying their technical skills through concepts like crowd-sourcing, to support the humanitarian operations.

The 2010 Haiti earthquake is described by many as the precursor of the recognition of digital abilities for disaster management. It was one of the first disasters that saw hundreds of online volunteer communities supporting rescue efforts and relief operations through tasks like media tracking, geo-location, mapping, data cleaning, translation, and monitoring of social networks.

The publication ‘Disaster Relief 2.0: The future of Information Sharing in Humanitarian Emergencies’ (Harvard Humanitarian Initiative, 2011) reports that social media and other mobile technology were widely used, either by the affected community to issue pleas for help, or by ordinary citizens around the world who voluntarily mobilised to aggregate, translate and map these pleas in support of the disaster response.

Since then, there have been numerous accounts of activation of V&TCs. OCHA has been one of the most proactive organisations in that area. In 2012 after Typhoon Bopha (Pablo) in the Philippines, the Standby Task Force and Humanity Road were activated to consolidate and analyse data collected from social media. This was the first UN crisis map entirely based on data collected from social media (OCHA, 2012a). In less than 24 hours, the online volunteers were able to scan over 20,000 feeds. As shown in Figure 2.8 (p. 24), the analysis of more than 122 selected data items provided information in sixteen categories, such as flooding areas, housing damage, displaced populations, number of people dead.

In the beginning of the Libyan Revolution, in 2011, OCHA was able to produce a “Who’s doing What Where (3W)” map without any access to the country (see Figure 2.9, p. 24). Within 48 hours, online volunteers from the Standby Task Force were able to collect and compile more than 100 pieces of information to create a map. This task would normally take weeks to complete (UN Volunteers, 2011).

27 Typhoon Bopha (Pablo) hit the Philippines on 3 December 2012. The storm caused more than 600 fatalities, widespread destruction, and left thousands homeless.

28 Refers to the armed conflict that took place in North African State of Libya in 2011.
Figure 2.8 Chart of information items collected through social media during Typhoon Bopha (Pablo) in the Philippines in 2012. Figure extracted from *Social Media Mapping and Analysis of Typhoon Bopha (Pablo)* (OCHA, 2012a).

Figure 2.9 Libya crisis map produced by OCHA in 2011 (OCHA, 2011).

The rapidity with which the data can be collected after a disaster, the ability to aggregate and analyse immense quantities of real-time data and the provision of geo-tag information –
which can help to accurately locate specific requests for help – have been identified among the main advantages of the crowd-sourcing concept (Gao et al., 2011). For example, with a network of 640 volunteers worldwide, the Humanitarian OpenStreetMap Team was able to build a street map of Haiti from scratch in about two weeks – a project that is believed would have taken about a year to complete by traditional methods (Capelo et al., 2012).

An evaluation of the humanitarian response after the 2011 earthquake and subsequent tsunami in Japan29, conducted by Internews, further demonstrates the role of the online communities. According to the report ‘Connecting the last mile: The role of communications in the Great East Japan Earthquake’ (Appleby, 2013), more than 5,000 volunteers were mobilised to create over 600,000 personal records on Google’s Person Finder platform. Maps of over 500,000 roads in affected areas were created by the OpenStreet Map Team volunteer community. Sinsai.info – a Japanese version of the Ushahidi platform – was built by a community of technical volunteers who verified, categorised and mapped over 12,000 tweets and emails from affected regions.

2.4 The challenges of social networking communities

Many agree that the crowd-sourcing tools and the groups of V&TCs have proven their efficiency and changed the ways in which information is collected and analysed in humanitarian emergencies (Capelo et al., 2012). However, some are questioning the impact of such activities for humanitarian operations. OCHA (2013) indicates that to date, there is no concrete evidence showing that recourse to crisis mapping has resulted in more rescues or more efficient resource allocation.

Albeit many successful collaborations between the V&TCs and humanitarian organisations, the social networking communities remain less known to the humanitarian sector. This lack of knowledge and awareness are often identified as one of the main barriers to leveraging the technology.

In 2012, CNA Analysis Solutions measured the use of social media in the emergency management field. The survey found that many aspects of social media are still considered ‘new’ to emergency management professionals when it comes to using them in disaster response (Yee San Su et al., 2013). Similarly, Internews’ evaluation of the Japan Earthquake

(Appleby, 2013) identifies the humanitarian responder’s lack of awareness about the information resources generated by the volunteer and technical communities as one of the main challenges for humanitarian operations.

2.5 A game-changer?
The humanitarian sector appears to be in the middle of a transformation that may change the way organisations are operating in post-crisis and post-disaster contexts. While many praise the potential of social networking communities, the humanitarian sector is just barely beginning to harness it. These changes are taking place in small and critical ways. Some organisations are a step ahead. It is the case, for example, for OCHA, FEMA and the American Red Cross.

The American Red Cross is one of the first NGOs to have recognised that social media are now a critical component of disaster response. They have set up the first-of-its-kind Social Media Digital Operation Centre\(^{30}\). The Federal Emergency Management Agency also uses social media as a channel for disaster preparedness and support to emergency relief operations. Recognising that the public can be a valuable source of information in the aftermath of a disaster, the federal agency took a step further by including crowd-sourcing abilities in its mobile application. The ‘Disaster Reporter’ application allows users to contribute to the response by submitting disaster-related information\(^{31}\).

However, it seems that the adaptation to the network age requires a greater understanding of the social networking communities’ abilities and of the role they can play in relief efforts (OCHA, 2013, p. 18).

What is the added value of data gathered through social networks? Can it contribute to the decision-making process? Is it just a big noise, or is it real evidence? How do we leverage and upscale social networks and other communication technologies for disaster management purposes? What kind of influence do social networks have on humanitarian assistance? Will social networks force the humanitarian community to rethink and adapt its methods of operation? How are social networks changing the game of humanitarian assistance after disaster? These are among the main concerns humanitarian organisations seek to address.

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chapter three

SOCIAL NETWORKS: THE NEW FACE OF DISASTER RESPONSE?

This chapter examines how the digital generation is reshaping the ways in which the humanitarian sector responds to disasters. Through a review of existing evaluations, publications and interviews with key informants, the chapter maps the current application of social networking communities in the context of disaster response. It also assesses the potentials and pitfalls, and provides insights on the kind of influence social networks can have on humanitarian response after disaster.

Figure 3.1 The American Red Cross Digital Operations Centre (American Red Cross, 2012).
3.1 New humanitarian actors

In this research, social networking is defined as the various means of collecting crowd-sourced information. It refers to commonly known social media platforms such as Facebook, YouTube, Twitter and to the Volunteer and Technical Communities (V&TCs). These informal groups of humanitarian volunteers pull out their technical skills to help collect and aggregate a wide range of crowd-sourced information during humanitarian crises.

Many V&TC groups were identified during the research process. Figure 3.2 below displays some of the volunteer groups that actively participated in disaster response in recent years.

![List of Volunteer and Technical Communities](image)

Figure 3.2 List of Volunteer and Technical Communities. This list is not exhaustive.

The V&TCs have grown exponentially in recent years. One key informant, the founder and manager of the one of the most active volunteer groups, indicates that her organisation has considerably increased its capacity since the first deployment during the 2010 Haiti earthquake. The organisation now monitors between one and three events on a daily basis.

‘In three years we have grown dramatically as far as our capability to monitor and our number of volunteers and our ability to manage and monitor multiple events. In 2010, we monitored 72 events; in 2011 it was about 186 events; and in 2012 we monitored over 300 events’ (key informant J).

3.1.1 The role of social networks and V&TCs in disaster response

All participants agree that the digital age can be a synonym for information overload. Consequently, information management can become a very daunting task for NGOs. The

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32 This list does not reflect all the initiatives that exist. The groups displayed in the graphic have been active in many disaster situations in recent years. They are also members of the Digital Humanitarian Network, which provides an interface between formal organisations and volunteer and technical communities.
V&TCs can be seen as offering greater capacity to explore and mainstream the potentials of social networks for humanitarian response.

The case of the flooding in the Northern State of Uttarakhand, India, in June 2013 helps us to understand the role of the V&TCs (see Box 3.1). This case provides a good illustration of the process of collecting, managing and utilising the information from social networks. The diagram in Figure 3.3 (p. 32) shows the variety of tasks performed by technical volunteers. It can be monitoring of social media or more specialised tasks like geo-location and road digitisation. The information put into a map and shared with humanitarian organisations, generally helps provide situational awareness. It can also be used by a relief agency to determine the resources to be deployed in the field.

Box 3.1 Case study of the DHN deployment in Uttarakhand flooding
In June 2013, heavy rainfall caused devastating flooding and landslides in the North Indian State of Uttarakhand. Damage to bridges and road have left thousands of people trapped in various places.

Due to the high volume of information, SEEDS India requested the activation of the Digital Humanitarian Network to support the relief operations. Collectively the DH Network members helped to identify affected areas and provided a list of organisations responding to the disaster. The Humanitarian OpenStreetMap Team (HOT) generated a detailed map of more than 4,000 villages affected by the flooding in four districts of Uttarakhand State. In addition, field-mapping teams collected geo-located data to characterise the map. This information allowed for identification of specific priorities.

Humanity Road produced a digital 3W report mapping the aid coverage in the areas. This consisted of who is responding, where and with what aid. Information collated by teams of volunteers from the Standby Task Force, Info4, Open Crisis, HOT OSM and Crisis Mappers UK, was pulled into a public Google Crisis Map and distributed via the Uttarakhand Flood Relief Facebook page. The digital 3W report is updated regularly and distributed to more than 100 agencies.

MapAction deployed a team to work with Save the Children India on logistical and monitoring requirements.

Translators Without Borders responded to the activation request by assisting with translation for monitoring and reporting.

Source: (Digital Humanitarian Network, 2013)

33 As of 16 July 2013 more than 5,700 people were presumed dead according to figures provided by the Uttarakhand government. See http://en.wikipedia.org/wiki/2013_North_India_floods (Accessed, 19 August 2013).
Figure 3.3 Social networks and humanitarian relief efforts. This graphic illustrates the process of sharing, collecting and classifying crowd-sourced information for humanitarian relief operations.
3.2 The added value of social networks

This section unpacks some of the advantages of social networks and V&TCs. It also looks at the main concerns about user-generated content.

![Figure 3.4 Advantages of social networks. This ‘word cloud’ displays the main advantages of social networks identified by the research participants.](image)

Among the advantages of social networks (see Figure 3.4) is the opportunity to access a vast amount of information in real time. In some cases, this information could hardly be accessed with the traditional methods.

Most enthusiasts about the technology believe that the potential of social networks is immense regardless of which network is used. This helps to paint a real-life picture of what is happening on the ground and gives a voice to potential beneficiaries, says key informant G, a crisis response researcher.

‘People post information about what is happening to them in the disaster zone itself. When you put that together there is a picture that forms that could allow humanitarian workers to be able to be more effective in how they deliver aid. The potential beneficiaries can become a key voice in how aid is delivered’ (key informant G).

A participant to a discussion forum on LinkedIn describes social networks as a way of providing a ‘human angle’ to a disaster.

‘Social media have advanced in humanitarian and development [sectors]. People use this technology to collate data, ask for people’s reaction or look for answers that may assist them in moving forwards. This can help in making aid more efficient. The human side is that not only it involves NGOs, and major organisations but the general public and other groups as well’ (participant, LinkedIn discussion forum – adapted from the original post).
While many research participants are positive about many aspects of social networks, they also recognise that these networks raise a number of concerns for humanitarian organisations.

‘You have a community that is used to a specific way of getting information. They trust their channels. When you bring in new media where they could get similar information, but this information comes from sentiments of beneficiaries or people within the vicinity of a disaster, there is some scepticism. Is that information reliable? Is it accurate? Will it provide the same kind of assessment information required to decide whether to provide aid or not provide aid?’ (key informant G).

Some of the biggest concerns (see Figure 3.5) about social networks relate to the accuracy, utility and level of trust of user-generated data. Humanitarian crises are complex environments and many believe that social networks only add noise and unreliable information to it. Others say that encouraging people to report their needs may create false expectations.

Figure 3.5 Main concerns about social networks. This ‘word cloud’ displays the main concerns expressed by research participants about social networks.

3.2.1 Getting the real-time picture

What kind of information can be seen on social networks? A group of researchers recently analysed the nature of social media content generated during two different disasters in the United States: the May 2011 tornado in Joplin, Missouri and Hurricane Sandy in October.
Based on previous research, the team developed an extraction model. The taxonomy suggests eight types of posts that can be seen on various social media networks during an emergency (see Table 3.1). According to the researchers, the extraction model can detect from 40% to 80% of the tweets containing disaster-related information. Furthermore, they argue that their approach can generate an output that is correct 80% to 90% of the time.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caution or advice</td>
<td>Message that contains warning about potential hazard or advises people about what to do</td>
<td>@NYGovCuomo orders <strong>closing of NYC bridges.</strong> Only Staten Island bridges unaffected at this time. Bridges must close by 7pm. #Sandy #NYC.</td>
</tr>
<tr>
<td>Casualties: injured or dead</td>
<td>Message about casualties: who has (or how many people have) been injured or dead</td>
<td>At least 39 <strong>dead</strong> millions without power in Sandy’s aftermath. [link] @rt_com RT 509K followers</td>
</tr>
<tr>
<td>Damage: infrastructures</td>
<td>Message that mentions a structure, road, services, etc. that is not working or has been damaged</td>
<td>@Time: NYC building had numerous construction complaints before <strong>crane collapse</strong> [link] #Sandy</td>
</tr>
<tr>
<td>People: missing or lost/people found</td>
<td>Message that indicates who is missing or has been found</td>
<td>@911buff: Public help needed: <strong>2 boys 2 &amp; 4 missing</strong> nearly 24 hours after they got separated from their mom when car submerged in si #sandy #911buf</td>
</tr>
<tr>
<td>Information source: Photo/ Video</td>
<td>Message pointing to information sources, photos, videos or mentions a website, TV or radio providing coverage of the event</td>
<td>@NBCNewsPictures: <strong>Photos of the unbelievable scenes</strong> left in #Hurricane Sandy's wake [link] #NYC #NJ</td>
</tr>
</tbody>
</table>
| Requests and offers           | Message that indicates what (money, goods, work, free services, etc.) is being requested or offered as a donation | **400 Volunteers are needed** for areas that #Sandy destroyed
I **want to volunteer** to help the hurricane Sandy victims. If anyone knows how I can get involved please let me know! |
| People: celebrities/authorities | Names a celebrity or authority that reacts to the event of visits the area | **V.P. candidate Ryan** attends a food drive in Wisconsin for victims of Hurricane Sandy. PO-35WE on BitCentral. |

This research shows that information found on social media can vary widely. The most common posts are the general warning posts issued by authorities; the informative posts about casualties, people lost or found or damage to infrastructures; or the posts capturing the disaster-affected people’s experiences.
Using the taxonomy developed by this group of researchers, I was able to perform a smaller scale analysis of social media. I monitored social media feeds when Typhoon Labuyo (Utor) made landfall in the Philippines on 11 August 2013. A search using the hashtags #philredcross, #ReliefPH, #LabuyoPH, #Utor and #rescuePH was performed using freely available tools such as TweetDeck, Geofeedia and Topsy. The results presented in Table 3.2 show that it was possible to extract posts related to general warning and casualties.

### Table 3.2 Example of tweets extracted after Typhoon Labuyo (Utor) in the Philippines, between 11–13 August 2013.

(All tweets in this table are reproduced as they were published on Twitter.)

<table>
<thead>
<tr>
<th>Situational awareness:</th>
<th>@PAGASAFFWS: Dam updates as of 4PM, today: Angat-190.76m, Ipo-100.71m, La Mesa-79.25m, Ambuklao-749.23m, Binga-574.74m w/ 4 gates open, …</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>@dost_pagasa: Labuyo makes landfall over Aurora: 15 areas under Signal 3 <a href="http://gmane.ws/1bniLID">http://gmane.ws/1bniLID</a></td>
</tr>
<tr>
<td>Casualties or Damage:</td>
<td>@BBCWorld: Typhoon #Utor displaces thousands in the Philippines <a href="bbc.in/17KDGLFpic.twitter.com/33EaKfo6Gd">bbc.in/17KDGLFpic.twitter.com/33EaKfo6Gd</a></td>
</tr>
<tr>
<td></td>
<td>@Disaster_Update: #Typhoon #Labuyo has left at least three people dead and 54 missing in <a href="#">Philippines</a> disaster-report.com/2013/08/typhoon… #Utor</td>
</tr>
<tr>
<td></td>
<td>@careintuk: #Typhoon #Utor wanings lowered in most of <a href="#">Philippines</a>. CARE &amp; partners assessing - casualties seem not as high as initially feared</td>
</tr>
<tr>
<td></td>
<td>@reliefweb #Ph: Rescuers race to help #typhoon-hit towns - Thousands of people homeless <a href="http://bit.ly/1cJEOW">bit.ly/1cJEOW</a>#AFP #Utor #hmrd #CB</td>
</tr>
<tr>
<td>Personal Message or Request for Help:</td>
<td>@crisismappers: Map #Philippines: TY #Utor (#Labuyo) track &amp; Total Population (as of 4 PM 12 Aug 2013) <a href="http://UNOCHAreliefweb.int/sites/reliefweb%E2%80%A6">UNOCHAreliefweb.int/sites/reliefweb…</a></td>
</tr>
<tr>
<td>(Two victims of Typhoon Labuyo ask for donations):</td>
<td>@AshBulldogLagon Tulungan po natin ang mga kapwa natin na nasalanta ng #bagyong #labuyoph at makapagsimula ng maglikom ng donasyon para sa kapwa #ReliefPh</td>
</tr>
</tbody>
</table>

Note: @PAGASAFFWS is the official Twitter account of Pagasa-Floods, Forecasting and Warning section. @dost_pagasa is the official Twitter account of Philippine Atmospheric, Geophysical and Astronomical Services Administration.

During this exercise no posts relevant to the more personal accounts or pleas for help were found. This does not suggest that these types of posts were not present on the feeds. It can be explained by the limitation of the search engines. For instance, key informant J mentions that generally only 1% of all the tweets published are shown during a search request. Therefore, to obtain a perceptible result, the search tasks must be multiplied.

‘It is what crowd-sourcing is all about. If you have enough results to know that generally people need food, water and shelter in this area, you start to see that it...
spikes from that type of information. That knowledge is helpful for the aid agency’ (key informant J).

### 3.2.2 Accuracy

Although most of the time the content generated by social networks is anecdotal, it can be used by humanitarian organisations in their decision-making process. Therefore, assessing the accuracy of user-generated content becomes critical.

This is particularly of concern in a conflict zone where, potentially, people with political interest can publish information. This was noted as one of the risks associated with crowd-sourcing techniques in ‘*Humanitarianism in the network age*’ (OCHA, 2013). The OCHA’s publication mentions the Egyptian uprising in 2011, where two parallel Ushahidi platforms were implemented: one by citizens and the other by the Government. In this case, it was found that the Government’s platform was created to spread misinformation to activists (ibid, p. 34).

This is why one of the research participants is more critical about the online volunteer groups. He questions their ability to corroborate the crowd-sourced information.

‘They can provide data sets and maps, but at the end of the day they are not able to answer the basic fundamental question which is: do you have any way to tell me that the information provided is credible?’ (key informant C).

The debate seems not to be centred around the relevance of social media content any more. Rather, it focuses on the extraction, analysis and verification processes. The crucial challenge for humanitarian organisations and online volunteer communities is to authenticate and verify the information shared on social networks.

Understanding the context in which user-generated content is created and published is essential. ‘People are using social media during a very stressful time. When they post their message, they do so without thinking that someone will use it. We have to understand the context of that message: where it is coming from, what that message is talking about, who is talking about it, and who this message pointed to’ (key informant H). Therefore, this key informant believes that it is crucial to develop and improve the technology to help dissect data.
Traditional media organisations have been using social media content for many years now. For instance, the CNN iReport team has developed its own verification mechanisms. The team revealed some of the techniques in a recent Google Hangout streamed to the public (CNN iReport, 2013). For example, verifying whether the author took other pictures in the same area is a way of authenticating a picture. Also, they verify the geo-location of tweets to ensure that the author of the post is in the vicinity of a developing crisis. Other verification strategies include scanning through a user's previous posts to search for evidence of any political bias.

In recent years, the online volunteer groups have multiplied their efforts to improve the technology to dissect data, develop more efficient verification systems and adapt their methods to those of the humanitarian organisations. For instance, a team of researchers is currently working on a new tool – called Veri.ly\(^\text{35}\) – that should facilitate the verification process.

However, many respondents acknowledge that the responsibility for developing such tools should not rely solely on the groups of online volunteers. One informants believes that the ‘technocrats will be better off to assist the response’ if the humanitarian community engages with them. This would facilitate the development of tools in accordance with humanitarian requirements and protocols.

### 3.2.3 Utility

The fact that most accounts posted on social media platforms are often anecdotal does not necessarily make this information useless or irrelevant. Some participants argue that information shared by citizens on social media offers a perspective from the disaster-affected people. It can help in identifying specific needs that otherwise would be overlooked.

The experience of one of the key informants in Haiti is a good example. His organisation was able to help an orphanage of about 300 children that could not get help from the major NGOs.

“The person who runs the orphanage was overwhelmed and could not find help. He posted a few tweets on Twitter. We saw those. The next morning we showed up. We did a rapid assessment. Then we delivered a few tons of rice and beans and

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\(^{35}\) See [http://veri.ly](http://veri.ly)
provided a water purification system. Twitter can help us find people in need and help them to connect people with resources’ (key informant A).

In some cases, images or videos shared on social media can be the only way to do a preliminary assessment of the damage caused by a disaster. This was the case in 2012 after Typhoon Pablo in the Philippines. In one of his blog entries, social network specialist Patrick Meier argues that, in the case of the Philippines, without this information, the relief efforts would have overlooked certain disaster-related areas (Meier, 2012).

Of course not all information seen on social networks is useful. One of the key informants uses the analogy of a needle in a haystack. ‘In the case of the tornado in Oklahoma, we have analysed over 2 million tweets, and we only found several hundred people sharing information on needs, and several hundred people sharing information on offers or help’ (key informant E). Therefore, it is a matter of finding every little pieces of information that may be relevant one way or another.

One thing is clear: it would be wrong to dismiss social network data on the basis that very few pieces of information are useful. ‘If it is in your face, why would you close your eyes to that information?’ insists key informant E.

In their argument supporting the use of social network data, many key informants mention these are not intended to be the sole source of information. Neither are social networks intended to substitute for the traditional information sources. Rather, they should be considered as proxy indicators for triangulation.

‘After Hurricane Sandy, the Maryland State Emergency Management Agency set up an Ushahidi crowd map. They were not getting any messages and they were not sure whether it was because things were fine or because the communications were out. They asked us to help with data mining. Within 24 hours, the public confirmed that everything was fine’ (key informant J).

3.3 Level of trust
One of the main debates around the use of social networking communities for disaster response is about the level of trust. This debate is centred around two points. First, humanitarian organisations question whether user-generated content can be trusted for humanitarian relief operations. The previous section has provided some of the answers to this issue.
The second point relates to the level of trust towards the ‘nameless and faceless volunteers’. This is seen as one of the main barriers to the integration of social networking communities in disaster response. ‘For many NGOs the V&TCs are still these big nebulous groups of thousands of people spread around the world and they get afraid of that’, asserts one key informant.

This may explain why some key informants approach social networks with a dose of scepticism. This is the case for key informant C, for instance. His organisation has been operating in a conflict zone for more than 30 years. Although he recognises the benefits of social networks in some contexts, he argues that these can be counter intuitive to his organisation’s approach.

‘Most of our ability to operate in conflict is predicated on our personal relationships and our networks with individuals in the different countries. It is predicated on a bilateral dialogue as opposed to a multi-lateral dialogue. Because of the legacy of how we have built operations, how we have built “acceptance” for our work in the field, social media in some ways is counter intuitive to that operational model’ (key informant C).

The fact that V&TCs are groups of volunteers who often have no previous humanitarian experience seems to be a problem for some key informants. ‘We need to go beyond a bunch of volunteers that have their heart at the right place and want to make a difference, to really becoming a serious part of the humanitarian operations’, reasons key informant B.

If V&TCs are to become a more serious part of the humanitarian operations they have to better demonstrate how they can complement the current practice.

3.4 Lack of knowledge
One of the factors affecting the level of trust towards social networking communities seems to be the lack of knowledge. This was one of the main findings of the web-based study conducted in 2012 among 50 state emergency management agencies in the United States. This study found that although many emergency management professionals have a certain knowledge of Facebook and Twitter, the use of social media to support disaster response remains relatively ‘new’ to them (Yee San Su et al., 2013).
Similarly, the majority of key informants for this dissertation concurs with that statement. Key informant F argues that the humanitarian actors’ lack of familiarity with the technology is affecting their level of trust towards online volunteers.

‘In general, people do not understand the full benefits of using social media, social networks, volunteer communities, crowd-sourced information. If they are not very familiar with that, how much better is their attitude going to be towards a group of volunteers handling this information?’ (key informant F).

However, one key informant notes that this barrier about the level of trust is shrinking as social networking communities are becoming more mature. Developing a good history of credibility and ensuring that V&TCs are honouring the structures and processes of humanitarian agencies may help in gaining the acceptance of the humanitarian community.

‘We ensure that we are honouring the structures and processes of humanitarian agencies. In the USA, this would be the Emergency Support Function (ESF). For international, it is the cluster approach. We are trying to ensure that we collect and share information in a way that complements the structure that has been used for that particular context. Developing a history of credibility, transparency, reporting, compliance to the traditional organisational types of measurements, will also help build that understanding and credibility’ (key informant J).

One key informant believes that if humanitarian organisations are familiarising themselves with some of the tools and technologies in their day-to-day practice, they will be able to better appreciate the potential of social networking communities in crisis mode.

‘Looking at the lessons learned from other disasters I find that when different innovations or tools were successful in crisis response it is because they were incorporated in daily operations beforehand. That way people can get familiar with the tools and are not stressing about trying to learn a system while executing tasks in crisis mode’ (key informant F).

3.5 Improving humanitarian relief efforts

Regardless of their experience with social networking communities, key informants acknowledge that these are transforming the humanitarian space. They believe that social networks provide opportunities that were not possible before. They can definitely contribute to better humanitarian response by improving the information management, improving the response time and overall accelerate the recovery process.
Does that mean the next generation of humanitarian workers will have to be tech savvy? Not necessarily. Keeping up with the amount of information shared on social networks can be compared to trying to drink water from a fire hose – think about 20 million Sandy-related posts shared by Twitter users during Hurricane Sandy. One of the key informants who participated in the mapping the Uttarakhand flooding response points out that it is not possible for NGOs to handle this huge information overload on their own. Teaming up with groups of technical volunteers seems to be one solution.

One of the biggest advantages of the social networks is the rapidity with which they can deliver information. It can undoubtedly speed up the delivery process argue key informant G. ‘If we are collecting data ourselves and we compare with the information on social media on the side, it says the same thing. The only difference is with social media it is real-time. You are getting the information as it is happening, while with the traditional sources of gathering data, by the time somebody goes to the field, does the assessment, comes back and does the analysis, it can take one or two days. That is a long time and the opportunity to save lives is lost’ (key informant G).

For many participants the main question remains: how can crowd-sourced information help in the decision-making process? Social networks have the advantage of providing access to a vast amount of information. Having access to more information does not mean that this will facilitate the decision-making process.

While some participants doubt the utility of user-generated content in the decision-making process, one key informant looks at the problem from another angle. Key informant E believes that the debate should not be about whether humanitarian organisations can make decisions based on anecdotal information. He questions the humanitarian decision-making structures. ‘The decision-making structures within the humanitarian organisations have room for improvements. They are not perfect. Many people within humanitarian organisations realise that even when there is good data – [which] by good they mean comes from traditional sources – decisions do not get made based on these traditional “trusted” sources of information. DFID and OCHA have been very upfront about that. They admit that the decision-making structures are imperfect. Even when they have the kind of data they want from trusted people, they do not make use of it. If they are not using their own information, then how are we going to know whether the new
information coming from new sources of social media will have any impact on their
decision-making’ (key informant E).

3.5.1 Greater participation and accountability
One of the best features of social networking communities is that they are opening up a new era of transparency and accountability. ‘They create a positive two-way dialogue between those who can fix the problem and those who need their help’, says key informant J.

A majority of key informants recognise that people affected by disaster are more resilient and self-organised. This may or may not be attributed to the network age. Nevertheless, by allowing the opening of a direct line of communication between an affected community and aid providers, social networks can be a powerful tool for community empowerment.

‘I saw a huge shift in the collaboration between the general public and the official aid providers. A person sitting in a particular town can say “I need help and you are not here yet”; and the agency says “we are on our way”. It is powerful to have that immediate dialogue back and forward. It can build a collaboration, not just online, but physically when they [aid providers] get there’ (key informant J).

3.5.2 Drivers of innovation
While social networks have the potential to drive innovation in the humanitarian sector, many question their real impact on the humanitarian response. Is it really making a difference?

‘I think it is wrong to diminish the possibilities, but it is also just as dangerous to over inflate the possibilities’ asserts one key informant. All the participants interviewed for this research agree that there is a need for more evidence-based research that will demonstrate the impact of such networks. ‘I would like to see greater evidence-based, more robust understanding of the impact on the humanitarian performance, and perhaps better consolidation of the plethora of different platforms and approaches’ concludes key informant D.

Measuring the impact of social networking communities has been challenging, since volunteers are most likely to be engaged in humanitarian response during the first few weeks of sudden onset emergencies (Verity, 2013).

The Digital Humanitarian Network recognises the lack of proper mechanisms to review and evaluate the impact of V&TC work (Waldman et al., 2013). Understanding the need to better
articulate the impact that large groups of volunteers have on humanitarian response, the DH network recently developed a real-time impact evaluation framework. This is the first concrete attempt at measuring the impact of social networking communities.

The framework is mainly intended for use by the formal humanitarian organisations requesting the V&TC support. It suggests evaluating the process and impact of collaborations with V&TCs in three key areas, namely the relationship, resources and reporting.

Despite the lack of demonstrated impact, all agree that social networks will increasingly be part of the future humanitarian response. It is up to humanitarian organisations to be ahead of the game and harness these potentials.
chapter four

THE NEXT GENERATION OF HUMANITARIAN ACTION

This chapter suggests areas which are likely to reshape the next generation of humanitarian action. It provides a concluding discussion based on the findings and analysis of the previous chapters and suggests five recommendations concerning the future of digital humanitarianism.

Figure 4.1 Typhoon Bopha, Philippines, December 2012. (OCHA, 2012b).
4.1 Towards a new era of humanitarianism

Social networking platforms – which emphasise human collaboration – are becoming increasingly prevalent in society. They are considered to have notably changed how businesses operate, governments function and people live (Cukier and Mayer-Schoenberger, 2013). For Eric Schmidt and Jared Cohen (2013), the greater connectivity experienced through a variety of means and devices suggests that the vast majority of the world’s population is increasingly living, working, and being governed in two worlds at once: the physical world and the virtual world (ibid, p. 16).

Arguably, the wider social networking phenomenon has an influence for humanitarian practice. Technology opens up exciting and new possibilities to diversify the aid response (Jefferys, 2013). For example, it has been demonstrated that social networks have the capacity to amplify early warning messages. This was the case during Hurricane Sandy. Authorities and emergency responders used various social media platforms to alert the population and disseminate warnings about potential hazards.

Surely, the real strength of social networks is their capacity to facilitate real-time monitoring and provide real-time feedback. This has been demonstrated on many occasions since the first experience during the Haiti Earthquake in 2010.

Talking about his experience in Haiti, one key informant reveals that he quickly realised the potential when online volunteers became active. Many of the tasks he would normally have performed in the field could now be enabled remotely. ‘I remember receiving a Ushahidi map for the first time. I looked at it for about 30 seconds and I saw a map with a bunch of red dots. It looked like measles on a map, but in a note to myself I thought the data behind this map would be a gold mine.’

Two years later, this same key informant activated a deployment of online volunteers in the Philippines. After 24 hours monitoring social media the volunteers were able to provide an accurate picture of the damage, the affected areas, displaced populations and casualties resulting from Typhoon Bopha (Pablo).

In the network age it is becoming increasingly evident that humanitarian organisations do not control the narrative any more. In time of disaster, the first reflex of people directly affected is often to communicate what is happening to them. Whether they are living in the more developed Western world or in developing countries, citizens affected by disasters now
have access to tools that enable their capacity to communicate and self-organise their own relief efforts.

One key informant – a manager of a V&TC group – gives the example of the small community in Rockaway New York who was deprived of all communications after Hurricane Sandy in 2012. The lost of communications made it difficult for this community to get aid. Some members of this community sent out a request for help. ‘We physically deployed to the location and collaborated with communications providers to put up a WI-FI network at the church. The communications network helped the community to communicate their needs to the public and managed the spontaneous donations’, conclude key informant J.

Social networks provide an invaluable opportunity for humanitarian organisations to hear the voices of those directly affected by a disaster or a humanitarian crisis. This may greatly improve humanitarian aid in the future, asserts one key informant.

“We will eventually get into an age where information and mobile devices will be some of the most important things for affected communities. This will enable them to request the support they need, to connect with other people in need, connect with their families, request funds from people abroad, etc. I really think that this will start removing many of the frictions that exist in delivering humanitarian aid’ (key informant I).

For aid agencies, adapting to the network age means finding ways to take up a role of facilitator rather than broadcaster. It means helping communities to help themselves rather than just being a provider of aid. One key informant maintains that social networks are great empowerment tools. ‘It is empowering those communities to help themselves rather than the traditional fire truck approach where you call the people from outside to come in’ (key informant E).

In the future, social networking communities are likely to become key partners for responding organisations. With potentially hundreds of thousands of volunteers around the world capable of collecting and analysing a wide range of data, the potential is immense. V&TC groups are likely to grow and take up a greater role in disaster response operations, providing additional support, capacity and direction.

“These groups could become like a distribution centre around the world, constantly helping and redirecting aid and support. People are sharing their own needs publicly and volunteers around the world are watching this on behalf of the formal
organisations. The volunteers help prioritising and cue up what needs to be delivered. I think it could have a very big impact, once humanitarian community allow these digital [online] volunteers to work for them or figure out a way for them to contribute’ (key informant I).

The humanitarian sector is at a crossroads. In a world of increasingly informed, connected and self-reliant communities, there may be no other choice than taking the technology-driven path. This is a path in which the humanitarian sector harnesses the full potential of technology, makes smart choices and heads towards the next generation of humanitarian aid.

This does not mean that the ‘old playbook’ will be thrown out of the window. On the contrary, aid agencies must continue to use radio to communicate with communities, to have face-to-face discussion with populations, and conduct evaluations in the communities (Jefferys, 2013). Harnessing the potential of technology simply suggests that the humanitarian community may have to re-think some of its operational models to reflect the new reality of the network age.

This transformation requires a common effort. In the view of the majority of key informants the digital humanitarian response must be primarily demand-driven. It means that humanitarian actors must be proactive and request activation of online volunteers. Also, they must determine how they can effectively leverage social networking to augment existing information products and improve decision-making. As for the online volunteers, they are at a stage where they need to determine how they can tailor their products better so that they meet the information requirements of humanitarian organisations.

Therefore, engagement, collaboration and partnerships between formal humanitarian organisations and informal volunteer communities appear to be the key elements for mainstreaming social networks in humanitarian response. This collaboration is essential to continue developing and improving the technology, asserts one key informant.

4.2 Conclusions
The objective of the study was to explore how social networking communities can contribute to humanitarian response after disaster. Evidently, the future humanitarian landscape will be increasingly composed of continual growths in technology and abundance of new online
humanitarian actors. The humanitarian community may have no other choice than to follow the technology-driven path and make the most of these opportunities.

The study found that the humanitarian community is progressively acknowledging the effectiveness of social networking communities for disaster response. Although few organisations are applying social networks for their relief operations, there is an increasing interest towards these technologies.

Some organisations such as OCHA and the American Red Cross are a step ahead. They went through the process of figuring out the opportunities, the limitations and the drawbacks of such tools. Today they are ‘graduates’, as says one key informant, and they are in a position where they can appreciate the benefits of social networks. Other organisations are just starting to catch up with the technology.

There is no doubt that the new humanitarian actors will take up a more important role in future humanitarian response. More than ever, citizens from disaster-affected communities will be able to participate and have a voice in the provision of aid. Online volunteer communities will continue to grow to help organise and manage the humanitarian response.

Continual growths in technology will also characterise the future humanitarian landscape. It will become much easier for communities from all over the world to access the global communication networks. The Broadband Commission for Digital Development made the commitment to achieve universal access to broadband infrastructures by 2015 (ITU, 2012). More recently, founder and CEO of Facebook Mark Zuckerberg, announced the launch of a global partnership. The partners’ goal is to make Internet access available to the two-thirds of the world who are not yet connected (Internet.org, 2013).

Despite the positive experiences, the research found that there is still much scepticism and there are many concerns about the application of social networking communities for disaster management. Uncertainty about accuracy of user-generated content and level of trust towards the V&TCs are among the main factors obstructing the integration of social networks for disaster response. This reluctance to adopt the technology is often due to a lack of knowledge and understanding of social networking communities.

However, this barrier is shrinking gradually as social networking communities become more mature. Social networks are being integrated into disaster response strategies at various
scales. As the collaborations between V&TC groups and humanitarians become more common, the concerns will be mitigated.

Furthermore, it appears crucial to tackle the issue of demonstrating the impact of social networks on humanitarian response. As noted by the OCHA's publication ‘*Humanitarianism in the network age*’ (2013, p. 18), if the humanitarian sector is to adapt to the network age, it needs to better understand the implications of new actors such as the V&TCs, their interests and the factors driving their participation in relief efforts.

This study suggests that humanitarian organisations will require more robust demonstrated impact before they can fully trust social networks. It would be worth looking at this aspect in more detail. First, this can be achieved by developing new evaluation frameworks. The initiative of the Digital Humanitarian Network is a step in the right direction. Measuring the impact also would require detailed research at the field level. Potentially, this could be an area for future PhD research.

What will humanitarian operations will look like in 10, 15 years from now? No one has the answer to that question yet. The only evidence is that social networks are likely to grow and become more mainstream than ever in humanitarian response. These changes are happening and regardless of the drawbacks, the only way to go forward is to capitalise on their potentials. This is definitely an exciting time for the humanitarian sector.

### 4.3 Recommendations

The study proposes a set of five recommendations to take the new era of digital humanitarianism to the next level. These are:

1. **Familiarise humanitarian actors with social networking tools through simulations and testing in non-emergency situation**

   Considering the general lack of knowledge of humanitarian actors towards social networking communities, it appears essential that they become more familiar with these tools. Two informants suggested that if new tools are introduced in the day-to-day practice ahead of time, this will facilitate their integration during emergency response. Thus, humanitarian organisations should seek to incorporate and beta-test various social networking approaches in their day-to-day activities.
Similarly, technical volunteers need to better familiarise themselves with requirements of humanitarian organisations. Basic training on humanitarian principles and requirements should be offered to volunteer groups.

Finally, it is recommended to organise various simulation exercises regrouping both humanitarian actors and technical volunteers. Such simulations would allow each group to understand the reality of each of their respective fields of expertise and benefit from future collaborations.

2. **Create partnerships between humanitarian organisations and V&TC groups beforehand**

Creating strong partnerships between formal humanitarian organisations and informal volunteer and technical communities was brought up many times by key informants as one of the solutions to mainstream social networks in disaster response.

It is essential that this engagement happen before a disaster. Early partnership can help establish the collaboration procedures, determine the type of information products needed and develop better tools.

These partnerships can be created through formal or informal meetings. For example, humanitarian actors should attend international conferences on crowd-sourcing and crisis mapping. In turn, online volunteers should be involved in various humanitarian gatherings.

Partnerships can also be formed on existing social media platforms – such as LinkedIn, Google+, Facebook, Twitter or Skype. This can be as informal interactions or online workshops.

3. **Strengthen verification procedures of crowd-sourced data**

Considering that authenticity of information is a key aspect of humanitarian organisations, there is a need for developing rigorous methods and processes to effectively validate and verify crowd-sourced data. These verification procedures must be in conformity with humanitarian operational models. Therefore, both groups must combine their efforts to design tools that meet specific humanitarian requirements. While some technology-driven groups have been proactive and
already started developing such tools, humanitarian actors must take a more active part into that effort. This can be achieved through working groups – online or in person – for example.

4. **Develop robust evidence-based research on the impact of social networks on humanitarian response after disaster**

The field of social networks in emergency response is still very new and many believe it lacks evidence-based research. As such, this study suggests that humanitarian organisations may require more robust demonstrated impact before they can fully trust the social networks.

For the humanitarian sector, it means developing better monitoring and evaluation frameworks specifically designed to effectively measure the impact of social networks on humanitarian relief efforts.

For online humanitarian communities, it entails finding ways to communicate and demonstrate how they are complementing existing humanitarian response structures. It means being better at showing stories of successes and failures and developing a strong history of credibility. This can be achieved by creating a common space where both humanitarian and online volunteers can share experiences. Independent evaluations of V&TC deployment are also suggested.

5. **Include communication technologies in humanitarian education and training curricula**

This research has highlighted that various forms of communication technologies and application of social networking were relatively unknown to many humanitarian practitioners. As technology becomes prominent in both humanitarian and development sectors, it appears essential to provide more appropriate training to current and future humanitarian actors. Thus, training curricula of education and formal training providers should include introductory sessions on various types of communication technologies\(^{36}\). This may help strengthen humanitarian actors’ perspectives towards technology generally and towards social networks especially. This could open the doors to greater innovation.

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\(^{36}\) This suggestion is also applicable to the development sector, which saw an increasing use of technologies in recent years.
APPENDICES
APPENDIX A – ETHICS FORM

Faculty Of Technology, Design & Environment, Oxford Brookes University
ARCHITECTURE / PLANNING / REAL ESTATE & CONSTRUCTION

RESEARCH ETHICS FORM E1BE FOR STUDENTS ON TAUGHT COURSES
Please read the Guidance Notes at www.brookes.ac.uk/res/ethics/forms

Section A - You & your project
What is your name?
First name   Surname
NADIA   BERGER

What is your student number?
12070313

What is your email address?
nadia.berger-2012@brookes.ac.uk

What is your supervisor’s name?
First name   Surname
DAVID   SANDERSON

What is your supervisor’s email address?
dsanderson@brookes.ac.uk

In which Department are you studying?
X Architecture  Planning  REC

What course are you taking?
Development and Emergency Practice

What is the topic area of your research?
The role of digital technology in humanitarian response

On what kinds of topics will you be collecting data from the participants in the research?
Agencies’ experiences and participants’ views about the use of digital technology.

Section B - Your participants
What kind of participants will be involved in your research? (Please tick one – if more than one, then complete a separate form)
X Professional/management group
Members of the general public
Vulnerable individuals

Briefly describe these participants
NGO staff, donors, academic/researchers, technology service providers

How many participants will be involved?
10-15 Number of people

How will the participants be selected?
Internet search, personal contact, snowball effect, selected according to their experience in using technology.

Section C - Your data collection
When is your data collection likely to start?
01072013

What will be your method of data collection?
X In-depth interviews  X Telephone
X Face-to-face surveys  X Email
Direct observation  Post
Other, please specify

What kind of data will you be collecting?
X Quantitative/statistical/numerical
X Qualitative/written/text
Images/drawings/maps

Will it be possible to avoid asking for personal data from the participants?
Yes  No

Will it be possible to ensure the participants are not being deceived in any way?
Yes  No

Will it be possible to ensure the participants remain completely anonymous?
Yes  No

Will it be possible to ensure the participants do not suffer any negative consequences?
Yes  No

Section D - Declaration
I declare that I will
- give all participants an information sheet conforming to university guidelines
- not contact any participant until my supervisor has approved my information sheet, research questions and methodology
- be sufficiently well-trained in necessary methods of data collection and analysis

Student signature
[Signature]
Date  2-05-20

Supervisor signature
[Signature]
Date

Module Leader signature
[Signature]
Date  3-05-10

You may only start fieldwork when this form has been signed by your supervisor & your Module Leader
APPENDIX B – INFORMATION SHEET

Research Study Information Sheet
Oxford Brookes University

Researcher: Nadia Berger
Course: Masters in Development and Emergency Practice

Study working title
Digital Humanitarianism: How do social networking communities contribute to humanitarian response after disaster?

Invitation
You have accepted an invite to take part in a research study. Before we begin, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

What is the purpose of the study?
To examine how various forms of communication technologies and in particular social networks – including social media, crowd-sourcing, crisis mapping platforms and online humanitarian volunteer networks – contribute to a better humanitarian response after disaster.

Why have I been invited to participate?
You were asked to participate in this research because of your experience in disaster response or with social networks.

Do I have to take part?
Thank you for agreeing to take part in this study. You are still free to withdraw your participation at any time without giving a reason.

What will happen to me if I take part?
The interview will be conducted by Skype, or face-to-face when possible, using a pre-determined list of questions. The interview will take between 40-60 minutes. The information discussed is not anticipated to be of a sensitive nature.

Will what I say in this study be kept confidential?
All information collected will be kept strictly confidential (subject to legal limitations). Confidentiality, privacy and anonymity will be ensured in the collection, storage and publication of research material, unless otherwise specified. You will also be asked to sign a consent form attached to this email, in which you can specify whether you want to be identified or not. Data generated by the study must be retained in accordance with the University’s policy on Academic Integrity and kept securely in paper or electronic form for a period of ten years after the completion of a research project.

What will happen to the results of the research study?
The research will be submitted to Oxford Brookes University and graded as part of a requirement for completion of a Masters’ degree in Development and Emergency Practice. Interviewees may have access to the final product. Please indicate if you want a copy of the final product during the interview or through email.

Who is organising and funding the research?
I am conducting this research as a student of Oxford Brookes University. No funding has been provided.

Who has reviewed the study?
The research project has been approved by the University Research Ethics Committee, Oxford Brookes University and is supervised by Prof. David Sanderson, Director of Centre for Development and Emergency Practice at Oxford Brookes University.

Contact for Further Information
Please feel free to contact me at nadia.berger-2012@brookes.ac.uk for further information. If you have any concerns about the way in which the study has been conducted, please contact the Chair of the University Research Ethics Committee on ethics@brookes.ac.uk.

Thank you for taking the time to read the information sheet. 

Date
25 August 2013

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APPENDIX C – INTERVIEW GUIDELINE

Research Working Title: Digital Humanitarianism: How do social networking communities contribute to humanitarian response after disaster?

Researcher: 
Nadia Berger 
MA Development and Emergency Practice 
Oxford Brookes University (UK) 
nadia.berger-2012@brookes.ac.uk

KEY INFORMANT INTERVIEW GUIDE

Introduction
This research examines how various forms of communication technologies and in particular social networks contribute to a better humanitarian response after disaster. By social networks I refer to various means of collecting crowd-sourced information such as mobile phone, social media, open source tools, and the online humanitarian groups.

SOCIAL NETWORKS IN DISASTER
What is your experience (your organisation’s experience) in using social networks during disaster?
  a) What type of social networks (Facebook, Twitter, V&TCs, crisis mappers, crowd-sourcing, etc) have you used; for which purpose?
  a) How would you characterise your success in using social networks in disaster?
  a) Have you conducted any evaluation of your experience? What are the results?

THE PROMISE OF SOCIAL NETWORKS (opportunities and value)
How do you perceive the role of social networks in disaster relief operations?
  a) What is the place of social networking communities/online humanitarian volunteers within the humanitarian sector?
  b) What do you think is the added value of using social networks in disaster response?
  a) To what extend do you think social networks influence your decision-making process in disaster response?

CHALLENGES OF SOCIAL NETWORKS
What are the primary barriers to using social networks in large scale events?
  a) Do you think the level of trust towards social networks or the lack of knowledge about the possibilities of social networks are the main barriers?
  b) What is the capacity of your organisation to incorporate social media into large-scale disaster response?
  a) What type of policy does your organisation have regarding the use of social networks?

THE NEXT GENERATION OF HUMANITARIAN ACTION
How do you envision the role of social networks in the humanitarian sector?
  a) In which way would you say that social networks contribute to better humanitarian response?
  b) How do you think the online humanitarian volunteers can become more ingrained in emergency response?
  a) In which way do you think humanitarian organisations can make better use of the social network communities?
  a) What would be your recommendation regarding the use of social networks for future humanitarian response?
### List of Key Informants

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Interview Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almon, Gabriele</td>
<td>Expert in emergency management and innovation, INGO</td>
<td>16 July 2013</td>
</tr>
<tr>
<td>Belanger, Louis</td>
<td>Humanitarian Media Officer, INGO</td>
<td>5 July 2013</td>
</tr>
<tr>
<td>Cone, Jason</td>
<td>Director of Communications, INGO</td>
<td>8 July 2013</td>
</tr>
<tr>
<td>Kiruhura, Eric</td>
<td>Advisor, Humanitarian business systems, INGO</td>
<td>29 July 2013</td>
</tr>
<tr>
<td>Meier, Patrick</td>
<td>Leading expert in application of new technologies</td>
<td>15 July 2013</td>
</tr>
<tr>
<td>Purohit, Hemant</td>
<td>Crisis Response Researcher</td>
<td>30 July 2013</td>
</tr>
<tr>
<td>Roberson, Randy</td>
<td>Founder and Director, NGO</td>
<td>27 June 2013</td>
</tr>
<tr>
<td>Scriven, Kim</td>
<td>Manager, Funding coalition</td>
<td>8 July 2013</td>
</tr>
<tr>
<td>Thompson, Christine</td>
<td>Founder and President, V&amp;TC</td>
<td>26 August 2013</td>
</tr>
<tr>
<td>Verity, Andrej</td>
<td>Information Management Officer, UN Agency</td>
<td>31 July 2013</td>
</tr>
</tbody>
</table>
**APPENDIX E – A PERSONAL NOTE**

This research was an eye opener and has strengthened my passion for information management in disaster response. Furthermore, it was an opportunity to develop my skills in crowd-sourcing and crisis mapping. During this research I signed up with Humanity Road, a volunteer and technical community.

Shortly after receiving my initial training in September, I had the opportunity to experience monitoring of social media during an emergency situation. On 12 September 2013, I was part of a team of volunteers monitoring the flooding in Boulder County, Colorado. In a common effort, we helped in emphasising the warning and awareness messages by re-tweeting information published by local authorities. We also created a situation report regrouping all essential information.\(^{37}\) These efforts were concentrated during the first 24 hours of the disaster.

In addition, I was assigned a task following a request from the relatives of a missing couple in the Uttarakhand State of India. The man and woman were among a group of pilgrims trapped by the flooding in the area. Their relatives were desperate for any information that could help them reunite with their family members. In coordination with three other volunteers, we searched the Internet for any pieces of information that could help determine whether the missing people had been rescued.

Both of these first-hand experience were very challenging but also very stimulating. In the first case, I felt that I was part of a common effort to saving lives. In the second case, although our research was unsuccessful – at the time of publishing – knowing that potentially my efforts could bring hope and healing to these relatives was extremely rewarding.

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\(^{37}\) An example of the situation report can be found at [http://www.humanityroad.org/situation-report/coflood-sep2013](http://www.humanityroad.org/situation-report/coflood-sep2013)
APPENDIX F – FURTHER READING

The section provides some additional web sources about the application of social networks for emergency management.

News and stories
Humanity Road Daily News – http://paper.li/HumanityRoad/1360784411
SMEM Daily for VOST – http://paper.li/kc5fm/1297432802

Blogs
iDisaster 2.0 – http://idisaster.wordpress.com
iRevolution – http://irevolution.net
Tech4Relief – http://www.tech4relief.com
Verity-Think – http://blog.veritythink.com

Monitoring disaster on Twitter – Who to follow?
Crisismappers – @CrisisMappers
Disaster Center – @Disaster_Center
FEMA – @fema
 Humanity road – @HumanityRoad

Popular hashtags
#HINA
#hmrd
#SMEM
#digihums

Volunteer and Technical Communities
Crisis Mappers – http://crisismappers.net
Data Kind – http://www.datakind.org
Digital Humanitarian Network – http://digitalhumanitarians.com
Esri GIS – http://www.esri.com
Geek Without Bounds – http://gwob.org
GISCorps – http://www.giscorps.org
Humanitarian OpenStreetMap Team – http://hot.openstreetmap.org
Humanity Road – http://www.humanityroad.org/Home.htm
MacAction – http://www.mapaction.org
Standby Task Force – http://blog.standbytaskforce.com
Translators Without Borders – http://translatorswithoutborders.org

About the concept of crowd-sourcing
BIBLIOGRAPHY


