

PUBLISHED VERSION

Social networking, social media and complex emergencies: issues paper

Australian Government

Andrew Skuse and Tait Brimacombe

The paper is published under a Creative Commons license – see <http://creativecommons.org.au/learnmore/licences/version3>. All parts of the publication may be reproduced, stored in retrieval systems, and transmitted by any means without the written permission of the publisher.

PERMISSIONS

As per published manuscript:

The paper is published under a Creative Commons license – see <http://creativecommons.org.au/learnmore/licences/version3>. All parts of the publication may be reproduced, stored in retrieval systems, and transmitted by any means without the written permission of the publisher.

10/08/2015

<http://hdl.handle.net/2440/90950>



Australian Government
Australian Civil-Military Centre



THE UNIVERSITY
of ADELAIDE



Social Networking, Social Media and Complex Emergencies:

Issues Paper

The background features several overlapping, solid blue geometric shapes. On the left, there is a vertical rectangular block. To its right, a larger, more complex shape extends across the top and middle of the page, resembling a stylized speech bubble or a large letter 'L' with a pointed bottom-right corner. The shapes are layered, with some appearing to be in front of others.

Social Networking, Social Media
and Complex Emergencies:

Issues Paper

Contents

The Communication and Complex Emergencies Project	2
1. Social networking and social media: why do they matter?	4
Case study 1: Syria Deeply	13
Case study 2: Monitoring dangerous speech	15
Case study 3: Social platforms and the Mumbai bombing	16
2. Social networking and social media for action	18
Case study 4: Monitoring the Egyptian transition	27
Case study 5: Uchaguzi and the Kenyan elections	28
Case study 6: DadaabNET high-speed network	30
Case study 7: The Standby Task Force and the Libya Crisis Map	31
3. Humanitarian assistance, social networks and social media	34
Case study 8: The Pakistan floods and CrisisCommons	43
Case study 9: Google Crisis Response tools	44
Case study 10: Information management wikis	45
Case study 11: Ushahidi and the Haiti earthquake	46
Conclusion	49
Appendix A: Crisis mapping and crowdsourcing social networks	51
Appendix B: Crisis mapping and crowdsourcing software resources	54
References	56



The Communication and Complex Emergencies Project

The Communication and Complex Emergencies Project is a collaboration between the University of Adelaide's Applied Communication Collaborative Research Unit (ACCRU) and the Australian Civil-Military Centre (ACMC). The project's main objectives are to highlight the role of communication – including new and social media – in complex emergencies and in support of humanitarian assistance.

The work focuses on 'what we know', mapping out a broad array of knowledge while examining the functions, strengths and limitations of various forms of media, from social networking and social media to radio, television, print and video. The project has resulted in several outputs that are designed to support each other:

- › a social networking and social media annotated bibliography
- › a social networking and social media issues paper
- › a communication and complex emergencies handbook.

These resources are available at the ACMC and ACCRU websites.

The Australian Civil-Military Centre

The Australian Civil-Military Centre (ACMC) (formerly the Asia Pacific Civil-Military Centre of Excellence) was established in November 2008 in recognition of the growing importance of civil-military interaction. It is evidence of Australia's commitment to peace and prosperity in the Asia-Pacific region and beyond.

The ACMC's mission is to support the development of national civil-military capabilities to prevent, prepare for and respond more effectively to conflicts and disasters overseas. At its core is a multi-agency approach, and it has staff from a number of Australian Government departments and agencies, the New Zealand Government and the non-government sector.

Applying this collaborative approach to working with various organisations, the United Nations and other relevant stakeholders, the ACMC aims to improve civil-military education and training and develop civil-military doctrine and guiding principles.

Through its research program, the ACMC seeks to identify best-practice responses to lessons learned (important for developing doctrine and facilitating training programs) and so contribute directly to

the Australian Government's ability to develop a more effective civil-military capacity for conflict prevention and disaster management overseas.

For more information contact:

research@acmc.gov.au

Web: <http://www.acmc.gov.au>

The Applied Communication Collaborative Research Unit

The Applied Communication Collaborative Research Unit (ACCRU) is dedicated to understanding and promoting the role of information, communication and new communication technologies in processes of development and change. It draws together a group of internationally regarded specialists and emerging researchers in a consortium dedicated to supporting the program, evaluation and research needs of a variety of organisations that have a role in promoting communication interventions across a wide range of development themes and country contexts.

For more information contact:

andrew.skuse@adelaide.edu.au

Web: <http://www.adelaide.edu.au/accru>

The Authors

This paper was written by Andrew Skuse and Tait Brimacombe of the Applied Communication Collaborative Research Unit at the University of Adelaide.

Acknowledgements

The authors acknowledge Kelisiana Thynne of the Australian Civil-Military Centre; she provided research support, critical feedback and additional

resources. Bonita Maywald (ACMC) initiated the project, while Karene Melloul (ACMC) provided additional material on social networking and media, as well as advice on the scope of new media interventions in humanitarian assistance.

The focus and findings of the paper were refined as a result of a workshop held in Canberra on 2 July 2013. Here, a number of people made valuable contributions – Tony Aldred (Australian Defence Force), Olivia Cribb (ACMC), Stephen Collins (Acidlabs), Sanchi Davis (Department of Foreign Affairs and Trade), Peter Donaldson (ADF), Elaine Elemani (ACMC), Mary French (DFAT), Daniel Gleeson (Attorney-General's Department), Erica Hanisch (Australian Federal Police), Amra Lee (World Vision), Shannon Mathias (ACMC), Phil Pyke (ADF) and Jeff Squire (ADF).

At the University of Adelaide, Simon Ladd was instrumental in developing the initial collaboration between the Applied Communication Collaborative Research Unit and the Australian Civil-Military Centre.

Disclaimer

The views expressed in this paper are those of the authors and do not necessarily reflect the official position of the Australian Civil-Military Centre or the Government of Australia.

The paper is published under a Creative Commons license – see <http://creativecommons.org.au/learn-more/licences/version3>. All parts of the publication may be reproduced, stored in retrieval systems, and transmitted by any means without the written permission of the publisher.

ISBN: 978-1-921933-04-2

Published June 2014

1. Social networking and social media: why do they matter?

Social networking and social media are playing an increasingly important role in responses to complex emergencies and natural disasters. The recent 'Arab Spring' uprisings in North Africa and the Middle East have highlighted aspects of citizen-led networking and communication that have captured the world's attention. Equally, responses to natural disasters such as the 2010 Haiti earthquake reveal how social networking and social media have become central to the provision of humanitarian assistance.

More people are now connected to internet-capable devices than ever before. The ability to communicate, share content and exchange ideas and opinions has never been greater. Access to new and highly mobile information communication technologies extends across both the developed and developing world. The future of communication is literally in the hands of ICT users.

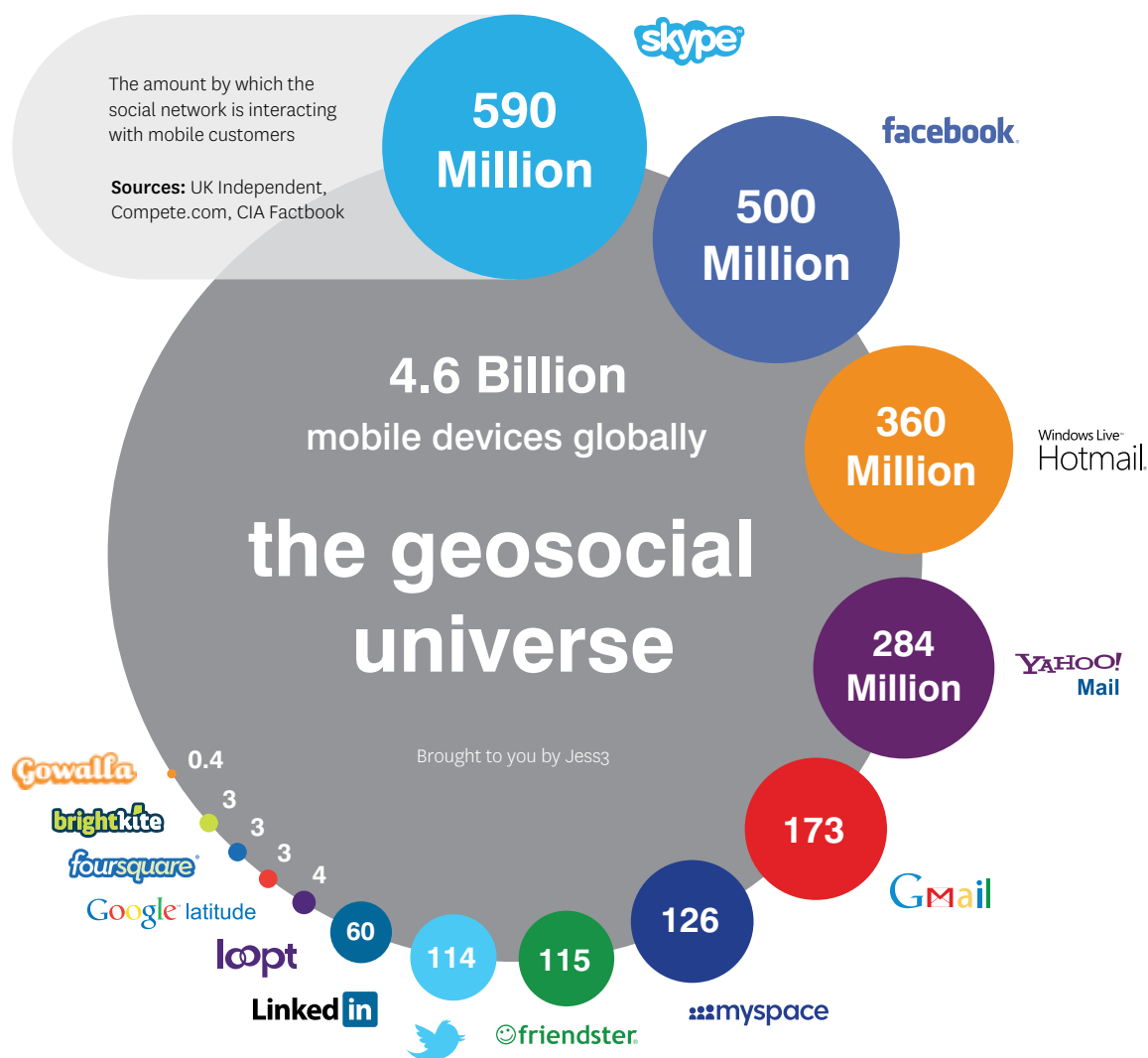
It is undeniable that social networking and social media are radically altering the scope of communication possibilities. In examining this scope, this paper looks at the various functions, strengths and weaknesses of social networking and social

media during periods of crisis. It takes a broad approach, examining citizens' use of social networks and media as well as use by humanitarian agencies and volunteer communities.

What is social networking?

At its simplest, 'social networking' means people communicating with each other. Social networks come in all shapes and forms, from face-to-face networks to those that are mediated by information communication technologies. When thinking about social networking, it is important to remain aware that electronic networks support face-to-face communication and vice versa. In this respect, what happens 'online' is connected in very real ways to what happens 'offline'. For example, witnessing a human rights abuse, filming it on a mobile phone, and posting that video to YouTube to reach a wider audience constitutes a communication interaction that is inherently complex but also fundamentally different from past communication capabilities and possibilities.

Figure 1: Social media users and the mobile world, 2011



Social networking draws on Web 2.0 technology, which has helped the internet develop from a largely static information source into a highly democratic, participatory and collaborative space that promotes connection, creativity, dialogue and sharing through a variety of user-friendly platforms and tools (Allan & Brown 2010). These platforms and tools allow interest groups, commercial

companies, governments, and families and friends to communicate with each other in 'real time', often on a huge scale. The growth in the number of Facebook users in recent years has led many commentators to note that, if its community of users formed a nation, Facebook would be the third-largest nation in the world (see Figure 1).¹

¹ Facebook now claims 1 billion users.

Globally, a wide range of users generate social media content, on every topic imaginable and on a huge scale. For example, over 4 billion hours of video are viewed each month on YouTube, and 72 hours of video are uploaded every minute, much of the material coming from non-Western countries.² Although a great deal of this content is entertainment- or advertising-based, much of it targets specific interest groups and promotes social causes or advocates social action.

Social networking has led to the creation of ranks of citizen journalists and volunteer communities who create social media for various purposes – demonstrating, advocating, observing, monitoring, building communities of interest, making connections, stimulating dialogue, and so on. While they are an increasingly important tool for individual and community empowerment, social media have also become crucial to the humanitarian response to complex emergencies and natural disasters. Social networks and media are an information resource that is now being tapped for guidance on context and for information about where to target the delivery of aid and the effectiveness of that delivery.

How global are social media?

Despite the enormous scale of social networking and social media use globally, commentators have expressed concern about how relevant the new media are to developing countries or to vulnerable people (Torero & Von Braun 2005). Levels of internet access and social media use in many places might be relatively modest by Western standards, but they are growing rapidly (Paquette & Yates 2011). In addition, social networking and social media use during

complex emergencies has a powerful influence because social media are typically perceived to be more trustworthy than traditional media, which are often state controlled. During natural disasters social media have been shown to play a highly strategic and valued role in acting as a vital link between affected populations, volunteer networks and those delivering on-the-ground humanitarian assistance.

The growing relevance of social media can be demonstrated by an examination of information and communication technology access – which facilitates social networking and the use of social media – in Egypt. Between 2009 and 2011 internet access increased from 24.3 to 35.7 per cent of the population; between 2006 and 2011 the extent of fixed and mobile phone penetration rose from 24 to 99 per cent, which means this particular technology is now universally accessible.

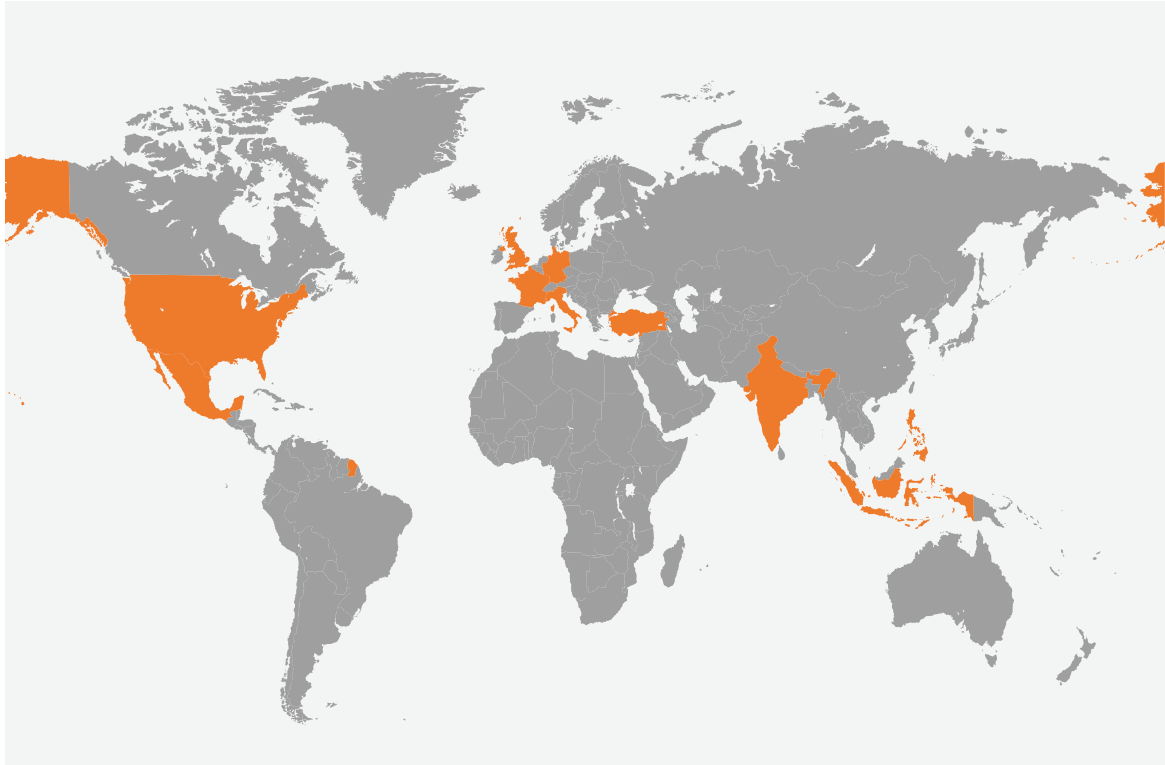
Social media use in Egypt is also growing rapidly, largely in response to the political crisis. In 2009 only 7 per cent of Egyptians were Facebook users; by 2011 this figure had reached 13.4 per cent.³ Although this level of penetration is relatively modest in comparison with the figures for television and radio access, the user-generated content that is shared through social networking platforms has influence in terms of stimulating political participation and a diversity of voices and in promoting accountability and transparency (Comminos 2011).

Importantly, we need to recognise that social networking and social media are not a panacea for the problem of communicating with communities affected by conflict or natural disasters. Rather, the relevance of such communication channels needs to be demonstrated in terms of access to the technology, the number of users and the

2 <http://www.youtube.com/yt/press/statistics.html>

3 <http://www.freedomhouse.org/report/freedom-net/2012/egypt>

Figure 3: Global Facebook traffic hotspots



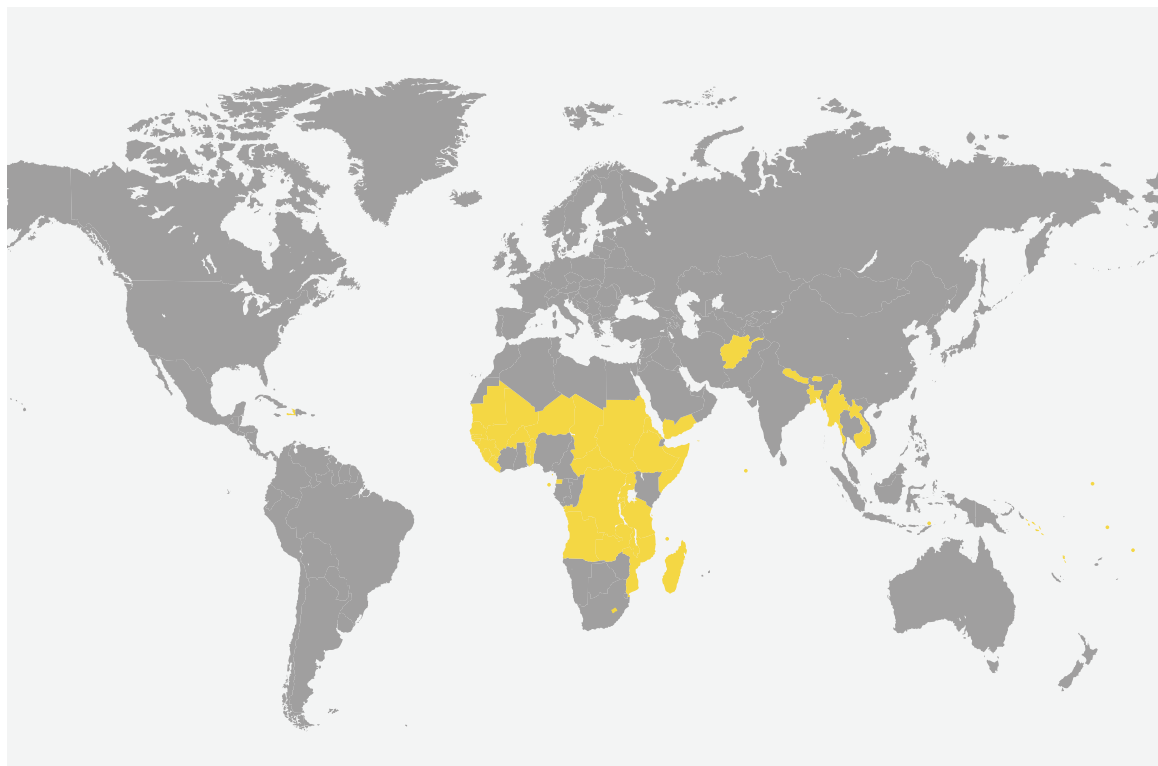
technology's reliability during periods of social dislocation. These channels can play an important role but not an exclusive one. This is because social networking and social media sit alongside more traditional and often more popular modes of communication such as radio, television and word of mouth. For humanitarian agencies, understanding what social networking and social media can do and what they cannot in a given context is essential.

Many of the circumstances from which data on social networking, social media and complex emergencies are drawn reflect relatively advanced economies or high levels of access to information and communication technology, or both. Comparing Egypt, Haiti and the Solomon Islands brings concerns about the digital divide into sharp relief. Egypt has a Human Development Index ranking of 112, and its fixed and mobile telephone subscription rate per 100 people stands at 99 per cent (saturation levels

of ownership or access). Haiti has a low Human Development Index of 161 but a relatively high telephone subscription rate, at 40.5 per cent; whereas the Solomon Islands has a higher index of 143, but low access to telecommunications, at only 7.1 per cent.

In places such as the Solomon Islands, and in many of the least developed countries, technological change is occurring and is typically prompted by private sector companies. Nonetheless, it is crucial that any humanitarian communication response reflects 'on-the-ground' realities in terms of communications infrastructure, public access and use, and that it works through multiple communication channels. It is safe to say, though, that social networking and social media use will grow exponentially in the least developed countries as access to mobile telecommunications and the internet increases.

Figure 4: The world's least developed countries



Thus, although access to new information and communication technology and social media is growing around the world, use of these technologies is not yet ubiquitous, especially among the least developed countries. Figures 3 and 4 highlight Facebook traffic and the world's least developed countries. They show that while Facebook use is concentrated in developed countries, significant use is emerging in the developing world, notably on the Indian subcontinent and Southeast Asia. The darkest social media contexts continue to be found in the least developed world.⁴

Complex emergencies and natural disasters defined

Complex emergencies often arise as a result of intrastate and interstate conflicts. Such conflicts can cause high levels of social dislocation and disruption and place pressure on already weak government structures and services. Complex emergencies can necessitate the provision of humanitarian assistance to help deal with population displacements and the food and health crises that typically accompany them (ACMC & ACFID 2012). In emergencies brought about by conflict the vulnerability of affected populations can be exacerbated by the breakdown of law and order, which places additional pressure

4 While Facebook is globally popular, China and Russia do not feature in Figure 3 because within those countries there is a preference for alternative social networking platforms, Q Zone and V Kontakte respectively.

on humanitarian assistance efforts. A central focus of the response to complex emergencies concerns reducing conflict and violence and paving the way for peace. This can be achieved through UN-mandated stabilisation interventions and an associated focus on state building, better governance and adherence to the rule of law.

Like complex emergencies, natural disasters can result in severe social dislocation and disruption that warrants an international response. Natural disasters span events such as hurricanes, typhoons, earthquakes, tsunamis and droughts. Preparedness is crucial to mitigating and offsetting the impacts of such disasters, while health, welfare, infrastructure, the food and medicine supply chain, and relative tracing come to the fore during and immediately following disasters. In the post-disaster period the focus of support might move to reconstruction and redevelopment to help redress the economic impacts of the disaster. Recent natural disasters such as the Haiti earthquake and the Indian Ocean tsunami have resulted in major international responses in which communication and, increasingly, social networking and social media have played a vital role.

Information and communication during a crisis

In complex emergencies and natural disasters information and communication in the broadest sense have a fundamental role. From data collection and the design and targeting of assistance to the specific communication initiatives that are pursued, responses to complex emergencies and natural disasters must negotiate complex communication and information environments if they are to be successful.

In such contexts competing groups with radically different mandates can contest the space in which communication occurs. Governments and opposition groups, in addition to humanitarian agencies, operate within this space and engage in widely varying communication activity. Much of this activity is overtly positive, such as providing essential information in pursuit of social protection, but some can be overtly negative, such as 'hate' broadcasting designed to incite violence (Sigal 2009). Like other forms of media, social networking and social media can be both positive and negative.

It is often difficult to separate out the role and influence of social networking and social media from those of other channels of communication because the modes of communication have to a large extent converged. Digital and mobile technologies such as computers and mobile phones have allowed audio, video and text to be more widely disseminated than ever before. Mainstream media organisations now 'push' content to users, while users generate their own content (often with mobile phones), which is often picked up by the mainstream organisations. Humanitarian agencies are increasingly aware of the inherently dynamic relationship between mainstream and social media.

Finally, under existing UN protocol, information has traditionally flowed through humanitarian clusters at various levels (a combination of UN and non-government agencies) charged with coordinating humanitarian affairs; managing, processing and analysing information; briefing decision makers at meetings; and providing information through situation reports. Increasingly, two new information 'inflows' are being added to this system – from volunteers and the technical community and from affected communities. Securing this system's ability to cope with these new inflows can be seen as one of the humanitarian community's foremost information challenges.

Use of social networking and social media in providing humanitarian assistance

In the communication and information response to complex emergencies and natural disasters three broad strategies are typically adopted (Sigal 2009):

- › strategies for limiting the dissemination of undesirable information – for example, strategies with a focus on countering inaccurate information or messages. Often the undesirable information encourages hate, violence, rumour and misinformation
- › strategies for expanding on positive information – for example, initiatives that support dialogue for conflict reduction and peace efforts, as well as the provision of information on physical aid delivery, shelter, hygiene, sanitation and health promotion
- › strategies designed to work with local (and increasingly international) media and communication stakeholders to strengthen legislation and regulation and build the technical capacity to facilitate the communication of accurate, impartial information. Such strategies are often referred to as ‘media strengthening’ and are used in situations where there is potential for conflict or in a post-conflict situation.

The focus of this paper cuts, to varying degrees, across all three of these important areas of communication, so our thematic scope is broader than that of recent papers covering similar ground (United Nations Foundation 2011; UNOCHA 2013). First, we discuss citizen aspects of social networking and social media, and their potential to link diverse audiences and facilitate the sharing of unique user-generated content. Second, we examine social networking and social media as practical tools with specific functions that support the delivery of humanitarian assistance. Within these two main

areas of inquiry we also discuss aspects of capacity, policy and quality.

In focusing on the functions and applications of social networking and social media, the paper identifies the following:

- › Social networking platforms and the social media they promote offer an important mechanism for political participation, for freedom of expression and for social action (Lim 2012).
- › Social networking and social media can have an important role in ‘witnessing’ and communicating human rights abuses to a wider public. Citizen journalists are turning to social networking platforms to disseminate user-generated content that might otherwise not be read, heard or seen (Comminos 2011).
- › Social networking and social media are used to communicate information about reconstruction and post-conflict development and change (Borges & Vivacqua 2012).
- › Social networking and social media are being used to monitor processes such as elections and the delivery of humanitarian assistance. They offer the ability to collect information quickly and in real time.
- › Social networking and social media are increasingly being used to target specific groups and the wider public to deliver messages about conflict prevention and reduction, disarmament, peace building and reconciliation.
- › Social networking and social media can have an important role in information management and the collective generation of knowledge at an organisational level – that is, through collaborative tools such as wikis.

- Social networking and social media can help humanitarian agencies carry out rapid crisis mapping for disaster preparedness, response and targeting through the gathering, organising, analysis and presentation of data (Cameron et al. 2012).

Although the application of social networking and social media in complex emergencies and natural disasters has great potential, many humanitarian agencies are still grappling with what such technologies can do for them and how they can be integrated into their response efforts (Aday et al. 2010).

Aims and approach

With this in mind, the main aim of this paper is to consolidate our understanding of the practical role fulfilled by social networking and social media in complex emergencies and natural disasters. In doing so, we identify a set of important aspects of practice for further consideration. These are demonstrated through a number of case studies. Additional references and audiovisual resources are listed at the end of each section for readers seeking more information.

This paper is supported by a companion publication – Skuse, A & Brimacombe, T (2013) *Social Networking, Social Media and Complex Emergencies: an annotated bibliography* – which provides detailed summaries of a range of sources relevant to social networking and social media in the context of complex emergencies and natural disasters.

In the first instance, this paper is aimed at Australian government agencies with a stake in the delivery of humanitarian assistance, among them the Department of Foreign Affairs and Trade and its aid program, the Department of Defence and the Australian Defence Force, the Attorney-General's

Department, Emergency Management Australia, the Australian Federal Police, and the Australian Civilian Corps. The paper is also of relevance to bilateral, multilateral, non-government and civil society organisations delivering humanitarian assistance at the national, regional and international levels.

Want to know more?

Social Networking in Plain English, Common Craft

http://www.youtube.com/watch?v=6a_KF7TYKvc

Social Media in Plain English, Common Craft

<http://www.youtube.com/watch?v=MpIOClX1jPE>

Twitter in Plain English, Common Craft

<http://www.youtube.com/watch?v=ddOgidmaxoo>

Blogs in Plain English, Common Craft

<http://www.youtube.com/watch?v=NN2I1pWXjXI>

Wikis in Plain English, Common Craft

<http://www.youtube.com/watch?v=-dnLooTdmLY>

The Machine is Us/ing Us (Web 2.0), M Wesch

http://www.youtube.com/watch?v=NLIgopyXT_g

A Day in the Life of Social Media, DBAworldwide

<http://www.youtube.com/watch?v=iReY3WgZkLU>

The World of Social Media 2011, Fact Spy

http://www.youtube.com/watch?v=KU_GW_MD4hA

The Social Media Revolution 2012–13, P Roussakis

<http://www.youtube.com/watch?v=oeUeL3n7fDs>

Case study 1: Syria Deeply

Syria Deeply emerged in late 2012 as a response to the fragmented and limited mainstream media coverage of the Syrian conflict. The site was conceptualised by a Middle Eastern reporter, Lara Setrakian, who had become frustrated with the impractical, disjointed way in which audiences could obtain information about the unfolding crisis. An independent digital media project, Syria Deeply presents a new model of storytelling and information dissemination. It is designed to provide a comprehensive description of the Syrian conflict from a variety of angles and acts as a continuous and consistent means of covering a chaotic conflict.

Activities

The Syria Deeply site provides a map with statistics, a description of all the players, a schematic of the major allegiances, and eyewitness accounts from the country. The site also contains daily written and audio sound bites presented through the SoundCloud software (most commonly used for sharing user-generated audio content), alongside social media updates.

Syria Deeply works with analysts, journalists, activists and citizens, as well as using social media to monitor the conflict as it develops. It also generates original content, including raw interviews, social media round-ups and blog-style contributions.

About 75 per cent of the platform is automated through the collection of RSS feeds, statistics and background information; the remainder is original content. Background data are presented in an easily accessible manner: there is a refugee and fatality map, an interactive timeline, and a defection tracker showing the latest army and government officials to defect to the opposition. In order to protect its informants, Syria Deeply works with the Electronic Freedom Foundation to help safeguard those in the field, since state authorities often target them. The site also helps journalists to improve the accuracy of their reporting and provides a forum for journalists to share their material with the audience.

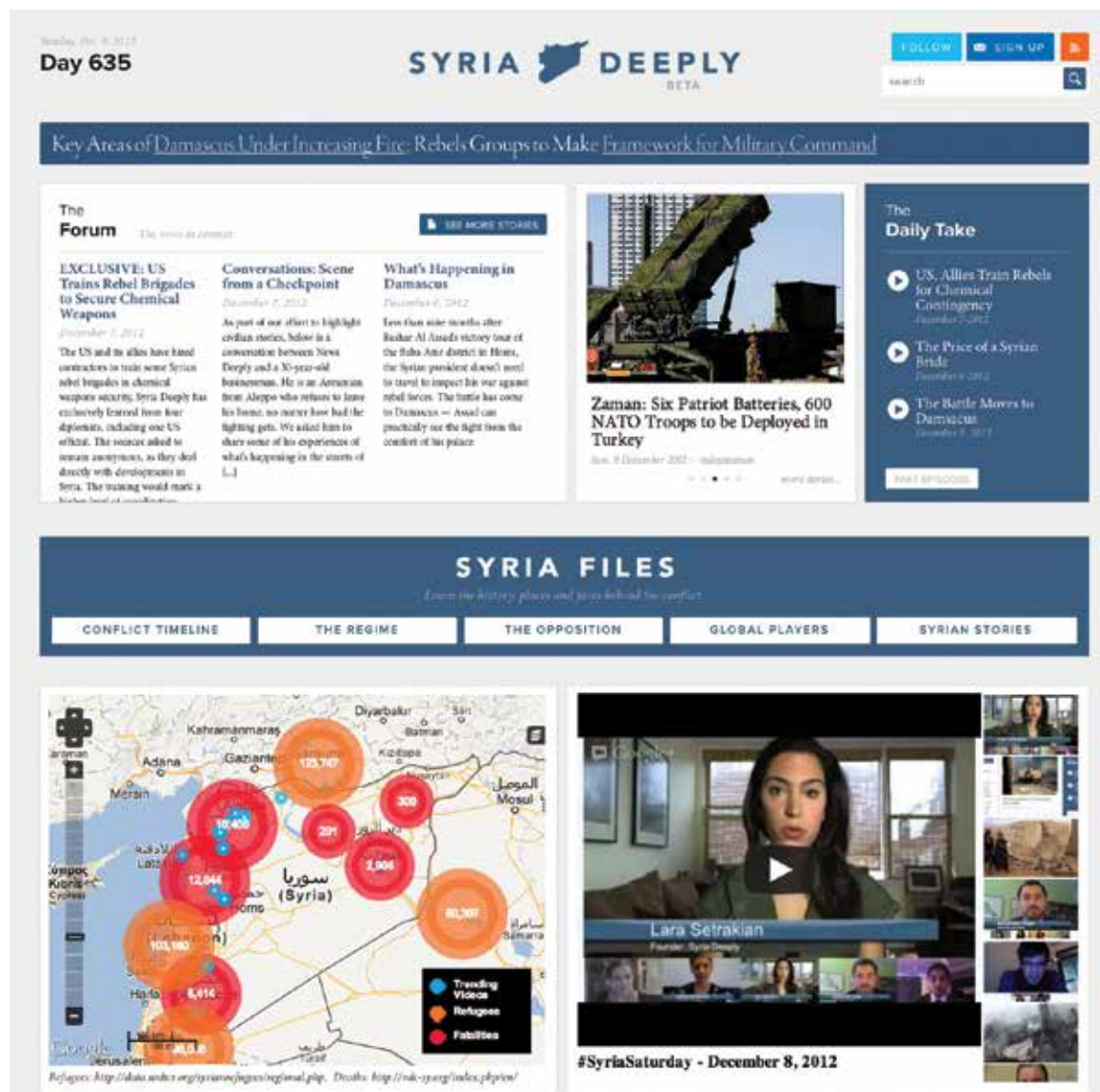
Outcomes

- Syria Deeply is a platform capable of replication for use in other conflicts and crises.
- It provides a continuous storyboard of news and events as they unfold.

Limitations

- Despite taking some precautions, platforms such as Syria Deeply will always have the challenge of protecting contributors to the site, particularly in view of the surveillance techniques used by authorities trying to identify activists and reporters.
- Verification is a challenge, particularly in relation to material obtained from social media.
- Reports from informants inside the country need to be carefully vetted for bias.

Figure 5: The Syria Deeply home page



Want to know more?

Syria Deeply website:

<http://beta.syriadeeply.org>

SoundCloud:

<http://soundcloud.com>

Sources

<http://www.fastcompany.com/3003585/syria-deeply-outsmarts-news-redefines-conflict-coverage>

<http://globalvoicesonline.org/author/syria-deeply>

<http://www.wamda.com/2012/12/syria-explained-syria-deeply-maps-conflict-in-context-with-new-media-tools>

Case study 2: Monitoring dangerous speech

SwiftRiver stems from the same company as the Ushahidi platform. SwiftRiver was a response to the need to understand and act on the massive wave of data gathered using new information and communication technologies during the first 24 hours of a crisis. As a result, the platform helps people make sense of a large volume of data in a short time by filtering and verifying data, gathering intelligence from the web (from blog posts), conducting analysis, developing insights, monitoring and adding context to content.

The first real test of the SwiftRiver platform came in the form of the UMATI project, which was prompted by the increasing incidence of hate speech in Kenya in recent years. The UMATI project was designed to feed data into the Uchaguzi platform, which was to be used to monitor and provide information about election polls. Using SwiftRiver to collect data streams from various online sources and aggregate them into a uniform platform, the UMATI project seeks to set a definition of hate or dangerous speech, forward instances of dangerous speech to the Uchaguzi platform, define a process for election monitoring that is capable of replication, and improve civic education about hate speech.

Activities

Since September 2012 the UMATI project has monitored user-generated online content and recorded instances of hate and dangerous speech. This is done by five monitors, who are charged with translating and categorising content into several predefined categories – offense speech, moderately dangerous speech, and extremely dangerous speech. Speech is analysed and categorised according to a number of the hallmarks of dangerous speech, among them comparing groups of people with animals or using other derogatory terms and suggesting that such groups face a threat of violence from another group.

Outcomes

- From 792 examples monitors were able to identify 226 instances of dangerous speech.
- Monitors were also able to identify important events in the physical world that increased the prevalence of hate speech in the online world.

Limitations

- The format of the software makes it difficult to monitor blogs that do not have RSS feeds.
- Difficulties integrating the SwiftRiver and Facebook platforms made it hard to monitor Facebook group comments.
- The reliability of Twitter feeds proved questionable.

Want to know more?

SwiftRiver website:

<http://swiftly.org>

Sources

<http://blog.ushahidi.com/2012/12/19/umati-monitoring-dangerous-speech-online>

http://research.ihub.co.ke/downloads/Umati_Report_Nov.pdf

Case study 3: Social platforms and the Mumbai bombing

On 14 July 2011 three bombs were detonated in separate locations in Mumbai. The blasts occurred in crowded commercial and tourist locations and coincided with millions of people returning from work, and the resultant chaos led to the clogging of roads and jamming of telephone lines. As a consequence many individuals turned to social networks as a form of communication, a call for help or a means of providing assistance. It was estimated that as many as 80 tweets were being sent or posted every five seconds during the crisis.

Activities

Shortly after the blasts a Google Documents spreadsheet named 'MumbaiHelp' was circulated. It contained over 430 registered entries with the addresses and phone numbers of people who had offered their house as a refuge. An IT engineer in New Delhi created the document after hundreds of individuals posted their details on Twitter, offering assistance. The spreadsheet was then disseminated through the Facebook and Twitter networks.

In addition to this, a software engineer used the Ushahidi platform to create a disaster-tracker map that allowed users to crowdsource crisis information from Twitter and other platforms. The map was generated from the Twitter hashtags #here2help, #needhelp and #MumbaiBlasts and mapped the locations of shelters and individuals in need of assistance. It also contained links to useful reports and alerts associated with traffic, the death toll, blood donors, hospital phone numbers, and so on. Twitter was used as a platform for pleas for blood donations to specific hospitals with low blood stocks or rising casualties, or both.

A social media curation tool, Storyful, was also used to generate a Mumbai terrorist attack page and integrated reports from Indian television stations, Google Maps and Twitter accounts. Storyful works by integrating still images, videos and social media into a single storyboard. The storyboard was able to gather reports from bystanders and eyewitnesses that journalists were unable to reach.

Additionally, a Wikipedia entry was created in relation to the blasts, offering a detailed account of the incident, references, links and quotes. The page also contained dubious information about the significance of the day on which the blasts occurred.

Bloggers and users of social media turned to social network channels to verify and eventually refute the accuracy of this information – but not before it had been re-posted and picked up by mainstream news channels.

Outcomes

- › Action in response to the Mumbai blasts demonstrated the potential for social media to be used as a tool for mobilising response efforts and obtaining eyewitness accounts.

Limitations

- › The accuracy and reliability of some of the user-generated content was questionable, and the risks associated with this are heightened when such information is re-posted or shared and then incorporated in mainstream news media reports.
- › Social media can be used to generate fear or provide a platform for hidden agendas, as shown by misinformation and derogatory statements posted and shared during the online response.
- › Social media can be used as a platform for spreading unsubstantiated rumours or wild inaccuracies – for example, exaggerated estimates of the Mumbai death toll.

Want to know more?

<http://www.contentious.com/2008/11/26/following-mumbai-attacks-via-social-media>

Storyful:

<http://storyful.com>

Sources

<http://www.economist.com/blogs/babbage/2011/07/online-crisis-management/print>

<http://www.fastcompany.com/1767033/social-media-rescue-mumbai>

<http://www.zdnet.com/blog/feeds/mumbai-attack-coverage-demonstrates-good-and-bad-maturation-point-of-social-media/339>

2. Social networking and social media for action

Recent events in some Arab nations have highlighted citizens' ability – using social networks and generating social media content – to contribute to dialogue, debate and social action at the local, national, regional and international levels. Increased access to information and increased communication are closely linked to freedom of expression, which in turn is strongly linked to democratic principles. Additionally, free and effective communications environments are associated with increased accountability and transparency, the upholding of human rights, and greater civic, political and economic participation and inclusion.

This section looks at how citizens are using social networks and social media, particularly during complex emergencies characterised by political unrest or conflict, or both. There is value in investigating citizens' use of these technologies because, being a trusted communications medium, social media have considerable influence, which can be positive or negative. If humanitarian agencies are serious about expanding the amount of information provided at times of crisis, they must take a serious look at how social networks and social media are used, what their limitations are, and what possibilities there are for working more closely with

citizens to promote conflict reduction, monitor violence and increase dialogue for peace.

Rights to communication and freedom of expression

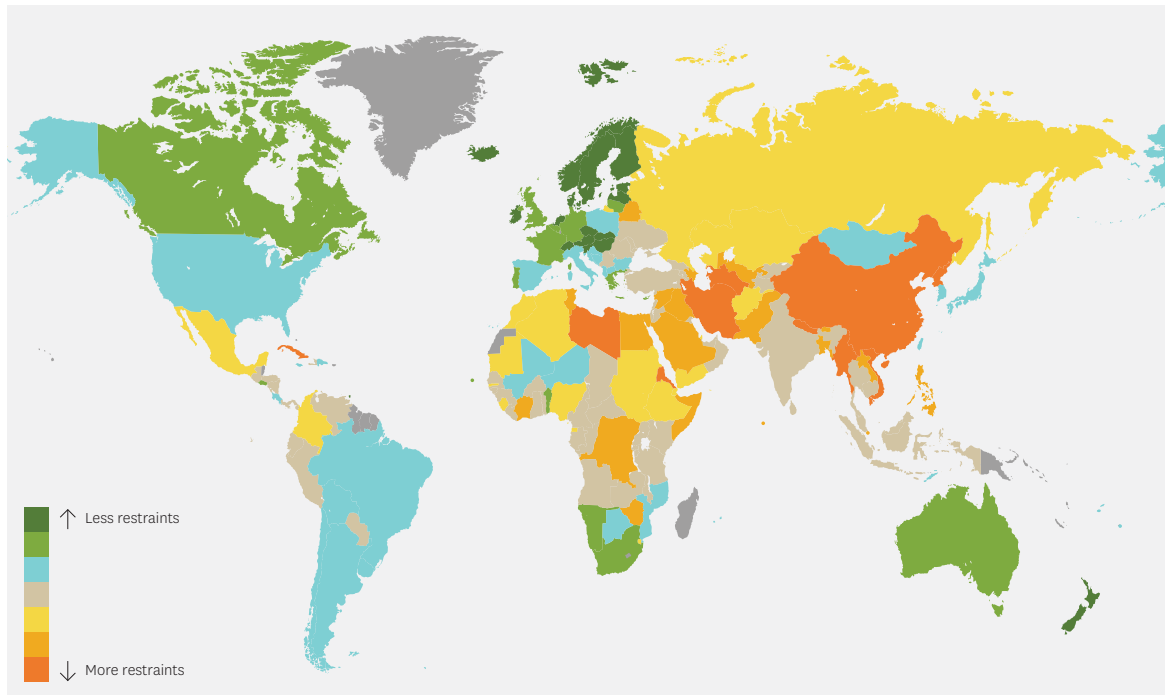
Rights to communication and freedom of expression are widely recognised as fundamental to effective public participation, better governance and greater accountability (ARTICLE 19 1999; UNICEF & UNAIDS 2002). Social media are playing an increasingly important role as a channel for freedom of expression, especially in circumstances where the media are heavily regulated, censored or overtly state controlled. Social media increase public participation and inclusion by stimulating dialogue and debate through the sharing of user-generated content that lies beyond the boundaries and strictures of formal media.

The fact that the community of users – as opposed to government – regulates social networking and social media makes the technologies an ideal channel for freedom of expression. This is especially the case during periods of conflict or political emergency: controls over the formal media often

tighten as emergency laws are passed in efforts to control opinion. During conflict and emergencies people hunger for information about what is happening, where to seek help and whether the situation is likely to affect them. In places where

the information and communication environment is heavily controlled people are increasingly turning to social media as channels for expressing a diversity of opinions and for promoting social action.

Figure 6: World press freedoms



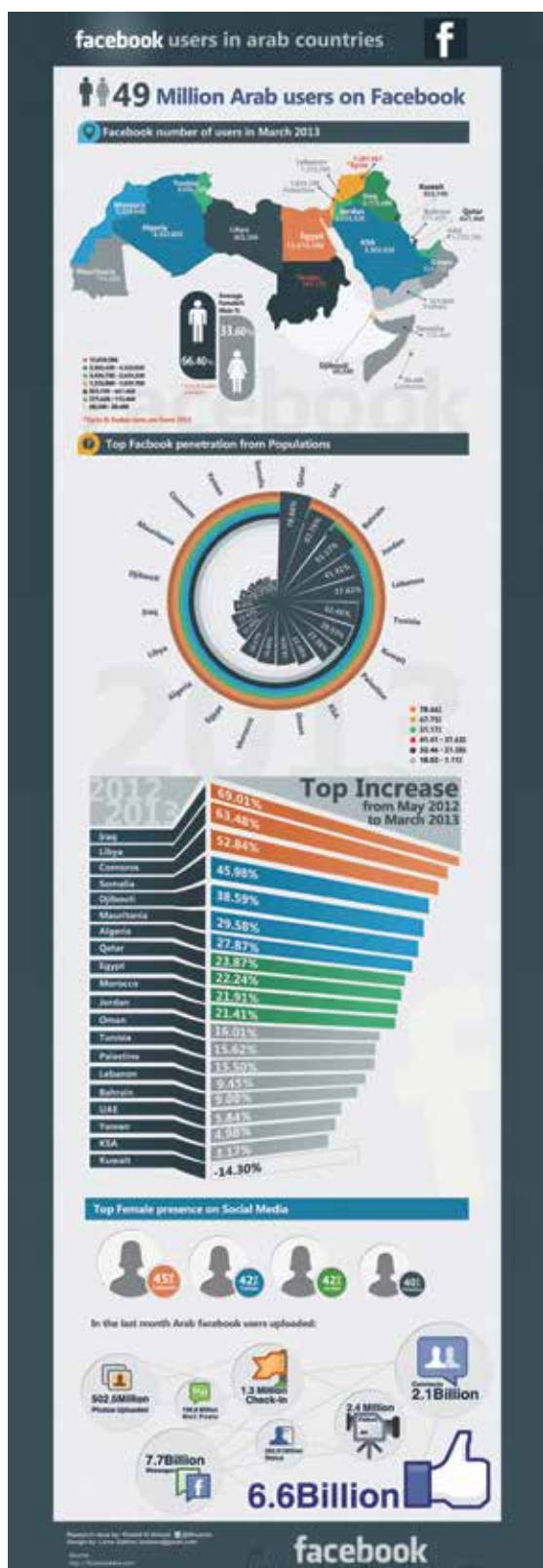
Social networking and social media for social action

Social networking and the use of social media during complex emergencies such as conflicts or periods of political unrest can play an important role in promoting social action; they can also act as relatively safe spaces in which citizens can voice concern, interact with others, and speak out against violence and abuses. For example, during the Egyptian political crisis ‘crowds’ have participated by expressing solidarity with various ‘causes’ through Twitter, Facebook, YouTube and a variety of blogs. In doing so they have helped to create important spaces for freedom of expression, deliberation

about democracy, and condemnation of human rights abuses (Iskander 2011; Khamis & Vaughn 2011; Lim 2012; Starbird & Palen 2012).

Social networking offers users the opportunity to share content that is unrestricted. In a recent study of blogging in Iraq, the entries were mainly found to be either journalistic (that is, they discussed matters and events that were beyond the direct experience of the blogger) or dealt with personal experiences (Al-Ani et al. 2010b). In this respect blogs function to create a safe space in which people can interact, generally free from the threat of physical violence. They also allow users to link to growing networks of like-minded people who are capable of empathising and offering support (Al-Ani et al. 2010a).

Figure 7: Facebook users in Arab nations



In Egypt the use of social networking platforms and the sharing of social media content have increased in response to the political crisis (see Figure 7). It is argued that people trust the words of those who have called for social action (Attia et al. 2011). This trust also served to reduce ambiguity and suspicion, and there was a sense of peer information being more credible than information provided by formal media channels (especially state media channels). Social networking in Egypt enabled strong relationships to be developed, was highly valued, and linked with and informed word of mouth, which served to increase the strength of social action. Because of this, social networking and social media content helped encourage the will to bring about change.

While facilitating a sense of connection and supporting social action in the broadest sense, social networking and social media also serve specific functions – especially those linked to the monitoring or witnessing of events. Often the events are violent and reveal human rights abuses. Social media have an important role in allowing people to speak out against the abuse of power, and people increasingly have the means to become citizen journalists through ownership of internet-capable mobile phones.

Citizen witnessing and journalism: a local–global dynamic

Social media are playing a leading role in bringing political change, human rights violations and humanitarian crises to the world’s attention (Comminos 2011). The ability to speak out against human rights violations is especially important in situations where the voice of the state dominates and independent media are restricted or censored.

Citizen journalists' use of mobile phones to capture footage of conflict or human rights abuses is now widespread in much of the developing world (Wall & Zahed 2011). Raw footage of high-profile events such as the conflict in Libya and street protests in Egypt is increasingly finding its way into the mainstream media, besides being shared widely through social networking sites.

The posting of videos on YouTube by activists from Syria has been crucial because of the lack of professional journalists as a result of reporting restrictions. This lack has created a role for citizen witnesses and journalists producing media content – often graphic video footage – for the national audience and the wider world through social networking platforms and mainstream global news media such as CNN, the BBC and Al-Jazeera. Many of the videos posted to YouTube contain graphic footage of state use of military force.⁵ It should be noted, however, that such footage is as prone to bias and misuse as the footage of traditional media.

Because of its graphic nature, citizen journalists' and witnesses' content can also run foul of social networking restrictions. A 'popular' (meaning much viewed) YouTube video showing the battered body of a Syrian boy allegedly killed by state forces was removed because it was deemed to violate YouTube's policy on content. The video was later restored after a prominent journalist lobbied in relation to its value, which YouTube acknowledged (Youmans & York 2012).

There is a dynamic relationship between social media and traditional national and global news media. Social media content is helping to reinvigorate mainstream media outlets and helping them attract an audience that was previously uninterested (Iskander 2011). There are now numerous examples of mainstream media supporting dedicated citizen journalism initiatives – for example, CNN's IBN Live network.⁶

Citizens have become an integral part of national and global news outputs, as both a source of informants and a provider of eyewitness reports. Such content is shared extensively on social networks and, in tandem with global news media, plays a central role in alerting the international community and national audiences to escalating conflict, violence and human rights abuses (Ghannam 2012). In this way social and global media can act as a countervailing force against the dominance and bias of state-run media (Shirky 2011).

Social media and risk

Social networks offer new mechanisms for collaborating, promoting social action and sharing important user-generated media content in the form of blogs, vlogs, tweets, video, audio and posts. There can, however, be concerns about the quality and reliability of user-generated content. In a conflict situation a large amount of social media content can be produced by a relatively small group of so-called power users, who communicate with a much bigger audience of passive users.

This wider audience offers support and shares the power users' content within their own networks (Wilson & Dunn 2011). The opinions of power users can, however, be biased, despite the fact that social media users who use and exchange the information feel it is more reliable than the output of conventional media.

The risks for power users who seek political dialogue or social action through social media can be significant and can be made greater by the policies of popular social media platforms. Nevertheless, they can be offset somewhat by raising awareness of the risks and through more cautious social media practice.

5 <http://www.change.org/en-AU/organisations/ibncj>

6 <http://cj.ibnlive.in.com/>

For example, the information and security policies of the companies behind popular social media platforms can inhibit citizens' participation and empower authoritarian states. Users' actions are both facilitated and constrained by policies that deal with intellectual property, anonymity, and offensive and violent content. Furthermore, most social media platforms are reliant on the community of users to police content, and sometimes this leads to battles to include or exclude certain content from popular social networking platforms (Wall & Zahed 2011).

The focus of social media companies is primarily on increasing the number of users, improving usability, boosting revenue, avoiding negative publicity, and entering new markets. These goals can conflict with the use of social media as tools for civic engagement and popular participation. Here, witnessing or monitoring, which might necessitate the posting of graphic content, can butt up against the commercial focus of some of the most popular social media platforms (Youmans & York 2012).

User anonymity is important if content is to be generated and disseminated without fear of recrimination. In crisis situations this is often achieved through the use of pseudonyms. At present Facebook prohibits anonymous users, but other sites such as Twitter do not. It is essential that creators of social media content are aware of the strengths and weaknesses of the various platforms. This is especially relevant in relation to the levels of protection and anonymity the platforms offer their users (Iskander 2011).

Social networking companies have ultimate control over content, and it is important that users take account of this by regularly backing up the content they post to ensure that it is not lost as a consequence of restrictions placed on it by the service provider or the community of users (Comminos 2011).

Offsetting risk is vital for social media users, who can be vulnerable to recrimination. Alternative social networking sites are beginning to emerge, offering political activists greater protection.

In future it will be possible for users to avoid state surveillance of their social media use by adopting P2P (person-to-person) platforms that offer 'end-to-end' encryption in order to avoid the stealing of user names and passwords and the identification of users.⁷ The ubiquity of commercial social media platforms and their inherent usability is, however, likely to slow the shift to P2P secure networking and leave political activists still vulnerable to state sanctions.

Countering rumour

Social networking and social media are dynamic and diverse. They offer enormous potential for good but can also be used to spread rumours and generate misunderstanding. During periods of social upheaval rumour and misunderstanding can be rife, especially as people affected by disasters and social dislocation struggle to understand what is happening to them and where they can find help. This hunger for information can give rise to rumours about the types of assistance being offered, where food and shelter can be found, the role of peacekeepers and humanitarian aid workers, and so on.

Evidence from social media use during the Queensland floods of 2010 shows that Facebook was used extensively to communicate with friends and family and to post information about government and emergency services groups. These group pages allowed for the real-time collection of data from the public, which was verified or, where inaccurate, corrected (Bird et al. 2012).

7 See SCOPE2 (<http://code.google.com/p/scope2>), an open-platform P2P social network that is secure. Status also provides a similar service – see <http://www.status.net>

Social media have also been shown to give rise to rumours through user-generated content: this is something humanitarian agencies need to monitor and ultimately take steps to mitigate (BBC Media Action 2012; Cameron et al. 2012). For development and humanitarian agencies, ensuring that information flows are fair and accurate and that public engagement neither damages nor leads to negative consequences is a central challenge of their communication efforts (Bunce et al. 2012; Ghannam 2012; Sigal 2009). In addition, few social media platforms have the ability to monitor, analyse and control content beyond overtly offensive material that breaches their policy guidelines. This leads to questions about whether the quality of social media can be improved and what role humanitarian agencies might play.

Can the quality of social media be improved?

It is important to understand both the positive and the negative aspects of social media use in complex emergencies. This is because existing use patterns and specific user-generated content can influence the communication approaches of humanitarian agencies and stabilisation forces.

On one hand, social media can be understood as making a positive contribution to media diversity. On the other, citizen-generated social media content can be characterised by a range of pervasive problems that present a conundrum for humanitarian agencies, who might seek to limit or counteract negative information in a particular context while giving emphasis to the positive or useful information available.

Citizen-generated social media content tends to reflect a lack of experience on the part of those doing the posting, blogging or vlogging, and this can lead to increased exposure to risk and potentially

death through targeting by state or militia forces. Further factors to consider are the lack of ethical standards in relation to the material covered and the limited extent to which consent is secured for citizen-generated media. From this perspective, social media content can also leave others open to considerable risk of recrimination.

Related to this, social media are often characterised by a lack of impartiality and a preference for biased content that promotes the goals of the group or individual doing the posting, blogging or vlogging. In this regard, the use of inaccurate or emotive information, poor standards of authentication, poor reliability of sources and weak protection offered to sources are also problems.

In conflict situations, ensuring high standards of journalism remains a crucial concern, something that repressive regimes and activist groups might prefer to ignore as they promote biased and competing versions of events. For humanitarian agencies and stabilisation forces this problem is acute. Working to improve the quality and reliability of the mainstream media sector constitutes a central activity in conflict situations for many agencies. Yet the world of social media and social networking remains one that is very hard to influence. The potential to work with social media power users to improve the accuracy of their content remains limited.

Social media and the state

Governments throughout the developed and developing world, often in partnership with large telecommunications businesses, are expanding infrastructure for increased mobile phone connectivity and internet access to meet future demand. Along with expanding access, some states are making efforts to monitor, filter and block particular platforms, websites and services. In addition, many governments are becoming active

contributors to social media platforms, and the content they promote, like some citizen-generated content, can be highly biased.

Citizens seeking political engagement typically use their social media content to draw the attention of fellow sympathisers and the wider world to their aspirations. In the process, social media have changed from offering a means for activist groups to circumvent state control of media to all-out 'cyber-war' in which the state is an active player (Ghannam 2012). In terms of quantity, however, state social media content can be dwarfed by citizen-generated content; nonetheless, states use social media to very specific ends, and this forms part of the logic for opposition groups taking up social networking and promoting social media in the first place.

Some states seek as much control as possible over information by restricting international and national journalists' access to sensitive areas experiencing conflict (Cottle 2011). In addition, states can enact emergency communication or 'cyber-crime' laws to help justify arrests, fines and the incarceration of individuals engaged in generating social media content (Comninos 2011). Using violence against journalists and bloggers who report or post on subjects that opposing forces deem sensitive is commonplace. This can include reporting on human rights abuses and ethnic cleansing (Pearce & Kendzior 2012; Youmans & York 2012).

Like citizens seeking to promote social action, authoritarian regimes are adept at using existing social networking platforms to link to users who are promoting specific content. Surveillance of social media is of particular concern where the geolocation capability of mobile phones allows individual social media users or communities to be targeted with counterinsurgency measures (Comninos 2011).

Finally, authoritarian states can use social networking policies for removing user-generated content from sites such as Facebook. Using prohibitions against anonymity can lead to the shutting down of sites promoted by social groups who use pseudonyms for security reasons.

The 'We Are All Khaled Said' Facebook group became a central platform for debate during the Egyptian political crisis and helped mobilise protesters (Youmans & York 2012).⁸ The group was created through the use of a pseudonym but was de-activated by Facebook because of its policy banning posting by anonymous users; it was ultimately relaunched after protest (Comninos 2011).

As with their use of conventional media, authoritarian states are increasingly using social media to spread misinformation and promote hate messages that stigmatise or incite violence against a particular political, ethnic or religious group. It is against this that much citizen-inspired social media reacts.

Authoritarian regimes have often tried to control citizens' actions by censoring outflows of media content, blocking internet sites, removing internet service providers, and monitoring social media and telecommunications use. They can also use social networking and media covertly to promulgate views that appear to be legitimate or the voices of local protest movements but that are actually campaigns designed to infiltrate and destabilise citizen user groups (Youmans & York 2012). For example, the Syrian Electronic Army is a hacker group that aims to target, bring down and deface the sites of state resistance groups across social media. The group posts political activists' contact details, threatens critics and adds pro-regime messages to social media sites. This activity has resulted in mixed

8 See <http://www.facebook.com/elshaheed>

responses from social media sites and inconsistent removal of pages; it highlights the difficulty of moderating content (Cottle 2011).

Lessons to be learned for humanitarian assistance

We should be wary about the power that is attributed to social networking and social media. Their use by a wide range of actors during the Egyptian crisis has revealed that they were not as dominant a communications medium as some commentators have suggested. They did, however, play a strategic role in connecting and motivating a civic response (Wilson & Dunn 2011). Labelling events such as the Arab Spring as Twitter or Facebook 'revolutions' fails to do justice to the communicative complexities involved, despite the burgeoning interest in and rapid adoption of social media in Arab nations. Humanitarian agencies will still need to balance their communications approach, using popular and accessible media; they also need to recognise that social networking and social media play a strategic and trusted, but sometimes biased, communication role.

A number of lessons emerge from the work done to date on social networking and social media use by citizens, as well as states, that are relevant to humanitarian agencies seeking to deliver assistance:

- Access to mobile telecommunications and growing social media engagement are enabling participation in communication for citizens and offering the opportunity to share user-generated content on a previously unimaginable scale. This adds to the diversity of voices and enhances freedom of expression; it also has potential to turn citizens into witnesses and empower communities.
- Social media build synergy between citizen journalists and the mainstream media, who are active in taking up a wide variety of user-generated content. This convergence is important not only for the positive influencing of public opinion but also because it highlights the potential of social media to contribute content on a wide range of subjects, from human rights abuses to awareness of humanitarian assistance (Youmans & York 2012). Despite this, many humanitarian agencies have been slow to embrace the citizen-related aspects of new media – beyond crisis mapping (see Section 3) – because these aspects offer little potential for control.
- Humanitarian agencies need to place additional emphasis on understanding where social media fit within the wider communications landscape during complex emergencies. It is essential to understand how content – positive and negative – might affect the delivery of humanitarian assistance and to develop strategies for the management of potential distortions, manipulations and misinformation. Ensuring that social media are included in assessments of wider communications uses and preferences is a step towards understanding how to counteract harmful social media content, such as hate speech, as well as building a stronger evidence base for humanitarian responders.
- Humanitarian agencies need to invest in communication models and methods that will help them integrate a focus on citizens' social networking and social media use within existing communication strategies and as part of a multi-channel approach to communications, alongside more traditional

media. An example is including social media in media-strengthening activities in fragile or post-conflict states.

- Assessment of social media content through routine media monitoring of conflict-affected states can also help humanitarian agencies determine the nature of the content and take that into account in their communication strategies; it will also provide a good barometer of public opinion and important concerns and debates. Although providing a positive, transparent and accountable tool for participation, engagement and action, social media can also play a negative role in promoting propaganda, spreading rumour, and inciting hatred and violence (Wilson & Dunn 2011). Such communication is of crucial interest to agencies tasked with reducing conflict or providing humanitarian assistance.
- It is necessary to explore the potential, feasibility and ethics of working with established citizen-driven social media sites and power users to promote messages about complex emergencies and humanitarian assistance through these popular and trusted communication channels.
- Where possible, training should be provided for journalists (citizen and state) to augment their capacity to scrutinise and authenticate information, as well as improve the ethical standards of social media content. This is essential to ensuring the timely dissemination of information, increasing the speed of information flows, and minimising the circulation of inaccurate information. Popular bloggers and specific social media sites have wide influence, but activists and government officials might resist the drive towards improving standards because of vested interests. Such training activity

would constitute a routine platform of media strengthening for other forms of media in complex emergency situations.

- Social media companies are likely to continue to limit anonymity, prohibit specific content and depend on community policing; governments are likely to continue to work against social media sites and specific users by pursuing strategies of infiltration, surveillance and assault (Youmans & York 2012). This creates a need to support social media use that is safe and free from recrimination. Use of encrypted peer-to-peer social networking might help to allay some of these concerns, as would raising awareness of the security risks associated with common social networking platforms.

Want to know more?

TED talks on social media

<http://www.ted.com/talks/tags/social+media>

TED talks on the Arab Spring:

http://www.ted.com/playlists/12/freedom_rising.html

Kony 2012 campaign:

<http://www.youtube.com/watch?v=Y4MnpzG5Sqc>

Case study 4: Monitoring the Egyptian transition

In 2010 Ushahidi launched the U-Shahid project for Egypt (*ushahidi* means 'testimony' in Swahili), enabling the Development and Institutionalization Support Centre to use Ushahidi software to crowdsource election monitoring during the nation's democratic transition. The software was used to monitor the 2010 parliamentary elections and the 2012 elections for the People's Assembly.

Activities

The U-Shahid project created an interactive site, and more than 15 trainers and 75 coordinators were trained to work on the project. Observers of the electoral process sent in over 17,000 reports and 25,000 SMSs that were plotted on the interactive map. Along with a partner non-government organisation, Ushahidi trained volunteer election monitors to send in reports during the voting.

Those sending in reports were asked to attach a brief description of what they were observing and had the option of providing a video or photo attachment as evidence. A team of volunteers received these reports, and the reports were classified and expanded on where necessary. Visitors to the U-Shahid site could then contribute a 'yes' or 'no' vote to show whether they believed the reports were true or false. Reports were also verified through

corroboration with news stories, investigating attached evidence, or asking for follow-up from local volunteers and contacts. The reports were made publicly available in real time but were also emailed to journalists and organisations if it was thought they would benefit from receiving the information.

Outcomes

- The election process was monitored freely and reported with full transparency.
- Reports recorded widespread illegal campaigning, vote buying and general disorganisation. There was, however, little evidence of violence.

Limitations

- U-Shahid was less successful in 2012 than in 2010, receiving fewer reports and less media attention.
- A decrease in reports was noted because of the increased volume of election monitoring projects.
- Fear of retribution for reporting acted as a barrier to posting reports.

Want to know more?

Ushahidi website:

<http://blog.ushahidi.com>

U-Shahid website:

<http://cr2012.u-shahid.org/en>

Sources

<http://blog.ushahidi.com/2012/08/02/egypt-presidential-election-2012>

<http://blog.ushahidi.com/2012/01/31/using-ushahidi-to-monitor-the-egyptian-transition>

Case study 5: Uchaguzi and the Kenyan elections

The original Ushahidi platform was developed in 2008 in response to the need to map violence and conflict in Kenya after the December 2007 election. In view of the five-year anniversary of Ushahidi and the March 2013 election in Kenya, the Uchaguzi Kenya 2013 partnership was launched (*uchaguzi* means ‘election’ in Swahili).

Uchaguzi is a joint initiative between SODNET (the Social Development Network), Ushahidi, CRECO (the Constitution and Reform Education Consortium) and the Hivos Foundation and receives support from the Canadian International Development Agency. Uchaguzi is coordinated through the Uchaguzi platform, which is built on and facilitated by Ushahidi

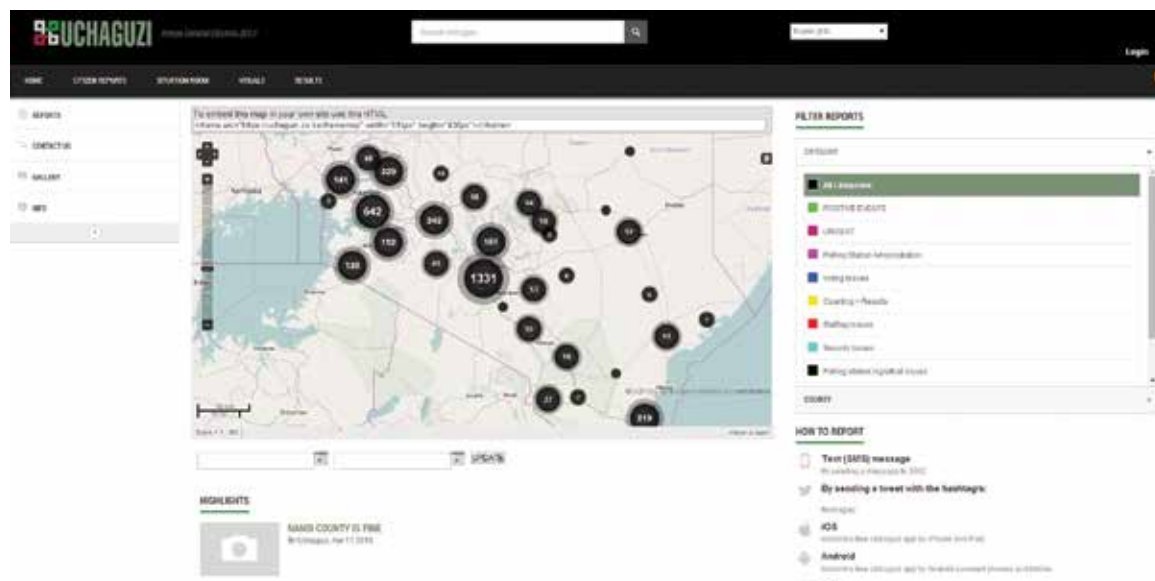
and was exclusively developed to crowdsource information on election polls. Uchaguzi’s aim is to facilitate free, fair, peaceful and credible elections by increasing transparency and accountability through active citizen participation in the electoral process. It is a national citizen-centred electoral observation platform.

Activities

Through the Uchaguzi platform, citizens can report any incidents or concerns related to the electoral process by SMS, Twitter, Facebook, email or using an online form. The reports are then edited, translated and mapped by a team of volunteers before they are distributed to observers and agencies in the field. The platform thus facilitates collaboration between citizens, election observers, humanitarian response agencies, civil society, community-based organisations and law enforcement agencies to monitor elections in real time.

The Uchaguzi Kenya 2013 platform allowed the voices of ordinary citizens to be amplified, and individuals could make contributions to the electoral process before and after formal voting. It also assisted local Kenya-based working groups, providing portfolios of technology, local outreach, translation services, social media outreach, analytics and research alongside the online digital response teams. The online teams were charged with media monitoring, translation, SMS reports, report management, verification, geolocation and mapping.

Figure 8: Uchaguzi Home Page



Outcomes

- Through the Uchaguzi platform teams were able to verify that there were no major security incidents on election day.
- The mapping feature was able to show that the majority of minor security problems originated in slum areas.
- Tracking of Twitter feeds revealed a generally peaceful mindset through a barrage of tweets promoting a peaceful election process.
- The software was able to predict rising tensions at polling stations as they became overwhelmed by the high election turnout.

Limitations

- Mapping an electoral process within such a brief time frame presented a challenge in terms of achieving the desired objectives.
- This was exacerbated by delays in the feedback loop to deliver information to response teams.

Want to know more?

Uchaguzi website:

<http://uchaguzi.co.ke>

Sources

<http://blog.usahidi.com/2013/02/11/uchaguzi-kenya-2013-launched>

<http://ict4peace.org/updates/social-media-as-a-means-of-crisis-information-management-a-kenyan-case-study>

http://www.knightfoundation.org/media/uploads/media_pdfs/uchaguzi-121024131001-phpapp02.pdf

Case study 6: DadaabNET high-speed network

The world's largest refugee camp, the Dadaab camp complex in eastern Kenya, houses 500,000 refugees. UNHCR is the main response agency for the camp, although non-government organisations (NGOs) such as CARE, Save the Children and the International Rescue Committee also operate in the vicinity of the camp to provide food, housing, and sanitation and medical services. Each responding organisation in the region had been operating its own VSAT internet system (a two-way satellite used to deliver internet to remote locations). The system was slow and expensive, and regular technical support was needed. In response, the NGOs decided there was a need to share technical resources and reduce costs.

Activities

In September 2011 NetHope sent staff to the Dadaab camp complex to investigate the potential for increasing NGOs' operational capacity and decreasing connection costs. Between 2011 and 2012 NetHope, Cisco and Inveneo designed and installed a local high-speed internet network at the complex to enable humanitarian relief organisations to communicate, coordinate, share and generally increase the efficiency and effectiveness of their work in the region. The result was DadaabNET.

Inveneo created a strategic partnership with Orange (the international telecommunications provider) and a Kenyan telecommunications service provider to extend data services into the community through Inveneo's long-distance Wi-Fi system. Orange also committed to a preferred pricing arrangement, allowing NGOs to pay a reduced rate for internet access. The DadaabNET team also trained Orange staff members as an in-country technical team; members of the team were then charged with provision of ongoing remote support to the DadaabNET network.

The DadaabNET high-speed network enables bandwidth-intensive inter-agency collaboration. It also brings the potential for NGOs to share files, engage in video conferencing and use a VOIP (Voice Over Internet Protocol) telecommunications application. There are plans to extend the network to the general Dadaab population through sustainable outreach community centres.

Outcomes

- Humanitarian agencies are able to function more efficiently, communicate clearly and collaborate.
- The overall result was increased productivity, greater capacity to deliver food, housing and medical services, and better coordination, security and communication.

Limitations

- › There is only limited capacity to engage with stakeholders in areas such as the Dadaab camp complex because of security concerns.

Want to know more?

NetHope website:

<http://www.nethope.org>

NetHope presentation:

<http://www.slideshare.net/NetHopeOrg/new-highspeed-network-connects-dadaab-aid-agencies-for-collaboration>

Sources

<http://cloudportal.nethope.org/blog/view/high-speed-network-helps-residents-of-worlds-largest-refugee-camp>

<http://www.globalgiving.org/pfil/8730/projdoc.pdf>

<http://www.inveneo.org/tag/dadaabnet>

Case study 7: The Standby Task Force and the Libya Crisis Map

The Standby Task Force (SBTF) is a volunteer platform and a shared space designed to assist crisis-affected communities through the use of technology. In response to crises in Haiti, Chile and Pakistan, it was conceived as a means of streamlining online volunteer support for crisis mappers and providing an interface for the humanitarian community.

The SBTF focuses on information collection, visualisation, analysis and response and takes a modular approach, with a total of 10 teams, each of which has a specific focus area or responsibility. These teams provide support for crowdsourcing, mapping, data scrambling and technology testing. This includes the installation of mapping platforms, synchronisation with services such as Frontline SMS, collection of geolocation data, and categorisation of SMS, social media, email, media and voice messages.

Activities

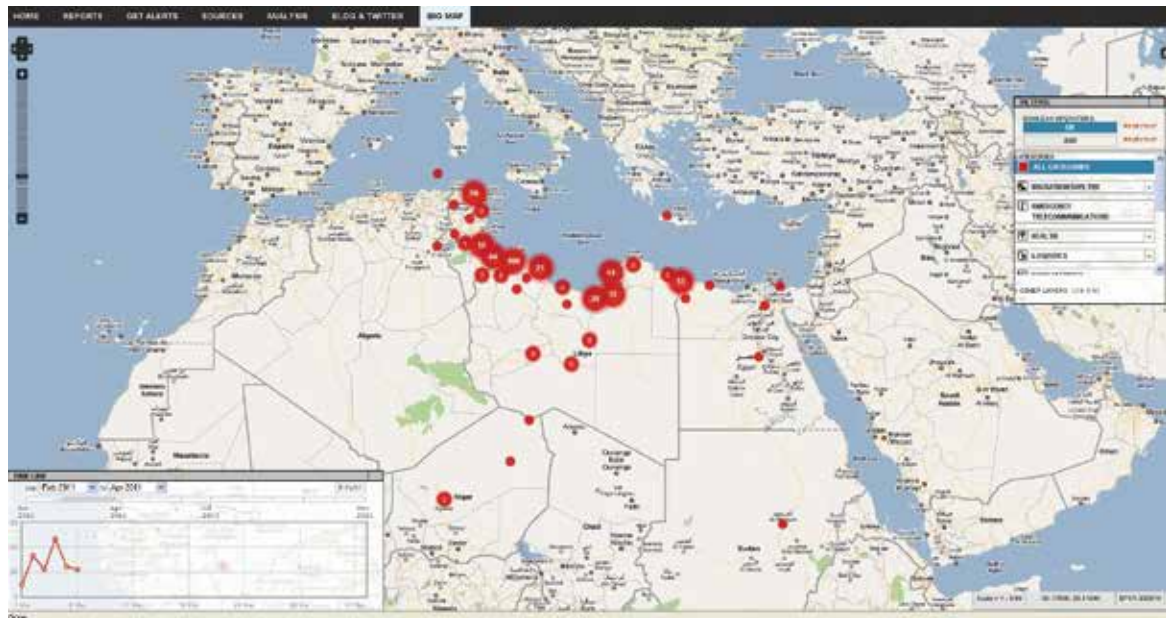
The UN Office for the Coordination of Humanitarian Affairs activated the SBTF in March 2011 to map the unfolding conflict in Libya. UNOCHA had been constrained in its ability to collect information on the crisis because the security situation in the country made it difficult to monitor events directly in the field. Furthermore, the United Nations had not had

an active presence in the country for a number of years, and there were few independent media groups on the ground to provide accurate reports. UNOCHA sought the SBTF's assistance to improve its situational awareness.

The SBTF used the large volume of information shared on social media channels along with mainstream media coverage and official reporting data to monitor, aggregate, categorise, map, analyse and verify (where possible) information

about the situation on the ground. An initial crisis map was drawn up within four hours, and within 24 hours the domain name LibyaCrisisMap.net had been purchased. The Libya Crisis Map was initially password protected, but eventually a public site mirroring the official site was launched – but with a 24-hour delay and heavily edited reports. The SBTF also began to create a 3Ws database (who, what, where) in order to assist in the collection and visualisation of data about the response operations of various organisations.

Figure 9: Libya Crisis Map



The SBTF provided its mapping services until the end of March, when it handed control of the Crisis Map to UNOCHA. During the SBTF's deployment 1430 reports were mapped, 250 individuals participated in deployment, 200 new individuals joined the deployment, 566 SBTF members were involved, 16 teams coordinated the deployment, and 100 UN volunteers were trained. Among the SBTF teams were the media monitoring team, geolocation team, reports team, verification team, technical team, analysis team, task team and humanitarian liaison team. The volunteers coordinated via Skype chats and emails, and Skype groups were established for each of the teams deployed.

Outcomes

- The Libya Crisis Map was made available to a number of organisations and was used by UNOCHA, the UN High Commission for Refugees, the World Food Programme, Save the Children, the International Organization for Migration, the International Rescue Committee, Sevices d'aide et d'assistance aux réfugiés et apatrides (SAARA), the International Committee of the Red Cross and the American Red Cross.

- › Use of the volunteer and technical community allowed the collection and analysis of large volumes of data not otherwise accessible.

Limitations

- › The security of the data used was a serious concern because of the need to protect the identity and location of individuals doing the reporting. It was thus imperative to maintain separate public and private sites in order to protect information and provide maximum access for responding organisations.
- › There is a need for mechanisms to facilitate better communication between the various teams and volunteers, to reduce the burden and duplication of communication.
- › It was noted that the Libya Crisis Map needed to go beyond an online event-reporting format in order to become integrated in wider decision making processes – particularly in view of the realisation that printable outputs were more appropriate in the early phases of the emergency.

Want to know more?

Standby Task Force website:

<http://blog.standbytaskforce.com>

TED talk on crisis mapping, Erik Hersman:

http://www.ted.com/talks/erik_hersman_on_reporting_crisis_via_texting.html

Sources

<http://blog.standbytaskforce.com/libya-crisis-map-report>

https://docs.google.com/document/d/1wut8oDRo9BYSlcohQ34Ng8qQ-pLVGlRO95WOvR3MN78/edit?hl=en_US&pli=1

<http://blog.standbytaskforce.com/sbtf-libya-impact>

3. Humanitarian assistance, social networks and social media

BBC Media Action (2012) has noted that recent trends in the uptake and use of social networking platforms and the creation of social media content in the developing world are important for humanitarian agencies. The potential for real-time two-way communication with people affected by natural disasters or conflict has never been greater. In addition, there is growing demand among those affected by emergencies for better interaction and dialogue, as well as for faster access to information. Communication is increasingly being understood as something in which affected communities can participate.

Social networks are also allowing concerned individuals and groups beyond the immediate crisis situation to play a part. The contemporary use of social networks reflects an often-complex interaction between a wide range of individuals and organisations (including volunteer groups) at multiple levels – from the local to the national and international.

With such interaction in mind, this section examines the role of social networking and social media in the delivery of humanitarian assistance and finds it to be a rapidly emerging field, the lessons from which are only now starting to become apparent. There is no doubt that social networking and social media use

are gaining in popularity throughout the developing world. They are playing an increasingly important role during emergencies by helping to connect friends, families, local authorities, government departments and humanitarian agencies through the sharing of tweets, retweets, posts, blogs, vlogs, and a host of other user-generated and mainstream mechanisms such as video, audio and photographs.

The role of social networking and social media in humanitarian assistance

At the height of an emergency there is an urgent need for rapid, high-quality information to be delivered to those who are affected. Traditionally, this information has been, and continues to be, largely channelled through traditional media such as radio and television because of their broad public coverage. Such communication plays a crucial psychological role: it can promote safety, calm, connectedness, self- and group efficacy and hope (Taylor et al. 2012).

Data from recent emergencies show that social networking and social media are also starting to play a part in providing to the general public

up-to-the-minute information about disasters, risk and how to respond (Bird et al. 2012; Dabner 2012; Taylor et al. 2012). Evidence from natural disasters that have occurred in Australia and New Zealand shows there is a sizeable audience for social media, and authorities in both countries have responded by establishing short-term social media resources that enable real-time updates to be posted and allow for a degree of dialogue between responders and those affected.⁹

Beyond the developed world, dedicated emergency communication responses using social networking platforms have been slower to emerge, although Section 2 of this paper attests to the groundswell of citizen-inspired social media that can be generated during periods of crisis. Much of the content is aimed at supporting social action and political change. Here, strong connections are made between the social media content that is posted by citizens who act as witnesses to a range of events and wide communication through traditional media channels.

In terms of humanitarian assistance, social networking and social media also play a role in alerting the world to events and in providing on-the-spot user-generated content. For example, much of the coverage of the 2011 tsunami in Japan came from citizens directly affected by the disaster, thus performing a crucial witnessing function. Use of social networking and social media is, however, perhaps most evident in the areas of humanitarian agency coordination, data collection, crisis mapping, information management and knowledge generation, and in targeting and monitoring the delivery of assistance.

In a recent report UNOCHA (2013) notes that the age of 'big data' is emerging. The term refers to the coming together of social networks, social media, government-generated data (such as that connected to census records and taxation, geographic information systems and health records), as well as data held by the private sector (such as transaction records and data on use patterns and spending) and geolocational data. The emergence of big data will require unparalleled levels of intersectoral cooperation, but there is huge potential.

While effective big data interventions are emerging, aspects of social networking and the geolocational capability of mobile telecommunications are already playing a central role in helping humanitarian agencies deliver assistance. This paper looks at the current experience, rather than what big data might deliver in the future.

Although the application of social networking and social media to humanitarian assistance is progressing rapidly, UNOCHA (2013) cautions that new technologies still carry the potential for error and manipulation, as well as risks for users and security concerns in relation to data access. Further, the amount of data generated and the increasing number of organisations (both private sector and voluntary) involved in crisis response is leading to information overload.

How this new capacity links with and informs the design and implementation of existing humanitarian assistance, how it links to and is supported by existing humanitarian clusters, and how it influences existing communication and information management systems are questions that only now are starting to be asked.

9 See <http://www.em.gov.au>

How can humanitarian agencies respond to changes in communications use? What role will the private sector play? What new tools and capacities will humanitarian agencies require in order to keep pace with the changes occurring in communication in the developing world? Here, there are lessons that can be learned from existing experience in mobilising social networks and using social media in both the developed and the developing world.

Multiple sectors

The new information and communication landscape that is helping to influence humanitarian assistance reflects contributions from multiple sectors.

Although humanitarian responses require inputs from a complex array of actors and organisations from different sectors, of particular interest is the interaction of the private sector, the volunteer sector and the humanitarian sector.

Attempts in recent years to improve inter-agency coordination and the delivery of assistance have led to the formation of global humanitarian clusters responsible for developing policy and capacity and mobilising effective responses globally and nationally.¹⁰ Increasingly, the work of humanitarian agencies – especially in the sphere of information and communication – is being influenced by private sector and volunteer initiatives.¹¹

Many development and humanitarian agencies are grappling with how best to use social and mobile media in their work (BBC Media Action 2012; United Nations Foundation 2011). These media are becoming ubiquitous, and the private sector has been active

in encouraging wider and more affordable access, especially to mobile telecommunications in the developing world. Emergencies often require the cooperation of the private sector, particularly telecommunications companies, which have been at the forefront of early warning initiatives during numerous natural emergencies and are often the communications backbone of response efforts, reporting, monitoring and citizens' information exchange. Companies such as Digicell have been effective in bringing affordable mobile telecommunications to small island-states prone to natural disasters.

Importantly, telecommunications systems need to be robust and to have enough capacity (redundancy) to cope with big spikes in demand – for example, following a disaster. Often telecommunications systems in the developing world fail to cope adequately with acute demand, with adverse effects on the efficacy of early warning systems and post-disaster communication. Although international agencies might treat re-establishing communication networks as a priority, strengthening the networks so they can withstand crisis will help both affected populations and humanitarian agencies deal better with the implications, while widening the applicability of social networking and mobile media to emergency situations in the developing world.

In the domain of social networking, private sector companies such as Facebook, Twitter and Google are also playing an important part in offering communication platforms of value to the humanitarian response. Citizens use these extensively; for example, Google Person Finder was used after the 2013 Boston Marathon bombings

10 <http://www.unocha.org/what-we-do/coordination-tools/cluster-coordination>

11 http://acmc.gov.au/wp-content/uploads/2012/06/11966_ACMC_Same-Space_DifferentMandates_FORWEB.pdf offers an overview of the civil and military organisations involved in delivering humanitarian assistance.

to help concerned citizens locate friends and family.¹² Of particular interest is volunteers' burgeoning use of commercial social networking platforms and specialised tools developed by organisations such as Ushahidi.

Crisis mapping: crowdsourcing and plotting social data

The ability to exploit local knowledge in order to help assess and respond to complex emergencies and natural disasters has strengthened in recent years (Borges & Vivacqua 2012; Heinzelman & Waters 2010).¹³ Social dislocation can make physical data collection using traditional face-to-face methods problematic during emergencies; in response, crisis mapping has emerged as a valuable application of social networking and social media to the delivery of humanitarian assistance. Both private sector and volunteer networks have been active in supporting a wide variety of activities that draw on new technologies for the primary purpose of rapidly obtaining a range of contextual data. Typically, data are sourced from 'crowds', or crowdsourced. In this context, the 'crowd' refers to the often-large number of social network users or social media posters who supply the information needed for crisis mapping.

While helping to guide humanitarian assistance through crisis mapping during natural disasters, these networks are also being used to monitor elections, report on violence and rights abuses, and coordinate responses in complex emergencies. Unlike citizens' use of social networks and social media – which is generally cause specific, longer term and geared towards freedom of expression, action and social change – the collaboration of

humanitarian agencies, private sector companies and volunteer networks tends to be discrete, problem specific and generally shorter term.

UNOCHA (2013) has noted how poor information management can severely hamper humanitarian action. During a crisis such as a natural disaster, quick access to information is essential, and new communication technologies offer the chance to collect, correlate and analyse very large quantities of information. In addition, geographical information systems allow the data collected to be categorised by both place and time. Crowdsourcing and crisis mapping technologies allow organisations to visualise crisis information at a low cost. In turn, visualisation is an accessible and often user-friendly way to share data.

Crisis mapping involves a complex web of activity in which social networking facilitates the obtaining of crowdsourced data from social media and volunteers (often through SMS). The data collected are usually analysed manually by volunteers or automatically by analytical programs and then plotted on a map. The mapping is a form of 'mash-up': internet-based applications, supported by networks of various types, gather data from different sources and place them in an integrated tool (Bellucci et al. 2010). Mash-ups are useful for emergency responders because they can be created very quickly to collate and disseminate information to partner agencies.

Perhaps the most prominent platform used by crisis-mapping and crowdsourcing organisations is Ushahidi.¹⁴ Ushahidi, a non-profit technology company, specialises in developing free, open-source software for information collection, visualisation and interactive mapping. Originally developed in 2008 to map reports of post-election violence in Kenya, it has been used in a variety

12 <http://www.forbes.com/sites/tjmccue/2013/04/15/google-person-finder-helps-in-boston-marathon-explosions>

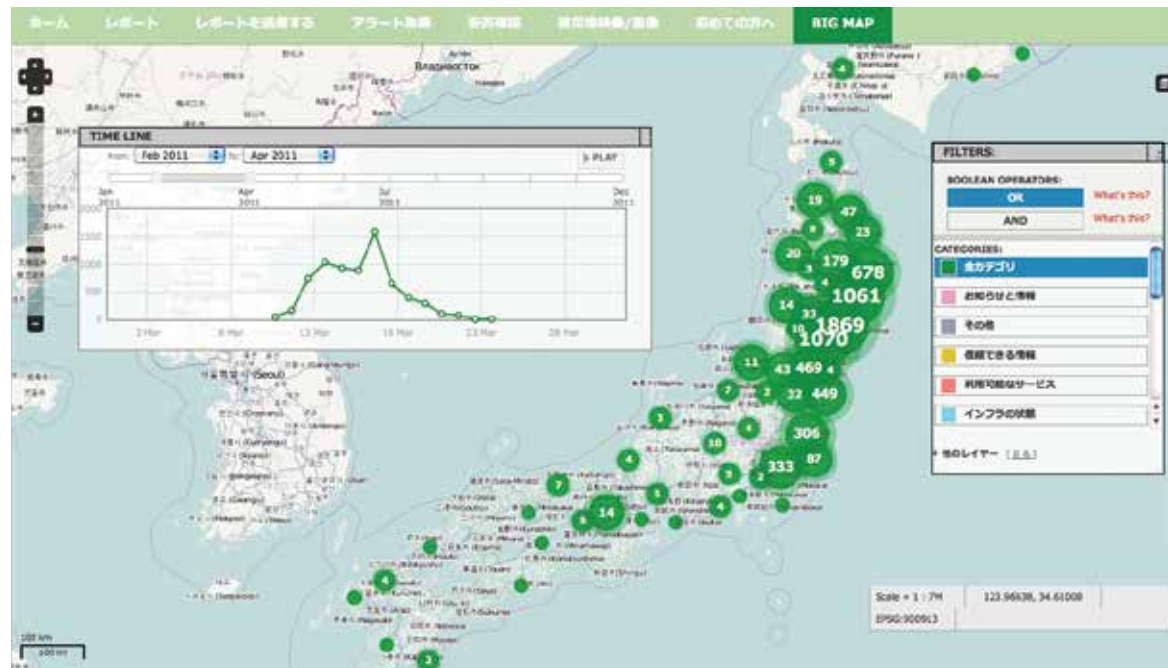
13 Such knowledge can be sought from those affected by the emergency and those in diaspora communities.

14 See Appendixes A and B for a list of crisis-mapping organisations and the main software resources.

of contexts, including for reporting human rights violations, for monitoring elections, and in response to the Haiti earthquake in 2010. The platform is based on the gathering of citizen-witnessed

information and relies on a network of volunteers to analyse and process the resultant data, along with data derived from the formal media, social media and SMS.

Figure 10: The Ushahidi Japan tsunami map



Use of the platform demonstrates the potential of mobile technologies, social networking and social media as channels for gathering and processing data during emergencies. Lessons learned from its use in Haiti after the 2010 earthquake were summarised by Heinzelman and Waters (2010) and are broadly applicable to all crisis-mapping interventions:

- One of the main challenges centred on verifying the accuracy of the extremely large volume of data received. In response, Ushahidi developed some new solutions for more recent election-monitoring initiatives. These include using what is termed ‘bounded crowdsourcing’, whereby

reports are accepted only from ‘approved’ participants. In this instance reports of election violence could be received only from dedicated election monitors, rather than from the general public. If sourced from the public, crowdsourced reports must match those received from others using the platform to ensure that verification occurs. A complementary software system called SwiftRiver has been developed by Ushahidi to help filter and validate crowdsourced information electronically (see Appendix B).

- › Related to this is the importance of ‘triaging’ crowdsourced reports to assess their urgency in terms of quickly providing a focus for the humanitarian response.
- › Triaging crowdsourced information should also reflect humanitarian agencies’ organisational needs. For example, accurate security information is vital for emergency response personnel, and the rapid analysis of crowdsourced data reports can help to provide early warnings of conflict.
- › Humanitarian agencies can gain more effective local participation in crowdsourcing by ensuring that the privacy of reports is maintained.
- › Future crisis-mapping efforts seeking to use local participants could better integrate mobile phone-enabled information gathering, such as through SMS, to help build a trusted network of informants supplying accurate information.
- › Importantly, mapping does not need to wait until an emergency has occurred. Greater efforts could be put into establishing resilient networks and mapping infrastructure and capacity before an emergency occurs.
- › Finally, tools need to be further developed to integrate crisis mapping with the detection of early warning signs of disaster or conflict.

Crisis-mapping platforms offer the potential to improve situational awareness as an emergency unfolds but are not without their problems.

Further, humanitarian agencies need to invest in new capacity and skills, new tools and new ways of working and to forge new partnerships if the full potential of crisis mapping is to be realised.

Mining social media and taming Twitter

Crisis mapping provides a rich source of information about unfolding emergencies, the context in which they occur, and a host of other useful evidence such as socio-cultural and geo-specific data. Many humanitarian agencies are, however, ill-equipped to gain access to the data social networks can provide without resorting to crowdsourcing networks. On the basis of their work in Australia, Cameron et al. (2012) have expressed concern that emergency agencies have limited time in which to assess whether social media information is worthy of deeper analysis.

As a result, they argue, such agencies need new, automated tools to help them do a number of things:

- › detect unfolding crises and incidents – for example, through real-time social media or mobile communications content
- › analyse and aggregate information about emergencies without the need to read individual messages – for example, through mining Twitter or SMS content
- › identify high-value information during an incident – for example, information that describes infrastructure damage or reveals cries for help from the general public
- › identify and track important events that might last hours, days or even weeks
- › perform post hoc assessment of emergencies by analysing social media content from before, during and after an incident.

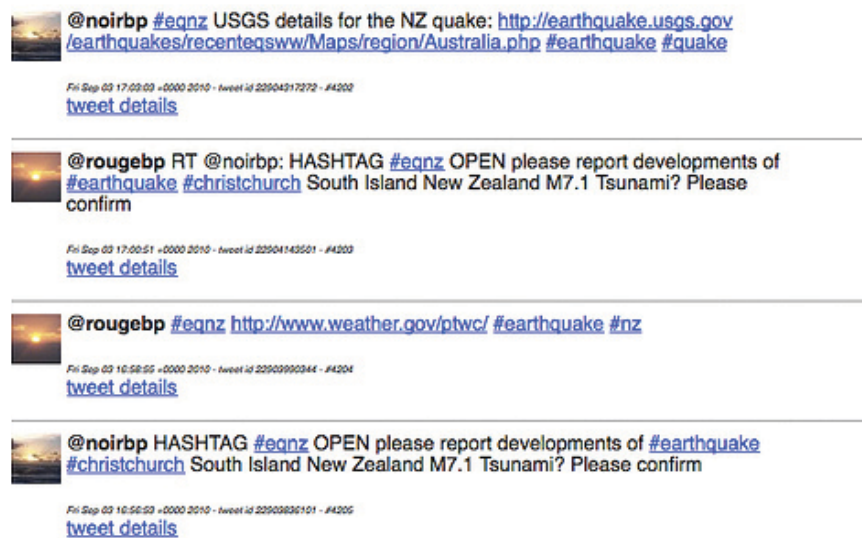
Such a situation demands the creation of new tools such as the Automated Web Text Mining (ESA-AWTM) software platform, which provides a possible example of how the automated ‘mining’

of social media ‘noise’ might occur (Cameron et al. 2012). The platform is designed to capture tweets from Twitter, then process and distribute the information to emergency agency watch officers. It could heighten the situational awareness of agency staff and summarise messages according to content strands, such as infrastructure damage.

Twitter, in particular, is a valuable resource for retrieving, processing and redistributing

user-generated information because of its public accessibility and searchability (Starbird & Stamberger 2010). The ‘retweet’, ‘hashtag’ and ‘follow’ functions on Twitter have been developed over time and have defined a Twitter-specific language or syntax. Users develop practices to fit within the language and character constraints of the platform.

Figure 11: New Zealand tweets #earthquake



A robust crisis-specific Twitter hashtag syntax is starting to develop. This will allow citizens to upload information in a more purposeful way,¹⁵ enable more effective real-time processing of data and help turn tweets into machine-readable pieces of information (Starbird & Stamberger 2010). Although such tools are starting to emerge, the question of how they will be integrated into existing humanitarian practice and communication models awaits a full response.

Knowledge management: from web to wikis

Crowdsourcing, mining and mapping feature prominently in debates about the role of new technologies in humanitarian assistance. But social networking and media platforms also have the ability to enhance intra- and inter-agency collaboration, cooperation and transparency. During the

15 A ‘Library of Crisis Hashtags’ has recently been developed to aid data collection and analysis. The library sorts hashtags into broad themes – flood, cyclone, earthquake, and so on. See <https://docs.google.com/spreadsheet/>

humanitarian response to the 2010 Haiti earthquake 'social' knowledge management systems made a big difference to how certain agencies organised and obtained information (Paquette & Yates 2011).

The Haiti earthquake response represented the first time US government agencies had employed social media technologies as their main knowledge sharing mechanism. Notably, the Air Force Chief of Staff's Crisis Action Team, whose primary mission was to ensure that physical aid was flowing into Haiti as required, used a variety of social media tools during the relief effort (Paquette & Yates 2011), among them Microsoft SharePoint, which allowed team members to create web pages where comments could be contributed, helping to promote knowledge sharing between staff, and wiki, to improve internal communication and staff access to information.

These more 'democratic' knowledge management technologies changed how information was acquired, shared, applied and maintained during the response. This contrasts with the largely linear and face-to-face nature of information sharing that had previously tended to occur in and between humanitarian agencies.

Wikis and web development tools helped to increase knowledge re-use by Crisis Action Team staff, eliminating reliance on liaison officers and reducing duplication in the relief effort (Paquette & Yates 2011). This allowed each staff member to have a better and broader view of the available knowledge, rather than relying on knowledge obtained during formal briefings. Social platforms and co-creation tools such as wikis meant staff could search directly for the information they needed, instead of having to find out which individuals held relevant pieces of information.

Further, the use of wiki-enabled knowledge management systems helped to span organisational boundaries, allowing knowledge to be translated, consolidated and transferred from one domain to another and enabling a brokering function. It also

helped improve internal knowledge management, sharing and co-creation.

Working with social media was, however, not without its problems. Some staff had difficulty uploading documents, and problems were also evident with the complexity of file folders. Nonetheless, this example does highlight that there are efficiency gains to be made in democratising access to information and developing the capacity to co-create knowledge on an organisational or inter-organisational basis.

Lessons learned for humanitarian assistance

The delivery of humanitarian assistance involves complex partnerships, typically between international multilateral and bilateral agencies, international non-government organisations, national governments, national NGOs, local civil society organisations, and a range of 'publics', from those affected locally to those concerned internationally.

Within such partnerships concern about whether there is basic connectivity and communication is rapidly shifting to concern about how large volumes of user-generated information can usefully be managed (United Nations Foundation 2012). The humanitarian community faces the need to develop or use new tools, build skills and rethink intervention strategies. At present many responders are ill prepared to generate usable knowledge from the huge inflows of socially mediated data they now receive.

A number of lessons have been learned in connection with social networking, social media and humanitarian assistance:

- Social networks and social media are giving rise to new ways of working, collaboration, data gathering, and knowledge generation and dissemination.

- › The relevance of social networking and social media to humanitarian organisations and assistance processes is related to the increasing availability of and connectivity through new communication technologies throughout the developing world.
- › User-generated social media content can provide first-hand accounts of events as they occur. Having access to this information can increase the situational awareness of agency staff.
- › When effectively collated and mapped, socially mediated crisis information can help humanitarian organisations target assistance more effectively and more promptly.
- › New software tools are being developed to help agencies ‘mine’ social media to provide early warning of events as they unfold.
- › Humanitarian organisations do, however, face the risk of information overload, which has damaging consequences.
- › Within the existing cluster system humanitarian staff are still largely unable to deal with large inflows of digital data because of structural difficulties associated with how communication and information are currently handled within the system, as well as a lack of resources for processing and verifying information inflows (United Nations Foundation 2011).
- › Few mechanisms exist for making shared data of direct use to emergency responders. In addition, mechanisms are required for the sharing of data between agencies with competing priorities, even in the absence of direct collaboration. The information that is voluntarily submitted by crisis mappers and the public, combined with the speed with which the data flow, serve only to exacerbate the sense of overload felt by information managers.
- › Expectations about what should be known in emergency response operations have dramatically increased, partly as a result of the data received from volunteers. Making use of what is known is still hampered by a lack of technical resources and staff, and this is compounded by a sense of risk and limited control on the part of agencies when dealing with socially networked or mined data. There is now an almost instant contribution of information to emergency responses as a consequence of crisis mapping, but this should not diminish the role of preparedness and context mapping – for example, of the communication environment – before events occur.
- › The experience from recent crowdsourcing and crisis-mapping efforts highlights a need for greater coordination between all humanitarian actors and agencies and for a rethink of how humanitarian clusters interact with volunteer groups and affected communities.

Want to know more?

TED talk on big data:

<http://www.youtube.com/watch?v=j-ocUmUyb-Y>

TED talk on digital humanitarianism:

http://www.ted.com/talks/paul_conneally_digital_humanitarianism.html

Crisis mapping, Patrick Meier:

http://www.youtube.com/watch?v=qRG_Rue1a-s

Case study 8: The Pakistan floods and CrisisCommons

CrisisCommons aims to advance and support the use of open data and volunteer technical communities to provide innovation in crisis management. Through a global community of over 3000 volunteers and participants, it works to build and use technical tools to help the response to disasters and improve resilience in the face of crisis. To do this, it uses a mailing list and a wiki tool to collect data, plan projects, and capture and share information.

CrisisCommons also draws on and supports CrisisCamps, which seeks to connect global networks of volunteers through the use of creative problem solving technologies such as wikis to help communities during times of crisis. CrisisCamps was launched in 2009 and grew into a movement during the response to the 2010 Haiti earthquake.

Activities

CrisisCommons was active in August 2010 to support the relief effort in Pakistan after the floods. Immediately a number of CrisisCamps were held in eight locations – London, Cambridge (UK), Montreal, Calgary, Toronto, Silicon Valley, Bangkok and Sydney. The aim was to bring volunteers together in a collaborative effort to add data to an evolving map of the Pakistan floods. There was also a global Round The World CrisisCamp held in September, at which time different teams (determined by location and

time zone) were allocated specific activities. Skype Chat was used to coordinate the activities and facilitate communication between CrisisCamps.

The CrisisCamps engaged in activities such as translating CrisisCamp manuals into Urdu, collecting and translating situational reports from the internet and social media, collaborating on coaching and mapping, connecting with other projects, creating and updating a Wikipedia page on the floods, creating custom reports, creating a resource list for volunteers in the relief effort, and processing data.

During the floods a PakReport site and map were created to provide up-to-date, verified data from the affected areas. The CrisisCamps contributed reports to this site and offered coding support, as well as producing a step-by-step document on how to use PakReport. CrisisCamps volunteers worked to ensure that the imagery being added to the map was the latest, as well as plotting the geographic locations of SMSs from people asking for assistance (geocoding). Putting the longitude and latitude of these messages on a map was valuable for identifying gaps in service delivery and assistance.

Outcomes

- A wide variety of organisations collaborated – CrisisCommons, Mozilla, the University of New South Wales, Citibank, OpenStreetMap, and many more.
- Humanitarian agencies were able to use the data collected through CrisisCamps to accurately see where food, shelter and assistance were most needed and direct the relief effort accordingly.

Limitations

- The security situation in Pakistan prompted concerns that information processed by

volunteers could be used against those in need, rather than as a form of assistance, and some groups chose not to participate in the relief effort because of this.

- › Volunteer interest was also much lower during the Pakistan relief effort than it had been in previous responses such as Haiti.
- › There was insufficient sharing of information between organisations, and information was presented in different forms, making it difficult to generate a consistent picture for responders in the field.

Want to know more?

CrisisCommons website:

<http://crisiscommons.org>

Sources

<https://s3.amazonaws.com/nethope/ICTin2010PakistanFloods.pdf>

<http://blogs.worldbank.org/eastasiapacific/crisis-camp-another-face-of-humanitarian-relief>

Case study 9: Google Crisis Response tools

Google Crisis Response uses online technology to reach people in need and for its internal operations during a crisis. It makes use of a number of

tools, including resource pages with up-to-date emergency information, a 'person finder' web application to find missing people and connect friends and loved ones, and an online crisis map displaying geographic information, storm warnings, shelter locations and the locations of power outages.

Public alerts are used as a platform for disseminating emergency information to users and to enable response organisations to relay information to the public. Google Maps is also used, to allow responders to create customised maps in order to supply crucial information to their field teams and the public. Google Earth can be used as a geographic platform for comparing pre- and post-disaster situations. Google Crisis Response tools were used to reunite relatives after the Japan earthquake and to develop maps in response to the Christchurch earthquake in New Zealand, as well as by a number of non-government organisations involved in crisis response.

Activities

Google Crisis Response tools have been used by a number of organisations in their response to global crises. Save the Children used them in its response to the Philippine floods, the cholera outbreak in the Dominican Republic, and the Haiti earthquake. It also used Google Earth tools to help emergency response teams highlight infrastructure that had been damaged and the availability of medical facilities. This information was gathered by responders on the ground and then fed back to security teams who updated Google Earth maps. Save the Children also used Google Latitude (a GPS locational tool) to track security teams that had been dispatched into emergency situations. This was facilitated through a mobile phone application download of Google Maps and the creation of a Latitude account that could be shared

with colleagues and populated with individuals' precise geographic locations.

It was also noted that Gmail accounts were a valuable tool for responders because Save the Children's own servers were not available or accessible in many affected communities. Access to personal Gmail accounts thus allowed for continuing communication.

Outcomes

- › Maps showing infrastructure damage and transport routes were created and kept up to date.
- › Emergency response personnel were accurately tracked.

Limitations

- › An efficient internet connection in affected countries is required.

Want to know more?

Google Crisis Response website:

<http://www.google.org/crisisresponse>

Google Latitude:

http://www.google.com.au/intl/en_uk/mobile/latitude

Sources

http://www.google.org/crisisresponse/pdfs/savethechildren_global_case_study.pdf

Case study 10: Information management wikis

The ICT4Peace Foundation facilitates improved, effective and sustainable communication between people, communities and stakeholders involved in conflict prevention and peacebuilding through better understanding and application of information and communication technologies. It focuses on original research and policy development, advocacy, advisory services and training, and targeted networking.

ICT4Peace operates through a number of initiatives, including crisis information management wikis. The wikis collate vital information from government and UN systems in disaster- or crisis-stricken areas alongside other information. They have been used in response to the Libyan conflict, the Mali crisis, the Pakistan floods and the Haiti earthquake. ICT4Peace also operates to promote cyber-security and develop a safe, secure internet.

Another initiative ICT4Peace is engaged in involves training and curriculum development in crisis information management for multi-dimensional and multi-stakeholder missions in peacekeeping and peacebuilding. It also develops crisis information management strategies for helping all actors deal with the various stages of the crisis cycle more efficiently and effectively.

Activities

The ICT4Peace Foundation produces a number of wikis geared towards the humanitarian aid community, as well as the media and the public more broadly. The wikis feature information gathered from governments, the UN system, non-government organisations, the World Bank and situation reports, plus mapping information, GIS data, photos, videos and links to domestic and international media coverage.

In January 2013 ICT4Peace launched a wiki to cover the conflict and crisis in Mali. The wiki featured background information on the situation, UN contacts in the region, the scope of any UN operations occurring in the region, situation reports, information from Twitter feeds and other social media, videos, photos, podcasts, mainstream media news updates, GIS and other mapping resources, Google Maps mash-ups, and information about how to assist internally displaced persons and refugees.

Outcomes

- › ICT4Peace wikis are able to engage with hundreds of data sources.
- › The wikis demonstrate the range of data available outside official UN, response team or government sources.

Limitations

- › Wikis allow open public editing, so there is potential for the inclusion of misleading data and for vandalism.

Want to know more?

ICT4Peace website:

<http://ict4peace.org>

Sources

<http://ict4peace.org/updates/crisis-in-mali-new-ict4peace-wiki-launched>

<http://ict4peace.wordpress.com/2012/03/27/a-brief-exploration-of-open-and-big-data-from-investigative-journalism-to-humanitarian-aid-and-peacebuilding>

Case study 11: Ushahidi and the Haiti earthquake

Ushahidi is a crisis-mapping network and software platform that first emerged in response to the violence of the 2007 election in Kenya. It develops and promotes open-source software applications that facilitate the collection of citizen-witnessed information and its visualisation through interactive mapping, relying on a network of volunteers to analyse and process data, which is crowdsourced from a range of media, from SMS to social media such as Twitter. Its software platforms, Ushahidi, SwiftRiver and Crowdmap, all help to filter and structure information that is then mapped onto a specific location. Since its initial deployment in Kenya, Ushahidi has been used in a wide range of contexts and for a variety of purposes, such as reporting human rights violations, monitoring elections and responding to disasters.

Activities

Following the 2010 Haiti earthquake, relief workers' cluster approach to disaster response, which focuses heavily on enabling information sharing among relief teams, was found to have a number of limitations. The face-to-face approach to information gathering and sharing had limited potential to use and process local knowledge, involve the wider Haitian population in decision making processes, or gather local information to verify security reports or emergencies (Heinzelman & Waters (2010).

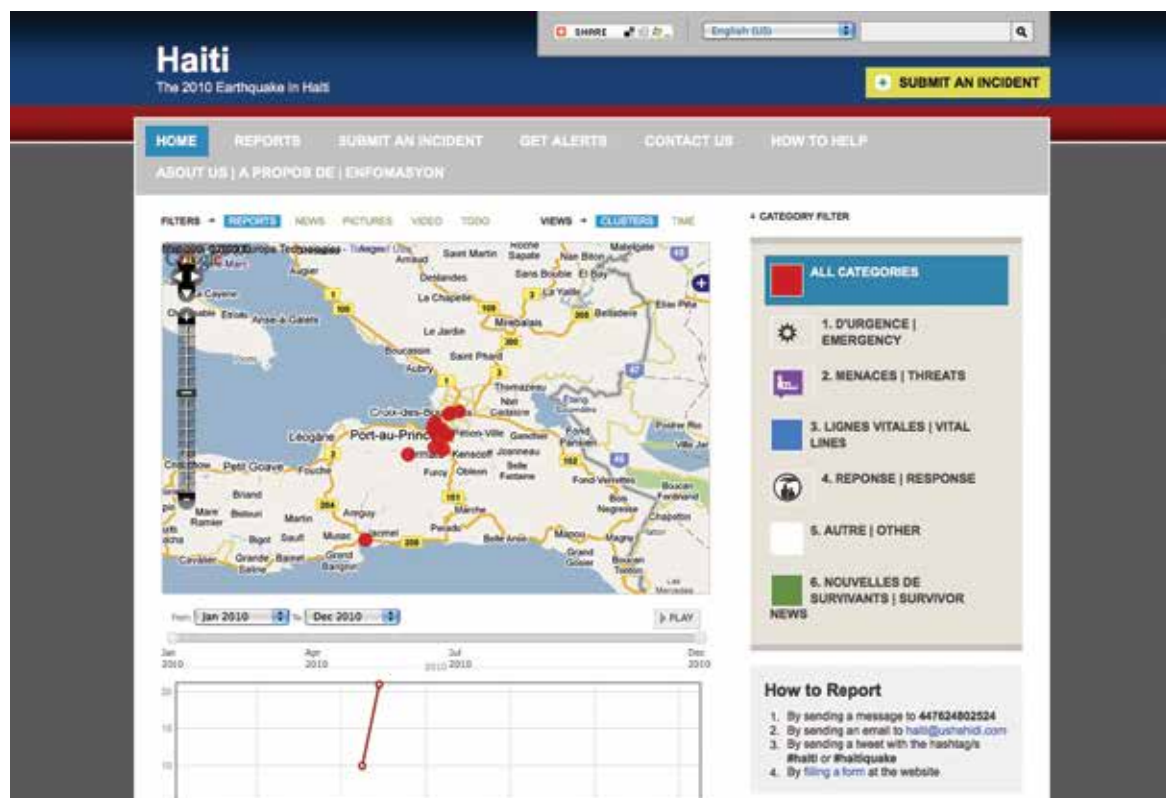
During the response information was gathered from social media sites, text messages and mobile phones. The local population was encouraged to submit reports through any of these mechanisms via the Ushahidi platform. A group of international volunteers collected reports about trapped people and medical emergencies, as well as tracking other concerns about food, water and shelter. These

collated reports were then plotted on real-time maps that were constantly evolving as more data flowed in. Maps provided GPS coordinates through Google Earth and Open Street Map. The final reports and maps were made available to anyone using the network, humanitarian agencies included.

The crisis map

The Ushahidi Haiti Crisis Map (Figure 12) plots real-time data received from the general public on a Google map. The Ushahidi platform plots incidents, feeds news from various sources, and is navigable via the map. It provides an immediate and accessible summary of emerging humanitarian assistance priorities, evolving rapidly and offering a data collection capacity and functionality that is far superior, when compared with face-to-face modes of data collection.

Figure 12: Ushahidi Haiti Crisis Map



Outcomes

- › Emergency response personnel on the ground after the Haiti earthquake used crisis maps to help target their efforts and ensure the best use of limited resources.
- › Because of the visual nature and immediacy of the data, the maps facilitated better situational awareness.
- › The Ushahidi platform allowed a wider range of actors, especially local people, to offer data on a large scale (Morrow et al. 2011).

Limitations

- › It is difficult to assess the accuracy of information supplied.
- › Crisis mappers and UN cluster teams could work more closely to develop more relevant data categories.
- › There was a lack of engagement with existing social networks.
- › There is potential for the most vulnerable to be excluded from the information gathering process because of a lack of access to information and communication technologies (Morrow et al. 2011).

Want to know more?

Ushahidi website:

<http://www.ushahidi.com>

TED talk on crisis mapping, Erik Hersman:

http://www.ted.com/talks/erik_hersman_on_reporting_crisis_via_texting.html

Sources

Heinzelman, J. & Waters, C. (2010)

Morrow et al. (2011)

Conclusion

Unlike other papers that have examined the role of social networking and social media, this paper examines the phenomenon from two distinct but inevitably interrelated standpoints – the popular use of social networks and development of social media content by both citizens and states; and the application of social networks and social media to complex emergencies and disasters. Although it is undoubted that the two areas inform and feed off each other, these two worlds of social media use overlap to only a modest degree (principally in relation to crisis mapping).

Global engagement with social networks – and the creation of user-generated content by citizens in particular – is changing the way we think about media. For example, user-generated content is driving ‘frontline news’ and in the process redefining how citizens and global media interact. Further, technologically empowered citizens are playing a central and largely independent role in speaking out about and sharing evidence of human rights violations or the need for humanitarian assistance.

But with the new forms of communication empowerment come concerns about how social media voices are used. Although they offer a channel for freedom of expression, they also present difficulties in connection with accuracy

and veracity for humanitarian and development organisations that view communication and media as essential for strengthening, especially in fragile or post-conflict situations. How to better integrate social media into media-strengthening, conflict reduction and peacebuilding programs in the future remains a puzzle for which there are currently few clear answers.

It is obvious that, in the era of Web 2.0, real-time two-way communication and content sharing, communities affected by conflict or disaster are increasingly placing their trust in social media content, as opposed to that provided by traditional media. Despite accuracy shortcomings, social media content is perceived to have credibility because it is generated by the community for the community.

Although national social networking and social media display a world of diversity, humanitarian organisations have put these communication tools to highly specific and collaborative uses in recent years – especially in association with natural disasters and election monitoring. The emergence of crisis mapping, which crowdsources data from social media and other communication channels such as SMS, has helped to increase the quantity and quality of information that is accessible. In addition, crisis mapping has resulted in better

information management, allowed for more effective coordination of assistance, and resulted in better planning and targeting and greater relevance of humanitarian responses.

What such technologies and platforms can do in helping agencies target and monitor humanitarian assistance and rights abuses or collect election monitoring data is becoming an important question, but it is an understudied field that is yet to be fully acknowledged by Australian development and humanitarian agencies. It is a field that poses numerous challenges. How, for example, can the accuracy of crowdsourced data be improved? And how can the volunteer and formal humanitarian assistance communities better interact to increase the relevance and improve the practical application of these new information-gathering and knowledge-generation tools? Many other similar questions are also posed in this paper.

Evidence from the 2010 Haiti earthquake clearly shows that social networking and social media can make a difference. They aided search and research tasks, helped with the directing of humanitarian relief flows, and kept the public informed and enabled them to take part and be included in the inflow and outflow of social media that occurred (Paquette & Yates 2011; United Nations Foundation 2011).

Without question, social networking and social media will constitute one of the most crucial channels of crisis communication as we move further into the 21st century. How humanitarian and agencies can more effectively harness them is the challenge.

Appendix A: Crisis mapping and crowdsourcing social networks

The Standby Task Force

The Standby Task Force, which was launched in 2010 at the International Conference on Crisis Mapping, is a volunteer platform and a shared space designed to help crisis-affected communities through the use of technology. Prompted by the crisis responses in Haiti, Chile and Pakistan, SBTF was conceived as a means of streamlining online volunteer support for crisis mappers and providing an interface for the humanitarian community. Now, with more than 900 volunteers operating in more than 70 countries, SBTF aims to augment the ability and skills of volunteers through dialogue and coordination with other technical institutions or crisis mappers and to provide a service to first responders.

SBTF focuses on information collection, visualisation, analysis and response and takes a modular approach: there are 10 teams, each with a specific focus area or responsibility. The teams provide support for crowdsourcing, mapping, data scrambling and technology testing. This includes the installation of mapping platforms, synchronisation with services such as Frontline SMS, collection of geolocation data, and categorisation of messages from SMS, social media and email, as well as media and voice messages. SBTF has been deployed

in a number of situations, among them a 2010 earthquake simulation in Colombia, monitoring for the 2011 Sudan referendum, mapping human rights violations in Syria, mapping complex emergencies in Libya throughout 2011, and mapping informal settlements in Somalia.

Source: <http://blog.standbytaskforce.com>

Crisis Mappers

Crisis Mappers, which was launched in 2009 at the International Conference on Crisis Mapping, makes use of mobile and web-based applications, participatory maps, crowdsourced event data, aerial and satellite imagery, and geospatial platforms to power effective early warnings for rapid responses to complex humanitarian emergencies. With more than 5000 members working in more than 162 countries, and with more than 3000 member and affiliate organisations, Crisis Mappers is the largest community of experts and practitioners engaged in crisis mapping.

Source: <http://crisismappers.net>

CrisisCommons

CrisisCommons aims to advance and support the use of open data and volunteer technical communities to provide innovation in crisis management. With a global community of more than 3000 volunteers and participants, it works to build and use technical tools to help respond to disasters and improve resilience in the face of crisis. It uses its mailing list and a wiki tool to collect notes, plan projects, and capture and share information.

Since its inception CrisisCommons has coordinated responses to the Haiti, Japan and Chile earthquakes, as well as the Thailand and Pakistan floods. It also draws on and supports CrisisCamps, seeking to connect global networks of volunteers through the use of creative problem-solving technologies to help communities during times of crisis. CrisisCamps was first launched in 2009 and grew into a movement during the response to the Haiti earthquake.

Source: <http://crisiscommons.org>

NetHope

NetHope acts as a catalyst for collaboration by bringing together the knowledge of leading international and humanitarian organisations. It uses a model that fosters public-private relationships to deliver technology solutions to the developing world, currently working with 38 member organisations in more than 180 countries.

NetHope's goal is to create new and practical technical solutions for pressing problems in health care, education, agriculture, conservation and finance. To do this, it has implemented five strategic programs. The first of these is the connectivity program, which facilitates the installation of low-cost solutions in isolated areas by using fibre optic infrastructure and mobile networks to improve capacity and reduce operating costs; this program has recently been used to foster connectivity during

the Horn of Africa crisis and to bring connectivity to the Dadaab camp complex in Kenya. The second strategic program, field capacity building, involves training individuals in telecommunications and/or satellite technology and IT project management. The emergency response program aims to enable faster, better coordinated responses to disaster and contributed to the disaster response after the Haiti and Japan earthquakes and the Pakistan floods. The shared services program provides economies of scale by sharing the best solutions and services among NetHope's membership group and assists member organisations with capacity building. The fifth program, innovation for development, designs replicable and scalable IT solutions to respond to challenges in development areas.

Source: <http://nethope.org>

The Digital Humanitarian Network

The Digital Humanitarian Network, or DHNetwork, leverages digital networks in support of humanitarian responses with the aim of forming a consortium of volunteers and technical communities and providing an interface between formal international and humanitarian organisations and informal volunteer organisations. It facilitates service requests from organisations and organises volunteer and technical community response teams to collaborate.

Organisations can activate DHNetwork through their website or email, then the review team will decide within 24 hours whether to accept or refer the request. Once a request is accepted it is forwarded throughout the network.

DHNetwork offers real-time media monitoring of both mainstream and social media, rapid geolocation of event and infrastructure data, creation of live crisis maps, data development and cleaning, satellite

imagery tagging and tracing, and web-based research.

Source: <http://digitalhumanitarians.com>

ICT4Peace

ICT4Peace facilitates improved, effective and sustainable communication between people, communities and stakeholders involved in conflict prevention and peacebuilding through encouraging greater understanding and application of information and communication technologies. It focuses on original research and policy development, advocacy, advisory services and training, and targeted networking.

ICT4Peace operates through a number of initiatives, including crisis information management wikis that feature information from government and UN systems in disaster- or crisis-stricken areas alongside other information from non-government organisations, the World Bank, situation reports, mapping, GIS data, photos and videos. These wikis were used in responses to the Libyan conflict, the Mali crisis, the Pakistan floods and the Haiti earthquake. ICT4Peace also operates to promote cyber-security and develop a resilient internet. Another of its initiatives involves training and curricula development for courses in crisis information management for multi-dimensional and multi-stakeholder missions in peacekeeping and peacebuilding. Further, it develops crisis information management strategies to help actors deal with the various stages of a crisis more efficiently and effectively.

Source: <http://ict4peace.org>

Emergency 2.0

The Emergency 2.0 wiki is a free global resource for using social media and new technology in an emergency. It constitutes a global hub for emergency agencies, governments, community organisations, businesses and the public to use social media to better prepare for, respond to and recover from emergencies. The resource provides information, tips, guidance, apps, monitoring tools, videos and practical guidelines and facilitates collaboration, knowledge sharing and crowdsourcing. It was launched with the impetus of experience from the use of social media during the floods and cyclone in Queensland in early 2011.

Emergency 2.0 acts as a free, public digital reference library that provides an internet and social media platform and engagement model. The wiki serves as a forum for news as well as developing and providing practical information and links. It also serves to provide support, education and training while facilitating technological innovation.

Source: <http://emergency2owiki.org>

Appendix B: Crisis mapping and crowdsourcing software resources

Ushahidi

Ushahidi (meaning 'testimony' in Swahili) is a non-profit technology company that specialises in developing free, open-source software for information collection, visualisation and interactive mapping. Originally developed in 2008 to map reports of post-election violence in Kenya, it has now been used in a variety of contexts, including the reporting of human rights violations, election monitoring and disaster responses. The Ushahidi platform is based on the gathering of citizen-witnessed information and relies on a network of volunteers to analyse and process the data alongside data from the media, SMS and social media. The aim is to provide access to information in real time.

Alongside the Ushahidi platform, the company also produces the SwiftRiver and Crowdmap platforms. SwiftRiver was born from the need to understand and act on the massive wave of crisis data gathered in the first 24 hours of an event occurring. It helps people make sense of the information in a short period by filtering and verifying data, gathering intelligence from the web, conducting analyses, developing insights, monitoring violence, and adding context to content. Crowdmap allows individuals

and organisations to set up their own deployment of the Ushahidi platform without having to install it on a web server.

Sources: <http://www.ushahidi.com>, <http://swifly.org>, <http://crowdmap.com>

ArcGIS

ArcGIS is a platform for designing and managing solutions through application of geographic knowledge. The desktop version of it is designed to increase understanding and improve decision making using modelling and analysis. Through the use of editing tools, data design is simplified, data are input and cleaned, and intelligent maps are produced for sharing. ArcGIS facilitates spatial analysis, data management, mapping and visualisation, advanced editing, geocoding, map projections, advanced imagery, data sharing and customisation.

ArcGIS is also available in a portable mobile format to improve field operations, and the ArcGIS server is available for distribution of GIS services to a variety of media in an organisation. This allows organisations to deliver GIS services, respond to the demand for maps, power applications and manage databases.

The online component of ArcGIS enables interactive maps and apps to be shared alongside ready-to-use content, apps and templates.

Source: <http://www.arcgis.com>

Google Crisis Response

Google Crisis Response uses online technology to reach people in need and for internal operations during a crisis. It uses a number of tools, including resource pages with up-to-date emergency information; a person finder web application to find missing people and connect friends and loved ones; and an online crisis map displaying geographic information, storm warnings, shelter locations and the location of power facilities.

Public alerts are used as a platform for disseminating emergency alerts to users and helping response organisations transfer information to the public. Google Crisis Response also uses Google Maps to allow responders to create customised maps to supply crucial information to their field teams and the public. Google Earth can be used as a geographic platform to compare pre- and post-disaster interviews. Google Crisis Response tools were used to reunite relatives after the Japan earthquake and to develop maps in response to the New Zealand earthquake, as well as by a number of non-government organisations involved in crisis response.

Source: <http://www.google.org/crisisresponse>

Sahana

The Sahana Software Foundation provides information management solutions that enable organisations and communities to better prepare individuals for responding to disaster. Sahana (meaning 'relief') was developed by members

of the Sri Lankan IT community in an attempt to assist in the response to the 2004 Indian Ocean earthquake and tsunami. The foundation is now a global, free open-source software project supported by volunteer contributors.

Sahana helps reunite families by registering missing and found people, tracking and managing requests for help from individuals and organisations, tracking organisations' and programs' disaster response, tracking the distribution and transparency of aid, and enabling information sharing between organisations. It was deployed after Hurricane Sandy, the Chilean wildfires, and the Japan and Haiti earthquakes.

Source: <http://sahanafoundation.org>

UN Global Pulse

UN Global Pulse was launched by the UN Secretary-General in response to the need for more timely information about the impacts of global or local socio-economic crises. The initiative explores how new digital data sources and real-time analytical technology can help policy makers understand human wellbeing. The aim is to mainstream the use of data mining into development organisations and promote awareness of the opportunities that such data present for relief efforts and data sharing.

UN Global Pulse engages in research and development in order to discover indicators in digital data that can facilitate development progress, as well as fostering data partnerships with companies and organisations that have technological or analytical expertise. The initiative also has a Pulse Lab Network, which works with UN member states to establish an integrated global network of pulse labs where researchers can work together to develop prototypes and pilot approaches at the national level.

Source: <http://www.unglobalpulse.org>

References

ACMC & ACFID 2012, *Same Space – Different Mandates: A civil-military guide to Australian stakeholders in international disaster and conflict response*, Australian Civil-Military Centre & Australian Council for International Development, Canberra.

Aday, S, Farrell, H, Lynch, M, Sides, J, Kelly, J & Zuckerman, E 2010, *Blogs and Bullets: New media in contentious politics*, United States Institute of Peace, Washington DC.

Al-Ani, B, Mark, G & Semaan, B 2010, 'Blogging in a region of conflict: Supporting transition to recovery', *Proceedings of the 28th International Conference on Human Factors in Computing Systems*, Association for Computing Machinery (ACM), Seattle, pp. 1069–78.

Al-Ani, B, Mark, G & Semaan, B 2010, 'Blogging through conflict: sojourners in the age of social media', *Proceedings of the 3rd International Conference on Intercultural Collaboration*, ACM, New York, pp. 29–38.

Allan, D & Brown, C 2010, 'The Mavi Marmara at the frontlines of Web 2.0', *Journal of Palestine Studies*, vol. 40, no. 1, pp. 63–77.

ARTICLE 19 1999, *The Public's Right to Know: principles on freedom of information legislation*, International Standards Series, ARTICLE 19, London.

Attia, A, Aziz, N, Friedman, B & Elhusseiny, M 2011, 'Commentary: The impact of social networking tools on political change in Egypt's Revolution 2.0', *Electronic Commerce Research and Applications*, vol. 10, no. 4, pp. 369–74.

BBC Media Action 2012, *Still Left in the Dark? How People in Emergencies Use Communication to Survive – and How Humanitarian Agencies Can Help*, Policy Briefing no. 6, BBC Media Action, London.

Bellucci, A, Malizia, A, Diaz, P & Aedo, I 2010, 'Framing the design space for novel crisis-related mashups: the eStoryS example', *Proceedings of the 7th International ISCRAM Conference*, Seattle, ISCRAM, Brussels.

Bird, D, Ling, M & Haynes, K 2012, 'Flooding Facebook – The use of social media during the Queensland and Victorian floods', *Australian Journal of Emergency Management*, vol. 27, no. 1, pp. 27–33.

Borges, M & Vivacqua, A 2012, 'Taking advantage of collective knowledge in emergency response systems', *Journal of Network and Computer Applications*, vol. 35, no. 1, pp. 189–98.

- Bunce, S, Partridge, H & Davis, K 2012, 'Exploring information experience using social media during the 2011 Queensland floods: A pilot study', *Australian Library Journal*, vol. 61, no. 1, pp. 34–45.
- Cameron, M, Power, R, Robinson, B & Yin, J 2012, 'Emergency situation awareness from Twitter for crisis management', *Proceedings of the 21st Annual Conference on World Wide Web Companion*, ACM, New York, pp. 695–98.
- Comninou, A 2011, *Twitter Revolutions and Cyber Crackdowns: User-generated content and social networking in the Arab Spring and beyond*, Association for Progressive Communications, Melville, South Africa.
- Cottle, S 2011, 'Media and the Arab uprisings of 2011: Research notes', *Journalism*, vol. 12, no. 5, pp. 647–59.
- Coyle, D & Meier, P 2009, *New Technologies in Emergencies and Conflict: The role of information and social networks*, UN Foundation – Vodafone Foundation Partnership, Washington DC & London.
- Dabner, N 2012, "'Breaking Ground" in the use of social media: A case study of a university earthquake response to inform educational design with Facebook', *Internet and Higher Education*, vol. 15, no. 1, pp. 69–78.
- Ghannam, J 2011, *Social Media in the Arab World: leading up to the uprisings of 2011*, Center for International Media Assistance & National Endowment for Democracy, Washington DC.
- Ghannam, J 2012, *Digital Media in the Arab World One Year after the Revolutions*, Center for International Media Assistance, Washington DC.
- Heinzelman, J & Waters, C 2010, *Crowdsourcing Crisis Information in Disaster-affected Haiti*, United States Institute of Peace, Washington DC.
- Inagaki, N 2007, *Communications for Development: Recent trends in empirical research*, World Bank, Washington DC.
- Iskander, E 2011, 'Connecting the national and the virtual: Can Facebook activism remain relevant after Egypt's January 25 uprising?' *International Journal of Communication*, vol. 5, pp. 1225–37.
- Khamis, S & Vaughn, K 2011, 'Cyberactivism in the Egyptian revolution: How civic engagement and citizen journalism tilted the balance', *Arab Media and Society*, vol. 14, pp. 1–13.
- Lim, M 2012, 'Clicks, cabs, and coffee houses: Social media and oppositional movements in Egypt, 2004–2011', *Journal of Communication*, vol. 62, no. 2, pp. 231–48.
- Mansell, R 2002, 'From digital divides to digital entitlements in knowledge societies', *Current Sociology*, vol. 50, no. 3, pp. 407–26.
- Morrow, M, Mock, N, Papendieck, A & Kocmich, N 2011, *Independent Evaluation of the Ushahidi Haiti Project*, http://api.ning.com/files/HX-j3*PqLLSgdkf8w5RVQwTyx-8GN*wEGnr3zb-aZoeXYGoOLSBhU5nFC5-qTSj4C7m7StAoyHmGmHWgdDuDtu48CJRnwW8Q/Ushahidi_Haiti_Eval_final.pdf.
- Muralidharan, S, Rasmussen, L, Patterson, D & Shin, J 2011, 'Hope for Haiti: An analysis of Facebook and Twitter usage during the earthquake relief efforts', *Public Relations Review*, vol. 37, no. 2, pp. 175–77.
- Paquette, S & Yates, D 2011, 'Emergency knowledge management and social media technologies: A case study of the 2010 Haitian earthquake', *International Journal of Information Management*, vol. 31, no. 1, pp. 6–13.
- Pearce, K & Kendzior, S 2012, 'Networked authoritarianism and social media in Azerbaijan', *Journal of Communication*, vol. 62, no. 2, pp. 283–98.

Rinke, E & Röder, M 2011, 'Media ecologies, communication culture, and temporal-spatial unfolding: Three components in a communication model of the Egyptian regime change', *International Journal of Communication*, vol. 5, pp. 1273–85.

Shirky, C 2011, 'The political power of social media: Technology, the public sphere and political change', <http://www.foreignaffairs.com/articles/67038/clay-shirky/the-political-power-of-social-media>. Viewed 21 March 2013.

Sigal, I 2009, *Digital Media in Conflict Prone Societies*, Center for International Media Assistance & National Endowment for Democracy, Washington DC.

Skuse, A & Brimacombe, T 2013, *Social Networking, Social Media and Complex Emergencies: An annotated bibliography*, ACCRU & APMC, Adelaide.

Starbird, K & Palen, L 2012, '(How) will the revolution be retweeted? Information diffusion and the 2011 Egyptian uprising', https://www.cs.colorado.edu/~palen/StarbirdPalen_RevolutionRetweeted.pdf, pp. 7–16. Viewed 16 March 2013.

Starbird, K & Stamberger, J 2010, 'Tweak the tweet: Leveraging microblogging proliferation with a prescriptive syntax to support citizen reporting', *Proceedings of the 7th International ISCRAM Conference*, Seattle, ISCRAM, Brussels.

Taylor, M, Wells, G, Howell, G, & Raphael, B 2012, 'The role of social media as psychological first aid as a support to community resilience building', *Australian Journal of Emergency Management*, vol. 27, no. 1, pp. 20–26.

Torero, M & Von Braun, J 2005, *Information and Communication Technologies for the Poor*, International Food Policy Research Institute, Washington DC.

UNICEF & UNAIDS 2002, *Communication from a Human Rights Perspective: Responding to the HIV/*

AIDS pandemic in eastern and southern Africa, UNICEF, Nairobi.

United Nations Foundation 2011, *Disaster Relief 2.0: The future of information sharing in humanitarian emergencies*, United Nations Foundation, Washington DC.

UNOCHA 2013, *Humanitarianism in the Network Age: Including world humanitarian data and trends 2012*, UN Office for the Coordination of Humanitarian Affairs, New York.

Wall, M & Zahed, S 2011, 'I'll be waiting for you guys: A YouTube call to action in the Egyptian revolution', *International Journal of Communication*, vol. 5, pp. 1333–43.

Wilson, C & Dunn, A 2011, 'Digital media in the Egyptian revolution: Descriptive analysis from the Tahrir data sets', *International Journal of Communication*, vol. 5, pp. 1248–72.

Youmans, W & York, J 2012, 'Social media and the activist toolkit: User agreements, corporate interests, and the information infrastructure of modern social movements', *Journal of Communication*, vol. 62, no. 2, pp. 315–29.

