Privacy and ethical implications of the use of social media during a volcanic eruption: some initial thoughts

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ABSTRACT

In a relatively new area of research for crisis management, this working paper presents a preliminary discussion of some of the privacy and ethical implications surrounding the use of social media in the event of a crisis. The paper uses the chaos caused by the eruptions of the Eyjafjallajokull volcano in 2010 to contextualise the analysis. It begins by presenting two case studies of the use of social media by members of the public and the aviation industry during the crisis caused by the ash plume. The paper then proceeds to briefly highlight some select ethical and privacy implications stemming from the use of social media such as privacy infringements and inequality. The paper concludes by briefly summarising the findings of the paper and considering next steps for future research in this area.

Keywords

Social media, crisis, ethics, privacy, data protection.

INTRODUCTION

The use of social media during a crisis to assist one another has been seen in countless emergency situations across the globe. Examples include (but are not limited to): the 2007 Virginia tech shootings (Viewleg et al., 2008), the 2007 California Wildfires (Novak and Vidoloff, 2011), the 2009 H1N1 pandemic (Nakki et al., 2011), Cyclone Yasi in Australia and New Zealand in 2011 (Taylor et al., 2012) and more recently during hurricane Sandy in 2012 (Yeomans, 2012). This working paper utilises two case studies surrounding the use of social media during the eruption of the Eyjafjallajokull volcano in March and April 2010 to highlight preliminary findings and future research efforts that are necessary to begin to construct an understanding of the ethical, privacy and data protection impacts of the use of social media in an emergency situation.

SOCIAL MEDIA & THE ERUPTION OF THE EYJAFJALLAJOKULL VOLCANO IN 2010

The Eyjafjallajokull volcano began erupting in March 2010. Between the 14th and 15th of April, the eruption grew worse, bringing parts of Europe's airspace to a standstill due to a drifting ash plume; the grounding of aircraft began to take place across Europe, once the ash cloud represented a credible threat to aircraft engines. The crisis soon became a cross-border one; across Europe, additional countries were announcing the closure of their air space (e.g., the UK, Republic of Ireland and Norway) with planned or partial closures to air travel in Sweden, France, Denmark, Finland, Belgium and the Netherlands (BBC, 2010). In May 2010, a report by the International Air Transport Association (IATA) reported that over the period of seven days, over 100,000 flights were cancelled, 1.2 million passengers were being affected on a daily basis and that the approximate financial loss came to $1.7 billion (International Air Transportation Association, 2010), in the biggest disruption to flights since 9/11 (BBC, 2010). This paper focuses on exploring the use of social media in two case studies during this crisis: the grassroots organised "Stranded in Europe" Facebook page and the use of social media by the aviation industry throughout this event. In the third part of the paper we discuss some of the ethical, privacy and data protection implications of these case studies.

The "Stranded in Europe" service by Matthews (2010) is a novel example of the bridging of different forms of

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technology to support members of the public's abilities to communicate in a crisis situation. The service consisted of the combined the use of the social networking website - Facebook, a blog and an SMS text messaging system that enabled members of the public to communicate and assist one another during the crisis. Matthews, an employee of Ericsson, created a system in collaboration with Ericsson labs that allowed members of the public to communicate with one another on Facebook, without having to access the site through the Internet – thus being particularly useful to those without direct access to the web. For individuals to post to the Facebook page, they were able to send a text message, which was charged at a standard rate, to a mobile number that would then be automatically posted, in an anonymous fashion, to the Facebook page "Stranded in Europe" to which other Facebook users could then respond. If a Facebook user responded to the message, the person who had originally posted the message would receive a reply via SMS. Matthews created an accompanying blog, which explained how to use the service (Matthews, 2010).

Such a grassroots service has several benefits. It allows people to access and post a query on Facebook to a potentially unlimited number of potential responders. For example, one user requested information about booking a train from Italy to Sweden and was given advice from other users. Through the use of different types of technology, posting a message to a social networking website allows people to receive assistance from others that "might" be knowledgeable of local information, thereby improving the prospects of gaining correct information quickly and efficiently. It therefore engages and makes use of public knowledge, via a manifestation of crowd sourcing, enhancing an individual's resilience to the situation they are facing. In addition, the service enables those caught up in the transport chaos to attempt another way of finding a solution to their problem. Crucially, this also facilitates the mobilisation of social capital in an emergency situation, with individuals utilising new forms of social media to communicate within their social networks as well as "others" outside their networks (Dynes, 2006).

In addition, there were numerous instances of those involved in the aviation industry, including authorities and airlines, using social media to communicate with passengers. In addition to their website, EUROCONTROL, the European Organisation for the Safety of Air Navigation, used a range of social media applications (e.g., YouTube, Facebook and Twitter) to communicate with airlines and members of the public throughout the crisis (Valtat, 2011). During the crisis, their Twitter audience increased from 300 to 7,300 followers in the space of a week, with their online communications manager, Valtat, singularly using the site to respond to approximately 200 questions per day. Their use of Facebook also saw an increase in audience engagement from 2,000 to 5,000 fans (Valtat, 2011).

As noted in their study of social software and crisis management, Reuter et al (2011) found that during the volcanic ash cloud incident, airlines used social media platforms including Facebook and Twitter as both a broadcast medium, as well as to directly engage and communicate with passenger enquiries and requests. They advocate the use of tagging and geo-tagging (e.g., of photographs and messages), particularly in determining the precise location of an incident with regards to the public, and subsequent institutional use of social media in a crisis to aid crisis managers. According to Pring (2011), at the peak of the crisis, airline call centers were overwhelmed with traffic from customers, causing long delays and customers to search other communication channels for updated information. In response, Qantas used its own website as well as its Facebook and Twitter accounts during the crisis to communicate with its passengers. This was also being operationalised by European airlines such as, KLM, Brussels Airlines and Lufthansa who all used Twitter (and in some cases, e.g., KLM, Facebook) to communicate with passengers (Levy, 2010). Airlines focus seemed to be placed on supplying people with information about the cloud, flight information and for some (e.g., Qantas) to respond to enquiries. In addition to using Twitter and Facebook, Qantas also made a short film for passengers to view via YouTube to help them understand the situation. During the crisis, Qantas received a 68% increase in passengers who followed them on Twitter, an additional 6,700 fans on Facebook and had conversations on Twitter with over 2,000 people – of which some information was retweeted for others to view (Pring, 2011). Similarly, KLM gained an additional 4,000 followers in a week (Levy, 2010). Accordingly, in this setting, social media enabled one-to-one communication, and allowed others to disseminate information they received to others, allowing for the vast exchange of information.

As demonstrated, industry use of social media in times of a crisis enables organisations to communicate with their consumers on a greater scale. In the chaos caused by the ash plume, airlines were able to utilise social networking websites to engage with passengers, offering them information, guidance and reassurance. In an age where access to up-to-date information on the web is not only expected but demanded, social networking sites offer crisis management an ideal opportunity (as remarked by numerous authors – e.g., Novak and Vidoloff, 2011) to improve its crisis communication strategies. However, there are important ethical, privacy and data protection implications to be considered.

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ETHICAL, PRIVACY AND DATA PROTECTION IMPLICATIONS

Current and emerging crisis response practices may have unintended ethical, privacy and social consequences. Privacy often emerges as a key concern in relation to new and emerging information and communication technologies, particularly surveillance technologies, security technologies and social media technologies (Lyon, 2003). However, privacy, as a concept, is notoriously difficult to define and to fix. Solove (2008) describes privacy as a "family" of related issues, many of which could be impacted by new technologies, such as social media technologies and applications used for crisis management and response. Yet, privacy is not the only lens through which potential negative consequences of the deployment of new technologies can be viewed, and other ethical or social issues, such as inequality, are also implicated (Finn and Wright, 2012). In relation to crisis response technologies, these may include data protection infringements, privacy infringements and impacts related to discrimination and profiling.

While social media tools and other forms of technology provide a useful way for many individuals to gather information and deploy their social networks and other resources to solve problems in crisis situations, as extensively debated elsewhere (e.g., Mordini et al., 2009), those on the other side of the digital divide may be left behind by such practices. They would have little access to information increasingly posted on social media platforms, rather than more traditional means of communication. For example, Guiver and Jain found "ICTs were often instrumental in hearing about the ash cloud and thereafter acquiring information and material assistance" and mobile phone communication was a key tool for such communication and information gathering (2011, p. 45). Thus, those who did not have access to mobile phones and ICTs, those who could not pay the fees charged by service providers of these technologies (particularly in cases where international communication was necessary or mobile Internet access was necessary), and those who did not have the skills to use such devices would have been disproportionately impacted by their inability to gather information and communicate with their networks. This was particularly significant given that "home networks" and other social networks "were easier to contact than service providers [such as airlines] overwhelmed with requests for information" and assistance (Guiver and Jain, 2011, p. 44). Thus, while some passengers stranded by the volcanic eruption were "well equipped electronically and with personal skills and resources to respond to the situation" others who were not so fortunate may have suffered additionally. While some applications, such as "Stranded in Europe" sought to challenge and mitigate these impacts by relying on fairly low-end, inexpensive technology like SMS, users would have to be able to initially access sites such as Facebook or the instructional blog site in order to become aware of the service that was being offered. Therefore, the use of such technologies to communicate information and to offer assistance must attend to issues related to the digital divide, including access for some people belonging to social groups such as older people, those with fewer economic resources, those with less education, etc. (Hacker and Mason, 2003). This will be particularly relevant as response services migrate from traditional sources to ICT and social media communication platforms.

Second, some social media applications may exploit consumer and public labour by asking members of the public, rather than corporate or public entities, to take over care responsibilities for those who are impacted by a disaster. Consumers and members of the public must do their own work to find accommodation, alternate transportation, amenities and services. Andrejevic (2012) discusses this relationship between consumers and corporate entities via social media as exploitative capital labour that manufacturing and service companies, as well as social media companies, are increasingly expecting consumers to do without compensation, rather than skilled experts and labourers employed by the companies themselves. Those with social and cultural capital (both access to technologies themselves and knowledge to use it) are put to work and can access services such as train ticket purchase facilities as a result of their own free labour, as well as the free labour of those answering their queries or in their dispersed social networks (Guiver and Jain, 2011). Those on the other side of the digital divide may become doubly marginalised, since as corporate or public service providers retreat from, or are overwhelmed with, requests for care services, few traditional avenues for assistance are accessible.

A final ethical issue is closely tied to privacy and, particular, data protection elements of privacy. As new media and social networking technologies and applications are increasingly deployed in crisis situations, users are often not given enough information about how their personal data is being used by service providers, social media companies and technology companies. This implicates data protection principles such as transparency and consent, creating an information asymmetry. Specifically:

> New media technologies may help level the playing field in some respects by widening access to the means of creating and distributing a range of cultural and informational products, but they also create new asymmetries. Google may know a lot about users' patterns of browsing, emailing and eventually mobility, but users know very little about what information is collected about them and how it is being put to use (Andrejevic, 2012, p. 76).

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This extends information asymmetry from ICT service providers like Google and Facebook to the commercial organisations upon which those impacted by the ash cloud may have been reliant. First, consumers using the "Stranded in Europe" application provided in partnership with Ericsson or becoming a "fan" of Qantas Airlines during the crisis may not have been aware of these companies' data use policies. Companies such as Qantas use their social media platform to collect and use personal information about consumers to create user profiles and carry out advertising in the future (Andrejevic, 2012). Second, those relying on Twitter, Facebook or other social media feeds to gather information or solve problems may have had little opportunity to refuse consent for these types of information collection practices without putting themselves at an information disadvantage within a situation in which this information is both reliable and essential. This is indicative of a gradual undermining of consumer consent through the removal of meaningful alternatives, particularly when users are in a vulnerable situation such as in a crisis. Such practices could become even more problematic, if as Reuter et al. suggest, the sharing of location-based information is further encouraged by social media organisations creating further opportunities to create sophisticated profiles of potential customers (Cleff, 2007).

CONCLUSION

This working paper has sought to show how multiple technologies are being used by both public and private organisations to communicate and assist others following a crisis. As shown here, some services such as the "Stranded in Europe" sought to mitigate the challenges associated with accessing the Web and the use of social networking sites in times of crisis and to support members of the public in assisting one another in an emergency. Elsewhere, the aviation industry's use of social media during the ash cloud incident sought to find an alternative way of connecting, communicating and assisting their customers/those affected during the crisis. However, despite the efforts by some, there are still a multitude of ethical issues that these practices raise. This includes preventing a digital divide in the use of technology to assist crisis communication and ensuring that those who are impacted by the digital divide have meaningful alternatives to information and assistance when they are at their most vulnerable.

Furthermore, as outlined here, there are also privacy and data protection issues surrounding consent in crisis situations specifically, when consumers are particularly vulnerable and managing their behavior within a crisis situation *all but requires* them to access social networking sites like Facebook, or corporate interfaces that engage in data collection practices. While these arguments are well-trodden in relation to the "social" aspects of social media, they are less well-examined in relation to extreme situations such as crisis or disaster where meaningful consent is even further undermined. Specifically, even individuals who would normally avoid using such technologies or engaging with such social media or corporate platforms because of the privacy and data protection implications may feel they have little choice but to do so in order to navigate the crisis effectively. This could lead to additional vulnerabilities in situations where location sharing, crowd sourcing or further advanced tools are used. Accordingly, further research on different types of social media technologies and platforms, for example crowdsourcing, sharing of location information and other mapping technologies as well as data mining applications, must be completed to examine the potential ethical and privacy consequences for individuals in exceptional, vulnerable circumstances.

Finally, the "Stranded in Europe" application offers an interesting and significant attempt to mitigate many of the ethical and privacy implications we outline above. The system uses standard SMS rates and does not require direct access to the Internet, thus removing some of the "digital divide" concerns that the social networking examples engender (although it is worth noting that users must have had access to the Internet to be aware that the service existed and access to a mobile phone to benefit from it). Furthermore, the site posts relatively anonymised data to Facebook, thus removing some of the privacy and data protection implications. However, any information collection practices used by Ericsson to provide this service are not presented or communicated to potential users. Furthermore, many social networking sites and mobile communication devices have the ability to collect and transmit data such as unique device ID numbers or location information without users being aware that this has occurred. A more detailed examination of services like Stranded in Europe would be necessary to determine the exact extent of data collection and transmission. Consequently, whilst for some the use of social media and other technologies are extremely useful and have the ability to provide some individuals with assistance in a crisis, there are important considerations that require further examination in order for recommendations to be made to those involved in crisis communication and crisis management.

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