

# Unpacking the Impacts of Social Media Upon Crisis Communication and City Evacuation

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**Abstract** In the UK National Security Strategy it was argued that networks, including those facilitated by social networking technologies, could impact upon security as a wide range of ideas could easily proliferate (2010, p. 16). As indicated in Chap. “[City Evacuations: their pedagogy and the need for an inter-disciplinary approach](#)”, crisis communication is a vital aspect of effectively managing large-scale evacuations. This chapter therefore examines the implications of this new ‘mass of connections’ in the context of evacuation. It draws upon data from three highly varied UK city locations in order to examine the impact of social networking technologies upon official (i.e. first responder, local authority or national government led) emergency communication strategies. The chapter specifically addresses two inter-related findings: the opportunities for and threats to official crisis communication that emerge from the introduction and uptake of social networking technologies and the re-configuration of crisis information exchange between government, traditional media and citizens. The chapter concludes by offering a range of policy and practice recommendations focused upon improving communication strategies in the context of evacuation.

## 1 Introduction: Why Social Media Matters to Crisis Communication and City Evacuation

Social media is transforming the way people communicate, interact and share information (Lindsay 2011). Enabled by new technologies, social media allows individuals and groups to instantaneously share experiences, opinions, images and video

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content in a largely unrestricted networked manner (Lariscy et al. 2009). Social media's influence has become widespread making up 12% of all Internet visits and 23% of the total time spent online in the UK (Crowley 2013). Social networking has become the most popular online activity worldwide. Duggan and Smith from Pew Research Center (2013) report that 73% of online adults use networking sites like LinkedIn, Twitter and the dominant social network Facebook [which had 1.9 billion monthly active users in its 2013 third quarter results (PRnewswire 2013)]. Such statistics highlight the significant impact of social media on communication; and thus the potential of these technologies to present opportunities and challenges to leaders, government agencies and blue-light organisations in establishing and using communication channels to engage with the wider public.

The wide ranging implications of social networking technologies in the specific context of disaster response are increasingly apparent. In a survey funded by The American Red Cross it was found that 16% of participants had accessed information about an emergency via social media and that this ratio was significantly higher among younger respondents (2010). The potential for using social networking technologies during crisis situations has also been highlighted in practice. During the Californian (USA) wildfires of October 2007 individuals located on the ground in Southern Californian posted information on platforms such as Twitter in order to inform others in the area of events as they evolved and in turn these posts aided real time decision making (Sutton et al. 2008; Prentice and Huffman 2008). The sharing of such information through social media allowed users to engage instantaneously with real time updates and informed their responses. The importance of social media as a communication tool during crisis management events rose further in prominence in 2011 as a result of a series of natural disasters that occurred in Japan, New Zealand and Australia (Taylor et al. 2012). In a report released in January 2012, marking a year since the Queensland floods, social media was identified as a key communication tool for crisis management during the disaster (Posetti 2012). The advent and uptake of social media has introduced, '...substantial and pervasive changes to communication between organizations, communities, and individuals' (Kietzman et al. 2011, p. 250) that transcend entertainment, marketing or peer-to-peer networking.

This reconfiguration potentially alters the role of the citizen within information exchange from passive recipient to creator, questioner or collator of crisis communication. The self-sourcing of information by citizens is arguably democratising as it offers access to a wider range of information and yet it may also present challenges for the official control and coordination of information. The open network of social media could lead to the propagation of both intentional and unintentional rumours on internet platforms. These information flows may have significant implications as government policy and official communication is ignored with potentially serious consequences. In January 2010 a Twitter rumour, which included speculation about a terrorist attack, led to unnecessary panic and according to sources at the time a costly evacuation of a large American train station. One journalist was watching the rumour unfold in real time and commented that 'streaming before my eyes was ...

the ebb and flow of rumor' (Bnet 2010) as multiple versions of events quickly spread through Twitter. A further potential concern around the personalisation of news, its relevancy and its accuracy is known as the 'Filter Bubble' a term coined by Pariser (2011). Individuals through greater personalisation of their social media platforms, catered by algorithms, may choose only to consume news similar to their own ideologies and views, thus receiving a closed worldview, irrespective of whether the information they receive is in fact correct.

This chapter builds upon what is already known about the link between social media and crisis communication to examine the extent to which the invention and uptake of social networking technologies impacts traditional modes of government to citizen communication and ultimately the management of crisis events. To summarise a range of key features make the use of social media particularly pertinent to managing city level evacuations. As indicated in Chap. "[City Evacuations: their pedagogy and the need for an inter-disciplinary approach](#)", crisis communication is a vital aspect of effectively managing large-scale evacuations. Social networking technologies enable the rapid and accessible transfer of information through both official and informal channels. Social media also has the ability to connect multiple individuals and the wider community on a personal level thereby providing opportunities for further support and assistance (Taylor et al. 2012) whilst at the same time facilitating the spread of unintentional or malicious rumours.

The chapter draws upon qualitative research conducted in three distinct and highly varied UK city locations. The sampled cities represent high and low density populations, reliable to unreliable telephone and Internet coverage and varied first responder levels of engagement with social media as a communication channel. The data is collected through the following four methods: comparative website analysis; city-level focus groups; expert interviews and data validation events. Research participants were drawn from national and local level emergency planning teams, blue light services, the media, social media experts, and citizen or business network groups. The term emergency manager is used throughout to refer to those individuals or teams that are engaged in creating, managing or enacting official government emergency communication strategies at the local or the national level (i.e. first responders, local authority or national government emergency management/resilience teams). The city locations are compared in Chap. "[City Evacuations: their pedagogy and the need for an inter-disciplinary approach](#)" and as such that work is not repeated here.

The next section begins by considering the implications of how social media is defined and the characteristics of social networking technologies that are of particular pertinence to crisis communication before moving on to examine the importance of its social dimension. Subsequently, existing literature is surveyed in order to identify how social networking technologies are currently being harnessed by emergency managers in North America and Australia. Next, primary data is drawn upon to analyse the opportunities for, and threats to, official crisis communication that emerge from the introduction and uptake of social networking technologies within the UK. Having considered the qualitative data an extended conceptualisation of the re-configuration of crisis information exchange between official channels, traditional media and citizens is presented. Finally, the chapter concludes by offering a range

of policy and practice recommendations focused upon improving communication strategies in the context of evacuation.

## 2 Definitions, Characteristics and the ‘Social’ in Social Media

There is no standard definition of social media. However, writers and media experts have sought to capture its key traits. Social media has come to encapsulate a new wave of digital communication and content sharing between individuals and organizations. This has been made possible by accessible and scalable internet and web-based technologies, software tools and publishing techniques (Botha et al. 2010; Cook 2008). Social media is commonly defined in terms of its technological foundations and is associated with user-generated content, crowd sourcing, and Web 2.0 (Bertot et al. 2010; Kaplan and Haenlein 2010). In this regard, social media is generally identified with internet-based technologies which enable instantaneous networked communications and sharing of resources, experiences and media across individuals and broader communities (Lindsay 2011; Lariscy et al. 2009). These technologies include a wide range of online platforms from, social networking websites which are traditionally defined by their capability to enable networks across users (Facebook and Google+), microblogging sites (Twitter) with the distinguishing capacity to broadcast content, blogs, chat rooms, and discussion boards to media sharing platforms (YouTube) (Magro 2012; Mangold and Faulds 2009). According to this perspective, the social media landscape and its interactive web space was made possible by way of Web 2.0 and the explosion of rich, interactive software applications like XML-based formats (e.g. RSS) and Adobe Flash (Funk 2009).

The term social media is also often used interchangeably with consumer/user generated content, whereby, individuals and groups of people who were previously merely consumers of media now create different types of content and share it amongst themselves (Cook 2008). This embodies a cultural shift away from the traditional unidirectional model of media where a message is broadcast in one direction from the source to the audience(s), to ‘many-to-many’ media which signifies a webbed network in which information flows in multiple directions. The ability for people to create content and share knowledge is the central defining feature of social networking. Social media does more than simply making information available, it enables ‘contextual information that responding organizations and the public alike may use to make sense of the available information’ (Yates and Paquette 2011, p. 8). Arguably it is the internet and its architecture as an open system which flattens hierarchies that has given rise to networks and new technologies, such as social media, that are central to the existence of the network society (Hassan and Thomas 2006).

A contrasting view emphasizes the sociological elements of social media by defining key elements such as inter-personal communication and how it is embedded within the world. Kietzmann et al. (2011) argue that whilst social media ‘employs’ mobile and web based technologies that it ought to be defined by functional building blocks that focus more on ‘social’ relational dimensions. Likewise Li and Bernoff

(2008) discuss how social media has enabled the ‘groundswell’ of digital conversations, where consumers interact, gather and exchange information amongst themselves cutting out corporations and traditional gatekeepers of information. Bertot et al. (2010) outline four main strengths of social media all of which emphasise its nature for social interaction (socialization) and its capability for democratisation: (1) collaboration (2) participation (3) empowerment (4) time.

The social in social media is therefore highly significant. Kaplan and Haenlein combine ‘Social Presence Theory’ (Short et al. 1976) and ‘Media Richness Theory’ (Daft and Lengel 1986) to explain the high level of traction that social media gains in communication exchange (2010). They argue that there is a larger ‘social influence between communication partners’ when there is a combination of ‘immediacy’ (i.e. synchronous rather than asynchronous communication) and ‘intimacy’ (i.e. interpersonal rather than mediated communication) (Kaplan and Haenlein 2010, p. 61). Further to this the researchers found that platforms that allow the transfer of images or videos (e.g. YouTube) are more effective in resolving ambiguity; and therefore in creating patterns of influence between communication partners as they increase the ‘amount of information ... transmitted in a given time interval’ (Kaplan and Haenlein 2010, p. 61).

The next sub-section considers the extent to which social networking technologies, such as those outlined above, are used by first responders and emergency planners.

### 3 How Emergency Managers Use Social Media

US government agencies used social media platforms for the first time as the primary tool for collaboration and sharing knowledge during the devastating 2010 Haitian earthquake. By employing wikis and online collaborative workspaces, knowledge resources were more complete and decision-making cycles were reported to be quicker (Yates and Paquette 2011). According to Sutton et al:

With each new disaster, peer-to-peer communications through social media such as social networking sites, text and instant messaging applications, blogs, wikis and other web forums, are growing as a means for supporting additional, often critical and accurate, dissemination of information within the public sphere. Furthermore, backchannel communication tools provide the opportunity for the public to actively engage in the creation of information rather than to be passive consumers (2008, p. 2).

The value of social media as a tool for emergency management has also been recognised by a range of local government emergency management agencies in the USA. The International City/County Management Association (ICMA) white paper (Chavez et al. 2010) provides insights into how six local governments in the USA have used social media platforms for emergency preparedness. Chavez et al. (2010) reported that by using interactive social networking platforms (e.g. Twitter, Facebook and YouTube) alongside traditional media (e.g. print media, television), that these public agencies successfully harnessed social media to alert residents to breaking news, public safety messages, weather emergencies (Illinois) and video posts about emergency preparedness (Kansas).

In dealing with the issue of rumours and the danger they pose in crisis situations, the Queensland Police successfully intervened in public discussion during the Queensland floods of January 2011 to clarify misinformation that was in circulation (Wilkins 2012). By engaging with Twitter and posting ‘mythbuster’ tweets the Police successfully corrected the public on wrong information and consequently established greater credibility in the public eye (Wilkins 2012).

In 2011 Craig Fugate, the Federal Emergency Management Agency (FEMA) Administrator, outlined a range of ways in which FEMA could harness social media as a resource by which, ‘...to facilitate communication between citizens, first responders, volunteer groups, the private sector, and all levels of government’ (Lindsay 2011, pp. 2–3). Lindsay however goes on to argue that current uses of social media by emergency management agencies, including FEMA, are ‘somewhat passive’ and that social media platforms in practice tend to be used as only a new means of dissemination or as a way to receive feedback (2011, p. 1).

There is evidence that social networking technologies present an opportunity for new and more immediate modes of information exchange between first responders, emergency managers and citizens such as the crowd sourcing of information. Traditional forms of media from print press to programmed news broadcasts have rapidly been supplemented by modes of communication that are more frequent, accessible and interactive. The next section presents an analytical account of the primary data in order to unpack the potential implications of social media for crisis communication and evacuation within the context of the UK.

## 4 Threats and Opportunities of Social Media for Evacuation

Shirky (2011) has argued that there is a fundamental ‘scepticism’ about both the value and effectiveness of social media which is underpinned by a belief that its use will do at least as much harm as good. In the primary research reported in this chapter a more complex picture emerged. Approximately 50% of respondents believed that social media was harmful to crisis management as it was ineffective, used by too few, open to abuse or unreliable. The remaining 50% of respondents however felt that social media presented a wide range of opportunities for both information dissemination, exchange and collection. In particular, local authority emergency planners and first-responders saw the potential of social media for collecting first hand observations of crisis events. To gain a more nuanced understanding of why practitioners and policy makers hold opposing views about both the use and usefulness of social media for crisis management this sub-section reports upon the threats and opportunities identified by research participants.

Table 1 brings together earlier discussions about the properties of social media and the primary data in order to compare the key characteristics of the broadcast sub-set of social media (e.g. Twitter or YouTube) to traditional media (i.e. in its role as an official communication channel). It is recognised that a difficulty is presented by both the wide range of social networking technologies in use and also the multiple typologies of old media. In order to offer a detailed analysis the phenomenon has been

**Table 1** Comparison of the attributes of old and new media

Traditional media (TV and Radio)	Social media (Broadcast)
Static	Mobile
Mass	Niche
Authority	Not authoritative
Mediated	Peer-to-peer
Delayed	Real-time
Fact-checked	Rumours
Temporary	Searchable
Reliable	Unreliable

**Table 2** Overview of threats and opportunities of social media to crisis communication

Social media	Themes taken from primary data	
	Threat	Opportunity
Mobile	Information ‘leaked’ too early	First hand observer accounts
Niche	Discriminatory	Information to generations Y and Z
Not authoritative	Incorrect information	–
Peer-to-peer	False trust of information	Trusted
Real-time	Forces a response	Rapid information transfer
Rumours	Malicious or false information	–
Searchable	Incorrect information	Question asking & data-mining
Unreliable	Technical failure if used	–

presented in a simplified form. The selected framing resonates with the primary data collected, as research participants primarily focused upon broadcast (i.e. searchable) social media and TV and Radio.

Table 2 uses the key characteristics of social media outlined in Table 1 to unpack the impacts of social media as identified by research participants. The remainder of this section offers a detailed examination of the identified threats and opportunities in relation to effective crisis communication. Evidence of how UK emergency managers are using social media is integrated throughout.

Table 2 identified a range of the threats associated with social media and these can be clustered broadly into the following three areas:

- (a) The risk of incorrect information spreading;
- (b) The pressure upon emergency managers to respond rapidly and without complete information;
- (c) The lack of robustness of social media as a communication channel.

As discussed in previous sections, social media has, to a degree, shifted the locus of control of information away from government and official sources and towards largely unregulated networks (Lariscy et al. 2009). This has implications for emergency managers responsible for crisis communication strategies:

You have to establish yourself as a voice of authority because there's a lot of noises, there are so many different sources now with any story and if you don't establish your authority, then when you do have something important to tell communities, they're not coming to you, so it doesn't matter (police communications team representative).

The ability of official emergency communication managers to control the narrative of a crisis is diminished by social media and this challenges traditional modes of crisis governance. The role of non-government actors in the production and reproduction of crisis information creates opportunities such as those identified by Fugate (Lindsay 2011), and yet an inability to control the flow of information may lead to sub-optimal outcomes in the event of an evacuation. Rumours were identified as the key threat from social media by participants. The use of the term rumour to some extent reflects the negative image held of information transfer on social media platforms by participants. Here the term rumour is used more neutrally to denote unconfirmed and unofficial communication. Either an unintentional or malicious rumour could compete with official messages and advice. In particular rumours about the need to evacuate now, via a specific route or even challenging the severity of an event may compete with official messages such as 'go in, stay in, tune in'.

A number of research participants reported that they would add unconfirmed information to platforms such as Twitter:

So if I heard a rumour that wasn't substantiated by the media or by the police, I'd go and check it out, I'd physically walk up and have a look at it. But I would still tweet it, I would still say 'rumours say there's an evacuation of the [hotel]' I would still tweet it because I think that up-to-date information as accurate as I can make it is more important than me waiting to make sure that every single word is substantiated (business representative).

When asked, a local authority emergency planner responded that 'I don't think you'd initiate evacuation based on Twitter' and yet the research indicated that members of the public might take physical action on the basis of a social media rumour. Even if a social media rumour is true it may be that, in the context of evacuation, acting upon this information could lead to negative outcomes for either the individual or for the community within which that individual is embedded. Evacuation is a complex process whereby coordination and control by government may potentially contribute to a faster, safer and more effective evacuation by, for example, reducing panic and road congestion. Social media therefore poses challenges for the effective management of evacuation as both correct and incorrect information could possibly lead to negative outputs in practice if not factored into evacuation planning and response. One key concern (as discussed in Chap. "[City Evacuations: their pedagogy and the need for an inter-disciplinary approach](#)" by Preston and Kolokitha) is the potentially discriminatory effects that could be caused by unequal access to technology and therefore information.

In relation to how likely a rumour is to gain traction with the public, the research found evidence that if a number of individuals agree about an event, either on a single social media platform or across a range of platforms, there is the potential for the aggregated interpretation to take on the status of reality, regardless of formal messages from the national or local level. One participant stated this idea of being convinced by the crowd particularly succinctly:



I think that the public trusts information it receives multiple times from multiple sources and if I was to put out a hundred different rumours to say that the new Mayor ... was actually blue and I was to put it over 30,000 different websites in all different ways and then a trusted authoritative person was to stand on the Council steps and say "No, the Mayor is not blue" I guarantee everyone is going to think the Mayor is blue (business network leader).

The final key threat identified was a new pressure for rapid response from emergency services as, to cite one blue-light service participant, 'what's happening more and more now is that you have to get a holding statement out very, very quickly'. In particular, participants from local authority emergency planning teams, police, ambulance and fire expressed a tension between traditional bureaucratic crisis communication processes and the increasing public demand for early and full information. For example, a respondent observed:

I think it puts more pressure on us as emergency services. Obviously, we're working to very distinct practices around what we can and can't confirm and what details we can give out... If the public have got photographs of particular things and you can't confirm at that stage whether or not that is the case. I think that can lead to some really difficult frustrations and I think that's one of things we're really up against at the moment ... in the past where people waited for the word of the emergency services and acted on the advice you gave them, we're in a changing time now from the way that that information is transferred so much more quickly and by people at the scene (emergency services representative).

Unpacking the above quote suggests that further attention is drawn to both the accessibility of first-hand observations of a crisis event and the issues presented by the peer-to-peer transfer of images. Kaplan and Haenlein (2010) argue that sharing images and videos leads to greater social influence between communication partners; subsequently if official emergency communication channels are prevented from sharing images rapidly then this could reduce their influence. The transfer of images also raises a further challenge as the creating and circulation of false images could leverage this phenomenon to cause malicious damage (e.g. an unnecessary or misguided evacuation).

Social media poses challenges for effective evacuation and yet attempts to re-assert control over information exchange in an age of social networking technologies may be both misguided and impractical. Firstly, there are a mass of social media platforms available and some of these are outside of the UK's regulatory control. Secondly, increasingly robust Broadband and Wi-Fi coverage can be found across the UK which arguably makes social media information exchanges increasingly resilient against technical failure even during high volume traffic events. Thirdly, social media offers a wide range of opportunities for emergency communication managers, as discussed in the following paragraphs.

A key issue identified in the research was the manner in which social networking technologies facilitated synchronous observation of and communication about an event. In particular mobile technologies, such as Smartphones, were seen as a critical part of making social media relevant to crisis management. One community representative reported that:

Social networks like Twitter are actually run in real-time ... the interesting statistic in the local area where I am, is that there's an average of five people on the network for every

street. So they can be the eyes and ears. The community is on the ground, on the spot, 24/7, so they're going to be the first ones to start talking about any event.

Social media use presents an opportunity for more immediate modes of information exchange such as the crowdsourcing of information about an unfolding crisis event. The ability to ask questions to many and the opportunity to have individuals respond back to specific questions indicates one of the primary ways in which social media can support effective crisis management.

It usually starts with a question on Twitter, doesn't it? 'Something's happening in [place], any details?' and then suddenly people will feed in and then people do like being Johnny on the Spot, they like being the one who gets the first image. I think we all like that, if you're putting something on Twitter, you like the fact that people then respond to it (focus group participant).

There was evidence within the data collected that UK local authority and police emergency planners were beginning to harness this aspect of social media. The way in which social media was being data-mined tended to be relatively informal with off-the-shelf tools such as Google or Twitter search or trends the most commonly cited method. One Police Officer reported the following experience:

We got a phone call from them to say there's a big fire ... looks like a school, do you need anything, do you know about it?' We didn't know about it so I went on to Twitter, searched the area, and then all these posts come up about, you know, primary school's on fire, big smoke etc. So that in effect validated what we'd heard, allowed us to then say actually we've got to do something now.

The primary sources of information about a crisis event for emergency managers however remained 999 calls, telephone calls from other public agencies and Television. Social media was being used but in a more limited way to either gain supplementary information on a case-by-case basis, to listen to what was being said about an event or to send out information. Overall therefore, word of mouth was still seen to be the most prevalent form of crisis communication. In some UK areas local radio was still seen as the most critical and dependable mode of getting a message out whilst little attention was paid by participants to internet enabled technologies (which were equated to high failure rates for mobile communication signals in some area). For example one participant stated that, 'there isn't a high level of use here because of the type of community that we are and the technologies couldn't be relied upon anyway as we don't get good phone coverage' (Police Officer). There was therefore substantial variation within the data by city, with attitudes to social media ranging from highly engaged to its use being at the periphery.

Whilst recognising that there are legitimately different ways of localities organising crisis information exchange, engaging more pro-actively with social media may present opportunities for gathering detailed information from observers in near to real time. This opportunity comes in three key forms: (a) real-time data-mining for weak signals of emerging crisis events (see Binner and Schmidt in Chap. "A Semi-automated Display for Geotagged Text"); (b) data-mining and associated interventions during a crisis event (Wilkins 2012); (c) asking questions to many, particularly those

within an affected geographic areas. It is clear however that realising these opportunities would require not only digital will and digital skill from the emergency managers involved but commitment and aligned resource from leaders at both the local and national level.

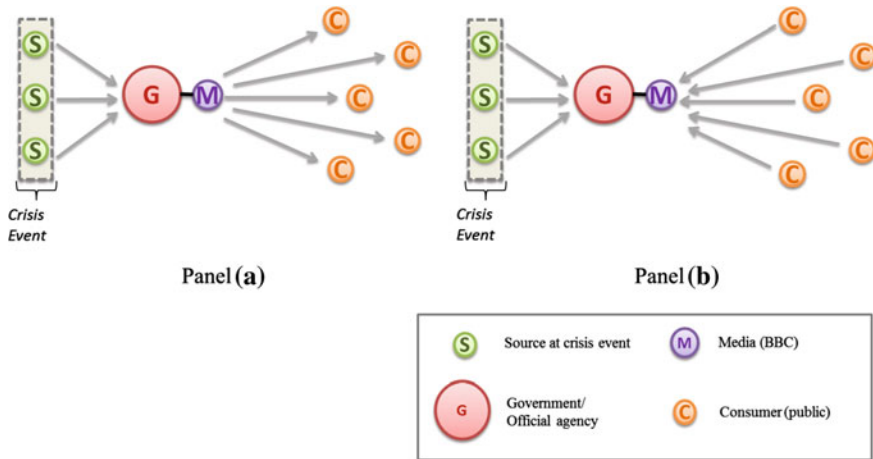
A further opportunity provided by social media and identified by research participants was in targeting communication more effectively towards citizens that don't engage with traditional forms of media. This need for segmentation of crisis communication strategies is most associated with the characteristic of age. To quote one participant; 'it depends on your age group, doesn't it? Younger, its Facebook, like you have three teenage kids and what they don't learn from Facebook isn't worth knowing, to be fair' (Blue Light Services Representative). It is unclear that using social media to send out one directional information is effective. Thinking back to the earlier discussion of social media characteristics the social or personal aspect is critical to the success (or influence) of the information exchange. As such this means that engaging at the point of an evacuation through a social media platform may not be effective, particularly if counter-rumours are already circulating. Data analysis revealed that a number of UK cities are currently using multiple social media platforms on a day-to-day basis and therefore, to some degree, overcoming the hurdle of being non-personal actors in what is a predominantly social setting.

Given the current financial austerity measures being experienced within the public sector as a result of the 2007–2008 financial crisis, one of the key opportunities of social media for crisis management is paradoxically also linked to the greatest threat it poses, i.e. the ability to connect many-to-many at low cost. For example, during the London Riots in 2011 social media was used as an organising tool for criminal activities, whilst after the riots social media was used extensively to organise clean-up crews. There is an opportunity for emergency management organisations to harness the social element of social media by engaging the public directly in their own recovery and response or perhaps even by allowing the public to self-organise. One potential way of harnessing the social resource (e.g. trust) that exists as a result of social media may be by working with individuals that are both highly digitally connected and trusted within local geographic areas. The idea of digital community champions could therefore be one impactful way of local authority emergency planning teams extending both their knowledge and reach in relation to social media.

Having discussed the main threats and opportunities in relation to social media's use within crisis communication as perceived by key stakeholder constituencies, the next sub-section presents a more generalized conceptual analysis of how social media has impacted information exchange within the context of crisis management.

## **5 Conceptualising the Role of Social Media in Reconfiguring Crisis Communication**

It is important to understand the reconfiguration of information exchange because, 'as the communications landscape gets denser, more complex, and more participatory, the networked population is gaining greater access to information, more opportunities



**Fig. 1** **a** traditional one directional crisis information broadcast; **b** customer feedback loop

to engage in public speech, and an enhanced ability to undertake collective action' (Shirky 2011, p. 29). Social media therefore impacts not only what is known, but how it is known and potentially what actions are taken as a result of it. The following analysis draws upon primary data to build an extended conceptualisation of crisis information exchange that takes into account social media use. This is done in order to attempt to explain what social media might mean for crisis communication more broadly, and to unpack in greater detail how this might matter to evacuation planning and response.

The first level conceptualisation of crisis communication is about sending out messages (see Fig. 1a) or collecting in feedback (see Fig. 1b).

In this characterization of crisis information exchange the firsthand observer reports an event and then the official source relays a proportion of this information. How the information is relayed is dependent upon the scale of the event. For more localised events the information may initially be relayed directly only (e.g. by word of mouth, text message warning services, social media etc.), or for larger scale events an intermediary may be used (e.g. a TV or radio station). The preferred route of transmission specified for an event at a larger scale, such as a city level evacuation, is likely to be via the BBC. The message is relayed to the consumer of the information (the public) and it is anticipated that this information will be acted upon. In this framing messages are clear, consistent and mass communicated. In addition consumers can ask questions back to the central authority (as in Fig. 1b) but this is primarily concerned with consumers being passive responders to information distributed by central authorities. This conceptualisation represents crisis information exchange as primarily one-directional, passive and government controlled and social media in this framing also exhibits these attributes. A sub-set of the sampled organisations appeared to frame crisis communication in this way and of particular note Lindsay (2011) found similar results in the context of the United States of America.

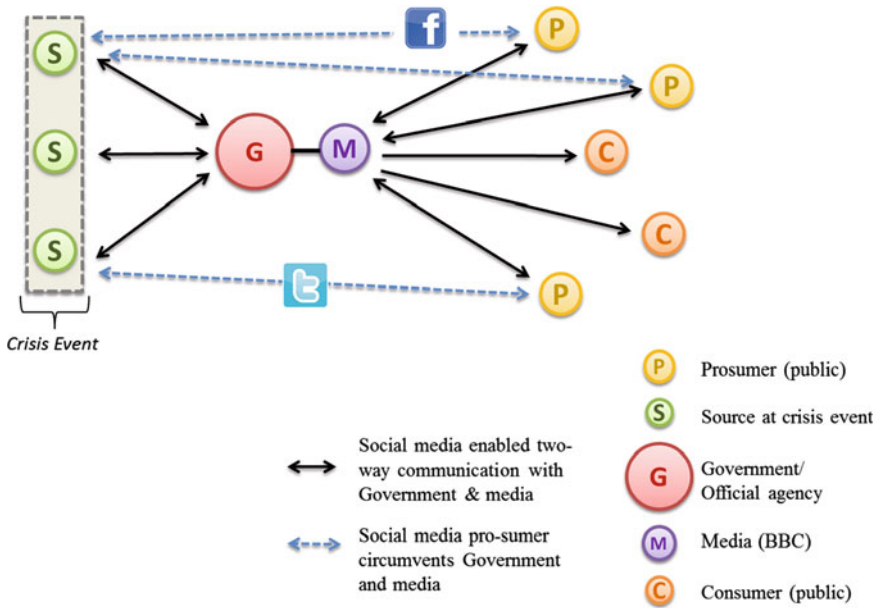
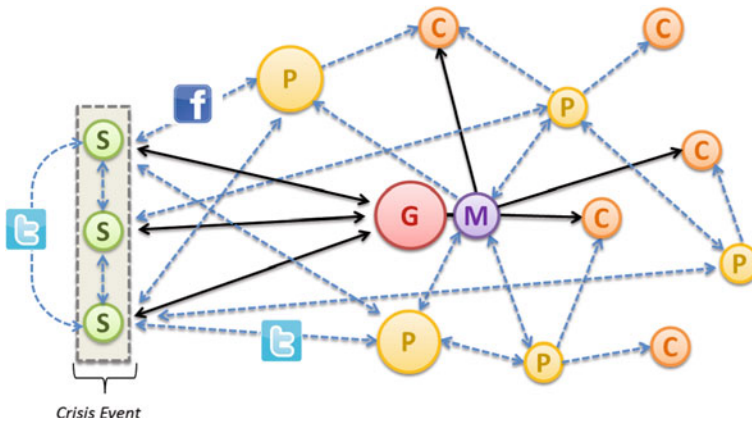


Fig. 2 Prosumers circumvent official crisis communication

The second level of crisis information exchange is represented in Fig. 2 and captures the potential for a mix of both consumers and prosumers of crisis information. The term ‘prosumer’ indicates that ‘consumers are simultaneously the initiators and recipients of informational exchanges’ (Hanna et al. 2011, p. 271) and that they co-create the end product they consume (Tapscott and Williams 2006). First-hand observers have always been able to share their accounts either verbally (e.g. face-to-face, telephone) or through text (e.g. text messaging, email). The difference and therefore focus here is a combination of the speed and scope of the information sharing. In this conceptualisation of crisis information exchange prosumers may engage via social media directly with the source of information either (a) because they are in the first-hand observers network or, (b) because they have searched for information or asked questions about the event via a broadcast form of social media (e.g. Twitter). These processes of searching for and then re-circulating crisis information may circumvent both government and traditional media messages. Of note in this conceptualisation traditional media -due to pressures for rapid and personalised news stories- is increasingly drawing upon social media as a live and therefore un-fact checked source of information. Hence, in this intermediate worldview, a given piece of crisis information could be sourced through multiple channels and from multiple sources and information is more likely to be open to two way exchange. The exchange of information becomes increasingly unmediated and the authority and centrality of the official crisis information source is diminished.



**Fig. 3** Prosumers assume multiple roles as consumers, producers and distributors of information. Communication pathways are networked, multi-directional and complex

Finally, a third level of crisis information exchange is envisioned as represented in Fig. 3. In this worldview any point within the network can become a creator, editor or sharer of information and it cannot be assumed that the information relayed by the central authority will be either heard in the information market place by all or that it will be trusted or acted upon.

Each individual node within this configuration of crisis information exchange has the potential to impact the narrative of a crisis and therefore the actions that a member of the public takes. Rumours spread rapidly and widely and it is difficult to distinguish between authentic and malicious social media use. It is also difficult to predict how information will spread and what rumours will gain traction and as such government crisis managers need to be both monitoring and intervening in information exchange in real-time. In this level three conceptualization, a proportion of first-hand observers are likely to share their accounts of a crisis event with both official sources and with the world at large. With better Wi-Fi availability, improved 3G/4G mobile data networks and increasing levels of smartphone ownership citizens are also more likely to upload images and videos. Whilst the official source still holds authority their communication in comparison to social media accounts of the crisis are less likely to lead to communication influence as it is necessarily mediated, slower and less likely to draw upon images (Kaplan and Haenlein 2010). This third level conceptualisation of crisis information exchange creates challenges for the management of crisis and yet it also creates opportunities for exchanging information with the public in new and more dynamic ways.

Examination of the primary data reported on in this chapter suggests that the UK is currently between the level two and level three conceptualisation of crisis information exchange. The concluding sub-section unpacks the key implications of this analysis for policy and practice.

## 6 Conclusion: Implications for Evacuation Policy and Practice

Social networking technologies arguably create virtual-spaces in which information can be shared with trusted agents, broadcast to the masses or traded through reciprocal, but largely informal and self-regulated, mechanisms. This chapter examined the intended and unintended broadcast of information about unfolding crisis events. Evacuation is a complex process whereby coordination, control and knowledge asymmetry may potentially contribute to a fast and effective evacuation. The high level of horizontal resilience demonstrated by social media therefore poses both opportunities and challenges for emergency managers as both incorrect and correct information could lead to negative outputs in practice. The citizen self-sourcing of crisis information is arguably more democratic and dynamic and yet it may present challenges for government control and coordination of crisis information and, linked to this, for equality of access (e.g. technology inequalities). In the re-conceptualisation of crisis information exchange outlined in the previous section (see Fig. 3), the citizen is recast from being either a passive recipient of information and/or a reporter of observations to a potential searcher, creator or collator of communication. This shift is characterised as a move from simple information transmission dominated by a central authority to complex information exchange within an information market place via multiple channels (e.g. social media, traditional news, word of mouth etc.). In this framing a sub-set of citizens become 'prosumers' (Tapscott and Williams 2006) and as a result crisis information exchange is more likely to be unpredictable and emergent in its character. There is a current UK public policy emphasis on promoting individual and organisational resilience and some commentators have argued that, '...local communities might become more responsible for their risk management' (Coaffee and Rogers 2008). However, in the case of evacuation both the means and modes of self-direction might compete with traditional and enduring crisis communication messages. The central authority may therefore lose its centrality in information exchange and distribution. There are therefore a number of key policy and practice issues in relation to the use of social networking technologies in emergency management whether it is by citizens, market or state organisations (or a combination).

The loose networks produced by social media exchanges may lead to increased risk as they enable the rapid propagation of both intentional and unintentional rumours on internet platforms. These information flows may have significant implications as government policy and official communication is marginalised or ignored with potentially serious consequences. It is not however clear that social media either causes more problems for crisis management than it resolves, or, that even if the will exists, that it is possible to reverse the scale, scope and use of social media during crisis. Choosing not to engage with social media is no longer an option for crisis managers, and as such perhaps the key question becomes not whether it is impactful but how it might best be harnessed. As past research indicates (Sutton et al. 2008; Lindsay 2011; Wilkins 2012) the use of social media produces a significant opportunity for the more immediate and accurate collection of information about

an unfolding crisis event. Both detailed first-hand observer accounts (i.e. facilitated through smartphone technologies) and the ability of civil society to itself respond directly to crisis events perhaps offer opportunities for the more effective, safe and smart management of evacuations. Harnessing the opportunities presented by social media however raises a further challenge. At the Red Cross hosted 2010 Emergency Social Data Summit a key conclusion was that, ‘the major obstacle to the use of social media in crisis situation is the same obstacle to adoption we’ve seen since the beginning of the technology: a hesitation to shift from broadcasting information to engaging information’ (American Red Cross survey 2010). Enabling emergency managers to embrace, adapt to and use these new technologies in an age of not only uncertainty but also resource scarcity is a key hurdle to the effective harnessing of social media for crisis communication and evacuation. Whether emergency managers at the national and local level within the UK choose to ignore, suppress or harness social media is as yet to be fully seen and this offers ample scope for future research.

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