

## *Emergency management 2.0: Integrating social media in emergency communications*

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### **ABSTRACT**

*Social media services have changed the way we communicate and analyze information. Through social media services, individuals can exchange information with large groups of people in real time. Furthermore, web-enabled cellular devices have made social media services accessible to significant portions of the population at all times. Moreover, because mobile infrastructure is more resilient than other modes of communication, it is the likely mode of communication during an emergency or disaster. As such, local emergency management agencies should incorporate social media tools into their communication plans to effectively communicate with the public and to obtain an enhanced level of situational awareness during an emergency or disaster. Many local emergency management agencies are unaware of the benefits of using social media tools and have false notions about the liabilities associated with social media discourse. By educating themselves about social media services, local emergency management agencies will find that social media services are an accessible resource that should be integrated within their existing communication plans.*

*Key words: social media, mobile device, communications, Facebook, Twitter, cellular device, Web 2.0*

Social media has changed the way information is communicated and analyzed. Through social media services, individuals can exchange information with large groups of people in real time. Local emergency management agencies should incorporate these tools into their communication plans to effectively communicate with the public and to obtain a better level of situational awareness to aid response and recovery

efforts. Many local emergency management agencies are unaware of the benefits of using social media tools. By educating themselves about social media services, local emergency management agencies will learn that social media services are an accessible resource that should be integrated within their existing communication plans.

### **WHAT IS SOCIAL MEDIA?**

Social media refers to web-based and mobile technologies, which are built on a Web 2.0 platform.<sup>1,2</sup> The Web 2.0 platform is not characterized by technological specifications, but rather, how software developers and end-users use the World Wide Web. Web 2.0-based applications facilitate participatory information sharing, interoperability, user-centered design, and collaboration. As such, the Web 2.0 platform allows the World Wide Web to serve as a medium for dialog, as opposed to passive consumption of content. Examples of social media include popular sites, such as Facebook, Twitter, YouTube, Flickr, and Blogger. Facebook is a social networking service that allows users to create a profile, to add other users as friends, and to post content and to exchange information.<sup>3</sup> Twitter is a microblogging service that enables users to post and receive messages of up to 140 characters in length.<sup>4</sup> YouTube is a video hosting service, where users upload, share, and view videos.<sup>5</sup> Flickr is an image and video hosting service that is used primarily for personal photographs and videos.<sup>6</sup> Blogger is a blog publishing service that allows users to post time stamped entries.<sup>7</sup> These social media services can facilitate quick and efficient dissemination of information to large groups of people by emergency managers.

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## **HOW HAS SOCIAL MEDIA CHANGED THE WAY WE GATHER AND ANALYZE INFORMATION?**

Social media services are swiftly becoming one of the most widely used personal and professional communications tools. A study released by the Pew Research Center's Internet and American Life Project in July of 2011 found that, "the number of those using social networking sites has nearly doubled since 2008 and the population of [social networking site] users has gotten older."<sup>8</sup> The study revealed that in 2010, 49 percent of American adults used at least one social networking site. This marked a significant increase from 2008, when only 26 percent of American adults used one or more social networking sites. The average age of those individuals who used social networking sites also increased from 33 to 38 years between 2008 and 2010. Cellular devices with wireless Internet capabilities, and notably smartphones, have made social media services more accessible.<sup>9</sup> Another study by the Internet and American Life Project found that 59 percent of American adults accessed the Internet wirelessly in 2010. The study also indicated that the use of nonvoice data applications had increased among mobile users. For example, in 2010, 23 percent of mobile users accessed social networking sites through their wireless device. In addition, the study showed that 54 percent of individuals who owned cellular devices used them to send images and video and that 15 percent used their phone to post photos or video to social media sites.

The increase in social media services is due, in part, to the fact that it has become one of the fastest methods for obtaining information. For example, when an earthquake hit China in 2008, Robert Scoble, an American with a large Twitter following, reported the event on Twitter an hour before CNN broke the story. He learned about the earthquake from several friends living in China who were posting accounts of the earthquake on Twitter as the event unfolded.<sup>10</sup> Because social media services rely on users to publish content, information can be reported in real time by individuals who are experiencing an incident first hand. This is particularly true for individuals who access social media services through their mobile phones and can provide photo and video documentation to support

their accounts.<sup>11</sup> This method of reporting is more efficient and often more accurate than information provided by journalists who are deployed to the site of an incident by television or radio news agencies after an incident or event occurs.

Social media services' user driven approach has changed the manner in which readers determine the accuracy and reliability of information. The large volume of individuals contributing information through social media services allows readers to rely on the collective intelligence theory to decipher whether information is correct.<sup>12,13</sup> Under this theory, information which contradicts the majority of posted content is likely to be inaccurate. Furthermore, because social media services are interactive, misinformation will be corrected through subsequent postings by either the original author or other users.<sup>10</sup> For instance, just hours after a tornado hit Alabama in April 2011, displacing thousands of residents, Facebook users created the Group "Alabama 2011 Lost or Missing."<sup>14</sup> The Group allowed individuals to post photos and identifying information regarding missing people and to solicit information useful for locating the missing person. On May 6, 2011, a photograph and home address for William Joseph Shulte was posted to the Facebook Group. Shortly thereafter, an individual responded to the post, stating that they had reviewed aerial video from the location surrounding Shulte's home on YouTube and that the home had not sustained structural damage. Within a minute, the user who had requested information regarding Shulte had responded, explaining that they had already driven to Shulte's residence and that there was in fact structural damage to the property.

## **SHOULD MANAGEMENT AGENCIES ENTER THE SOCIAL MEDIA DISCOURSE?**

As the aforementioned examples illustrate, the public is already using social media services to communicate vital information and to facilitate response and recovery efforts during emergencies and disasters. Emergency management agencies should develop social media strategies that will allow them to take advantage of this exchange of information. The administrator for Federal Emergency Management Agency

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(FEMA), Craig Fugate, has challenged government and private sector partners to share nonsensitive disaster-related information, such as evacuation routes and shelter locations, with the public through social media.<sup>15</sup> Fugate argues that this sharing of information is the single most important resource available during emergency or disaster response. Department of Homeland Security Deputy Secretary Jane Hull Lute concurs, stating that during emergency or disaster response, information should be treated as “a commodity as important as the more traditional and tangible commodities such as food, water and shelter.”<sup>16</sup> By entering the conversation taking place through social media channels, emergency management agencies can educate the public about ways to prepare for emergencies and disasters. In addition, participating in discussions that occur via social media services will provide emergency management agencies with important information that will enhance the effectiveness of their response and recovery efforts. Emergency management agencies should develop social media strategies before an emergency or disaster to allot time for the public to learn about their social media presence and the resources that are available to them through these channels.<sup>10</sup> Furthermore, it will allow emergency management agencies to forge relationships with private partners that will be useful during emergency and disaster response.

Emergency management agencies can expand the reach of their emergency or disaster alerts and notifications through social media services. For example, residents of Johnson County, KS can use Twitter to register to receive emergency alerts on their cellular telephones.<sup>17</sup> This allows Johnson County’s emergency management agency to notify residents who cannot be reached through the reverse 911 system because they do not have access to a landline. As such, social media services enable emergency management agencies to provide many individuals with the tools necessary to help prepare themselves and others for an emergency or disaster. Experts have found that people become increasingly social during emergencies and disasters and find access to relevant information highly comforting.<sup>18</sup> Amanda Ripley, author of *When Disaster Strikes—and Why*, found that when advised to evacuate

in advance of a hurricane, “the average individual checks with four to five sources, such as a news anchor, a neighbor, a spouse and a website, before deciding whether to pack up and go.”<sup>18</sup>

In addition, using social media services helps emergency management agencies to communicate their emergency and disaster response and recovery efforts to the public in real time; this facilitates more efficient communication with news media.<sup>18</sup> Emergency management agencies who use social media services receive fewer calls from the media during disasters and can respond more quickly to the inquiries they do receive. Efficient communication with the media is critical during emergencies and disasters, when resources are limited, because the time spent addressing media inquiries can be directed to addressing other needs.

Social media services, and the individuals who use them, also serve as a vital response and recovery tool.<sup>10</sup> Mobile infrastructure is more resilient and more quickly restored than physical infrastructure after an emergency or disaster.<sup>15</sup> For example, social media communications through cellular devices occurred either immediately or within 48 hours after both the 2010 earthquake in Haiti and the 2011 earthquake in Japan.<sup>19</sup> During these incidents, affected individuals used social media services available through their mobile telephones to summon assistance and to communicate pertinent information to responders.

Individuals who use social media services during emergencies and disasters enhance the situational awareness of responders by providing them with a stream of real-time information and ensuring that responders and the public are working from a common operating picture.<sup>10,15</sup> Social media services are well suited to facilitate quick and specific information sharing that is vital to saving lives and ensuring that limited resources are deployed effectively and efficiently during an emergency or disaster. Social media allows affected individuals to relay key data points, such as location, status, and needs, to responders. Through a process referred to as crowdsourcing, this information can be aggregated to assist in developing response priorities.<sup>20</sup> For example, in the aftermath of the 2010 earthquake in Haiti, a group of volunteers

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gathered information that was communicated through social media regarding trapped individuals, medical emergencies, and the need for commodities, such as food, water, and shelter. Using Ushahidi, an open-source crisis mapping software, this information was plotted to maps that were updated in real time and made available to anyone with access to the World Wide Web. Responders used these maps to determine how, when, and where to direct resources.

#### **WHY HAVE LOCAL EMERGENCY MANAGEMENT AGENCIES BEEN HESITANT TO ADOPT SOCIAL MEDIA STRATEGIES?**

FEMA uses a number of social media services geared toward fostering communication between itself and the public.<sup>15</sup> Facebook users can receive information regarding current incidents, as well as preparedness tips in text, image, and video formats. FEMA also uses Twitter to provide the public with situational updates and preparedness information, including an account that is specifically dedicated to servicing communities affected by Hurricanes Katrina and Rita. The information presented through Facebook and Twitter is made available to users in both English and Spanish. In addition, the public can checkout FEMA-produced videos on YouTube to learn more about the response and recovery efforts, as well as, how to prepare a disaster kit and how to apply for assistance after a disaster. In early 2010, FEMA also launched a mobile Web site where disaster survivors can apply for assistance through their smartphones.

As previously mentioned, FEMA has encouraged local emergency management agencies to push toward integrating social media initiatives within their emergency and disaster outreach and response plans. A number of local emergency management agencies have responded to FEMA's call.<sup>17</sup> Johnson County, KS, used Facebook to launch its "The 5,000 Prepared Citizens" campaign which sought to have 1 percent of the jurisdiction's population pledge that they want to be prepared for emergencies and disasters. After experiencing significant flooding in 2009, the City of Moorhead, MN, incorporated the use of Facebook and Twitter into its flood emergency plan. Residents can sign up to join the jurisdiction's Facebook and Twitter pages where they will receive real-time

flood information and updates. Both Fort Bend County, TX, and the City of Alexandria, VA, used Facebook and Twitter as part of their H1N1 response. Each jurisdiction relayed information and updates regarding symptoms, clinic operations, and vaccinations using these social media channels.

Despite these examples, a significant number of local emergency management agencies have shied away from incorporating social media services into their communication and response plans. A survey conducted by the Fels Institute of Government of University of Pennsylvania found that "as many as a third of cities recognized for their leadership in the areas of e-Government ... had not yet implemented any major social media technology."<sup>21</sup> This was the case despite the fact that the same group "ranked the importance of social media to their overall communications strategy as 3.7 out of 5." Furthermore, nearly all of those interviewed believed that the importance of social media would only increase in the coming years.

The hesitance of local emergency management agencies to incorporate social media tools into their outreach and emergency response plans is primarily attributed to four factors: skepticism regarding their usefulness, resource limitations, public relations, and legal concerns.<sup>21</sup> However, these issues are largely overstated. The prevailing notion among emergency management agencies has often been that providing the public with too much information will create panic during an emergency or disaster.<sup>18</sup> As previously stated, this is simply not the case.<sup>10</sup> Providing the public with accurate information instills confidence in their decision-making ability during an emergency or disaster and saves lives by facilitating a quicker and smarter response. This helps to establish public trust and encourages the public to work with emergency management agencies during an emergency or disaster. In addition, using social media services helps emergency management agencies to provide important information to the public and allows these agencies to keep their finger on the pulse of conversations that will inevitably occur through social media channels during an emergency or disaster. As a result, emergency management agencies will be in a better position to respond to rumors and to

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clarify misinformation. Furthermore, emergency management agencies can use existing tools to measure the flow of traffic that their social media accounts receive and to determine which social media tools are most effective.

Emergency management agencies have also expressed concern regarding the interoperability of social media services and the difficulty associated with organizing information gleaned through these mediums.<sup>10</sup> Indeed, systems for collecting and analyzing information obtained through social media need to be refined. However, solutions do exist and have been deployed during emergencies and disasters. For instance, “Tweak the Tweet” was developed in the aftermath of the earthquake in Haiti to leverage information communicated via Twitter. The system, which was created by a group of volunteers, enabled the automated extraction of data from Twitter through a syntax that indexed Twitter messages using their Hashtag. The Hashtag feature of Twitter allows users to include their message in a group by incorporating a predesignated label.

Emergency management agencies that have used social media initiatives reveal that they are less time intensive and more user friendly than initially anticipated.<sup>17</sup> Many emergency management agencies use volunteers and interns to manage their social media networks. They also limit the need to create content by using materials developed by larger agencies such as the American Red Cross, National Weather Service, and FEMA. Also, during large-scale emergencies and disasters, FEMA has helped local emergency management agencies to manage and to enhance their social media capabilities.<sup>22</sup> For instance, FEMA assisted the Alabama Emergency Management Agency launch a Facebook Page soon after the tornado in May 2011.

Local emergency management agencies are also concerned about the potential political and legal ramifications of their social media presence.<sup>21,23</sup> Much of this fear relates back to a lack of understanding regarding the range in degree of participation allotted by social media services. Emergency management agencies can develop social media programs ranging from providing informational material to a selected

group of individuals to using it as a forum for public dialog. Emergency management agencies can quell much of their distress regarding overexposure by beginning with initiatives that call for little or no public interaction and gradually integrating more interactive programs once they feel comfortable with the social media tools.

Moreover, emergency management agencies should ensure that they are operating with a strong social media policy in place.<sup>24,25</sup> A well-written social media policy will address several key factors geared toward minimizing adverse public relations or legal situations. Such a policy would outline those individuals who are authorized to access and manage the emergency management agency’s social media accounts. The policy would also articulate what constitutes acceptable use of the social media accounts and how employees are expected to conduct themselves while communicating through these channels. For example, emergency management agencies operating in jurisdictions with sunshine laws, which restrict communications between public officials, may want to incorporate this restriction into their social media policy.<sup>21</sup> In addition, such a policy would lay out procedures for retaining and safeguarding the information exchanged through social media services. This is important because emergency management agencies may be subject to open records laws, which require that government communications be made available to the public on demand. Because most social media services do not archive communications made on their site, emergency management agencies that are subject to such regulations will have to develop their own system for storing social media communications. Furthermore, a good social media policy would clarify the level of privacy and confidentiality that will be attributed to information volunteered to emergency management agencies through social media. For example, during the earthquake in Haiti, volunteers plotted reports of orphans on a map they made available to the public.<sup>10</sup> After receiving reports of kidnappings, the group transferred the map to a private database that was only made available to responders. Finally, a well-written social media policy would lay out disclaimers that should be published along with social media content to manage public expectations of

their communications with emergency management agencies through social media. A survey conducted by the American Red Cross revealed that 74 percent of respondents would expect a response within an hour of requesting help via social media channels. However, managing public expectations regarding their social media interactions with emergency management agencies will go a long way in resolving any unrealistic expectations.

In conclusion, local emergency management agencies should make an effort to learn about social media services and how they can be incorporated into their communication plans. By doing so, local emergency management agencies will come to learn that social media tools are a valuable and accessible tool. This will enable local emergency management agencies to realize their coordinating function by keeping their finger on the pulse of preparedness, response, and recovery efforts that are being discussed via social media.

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