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Social Media: An Effective Tool for Risk and Crisis Communication?

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by

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INTRODUCTION

An organization's success in managing risk and responding to crisis is largely dependent on its ability to communicate effectively. Often, organizations develop and publish detailed risk and crisis management plans, which prescribe methods for delivering critical information through traditional communication methods, such as advertising campaigns, press releases, media interviews, and briefings (Millar & Heath, 2004). Relying on hierarchical structures, organizations have formatted their messages in a way that is top-down, where messages are approved by the organization's leaders, then disseminated down to stakeholders through the organization's information officer or spokesperson (Covello, 2001). This method has been proven effective throughout time, however, society's increased use of social media has changed the dynamics of risk and crisis communication in a way that deserves further study. Social media are varieties of electronic communication, through which users create online communities to share information, ideas, personal messages and content (White, 2012). The intent of this study is to determine if social media is an effective tool for risk and crisis communication.

Emergency management agencies have recognized the need to provide the public with timely, credible and useful risk communication. Law enforcement authorities, for example, provide public safety information to reduce the likelihood that citizens are victimized by crime (City of San Jose, 2013). Fire officials often provide fire and life-safety advice to help citizens avoid home fires, reduce the threat of wildfire to homes, and explain how to prepare for large-scale emergencies (City of Santa Clara, 2013). In public health organizations, officials give advice for reducing exposure to illnesses and disease (Centers for Disease Control and Prevention, 2013). The main purpose of risk communication is to reach the desired population

with timely, actionable information that can help make a difference in reducing stakeholder risk (Coombs, 2012).

Emergency managers also have a role in providing critical information during a crisis, where credibility of the message is vital. The main advantage of traditional communication methods is that they provide for maximum accountability and control of information. Through the use of an official public information officer, crisis messages are thoroughly vetted for accuracy, and backed by the agency's reputation. Stakeholders, especially during the confusion and chaos surrounding a crisis, look to familiar channels for critical safety information. Traditional communication methods may take time to develop, approve, and deliver, however, the information is usually viewed as more credible when delivered in this manner (Schultz & Goritz, 2011).

The development of social media as a form of communication has taken a different direction than those of traditional methods used in the past, which can be detrimental. Social media is a bottom-up approach that is created by stakeholders closest to events. Basically, social media has created an intricate word-of-mouth network, where information is shared freely and instantly (Coombs, 2012). The limitation of hierarchical, centralized message control is not present, nor is the constraint of time. In the realm of social media, timely information is more often given priority over accurate information (Petrecca, 2012). The result can be harmful, especially if spreading inaccurate information actually increases risk to public safety, such as improper evacuation orders during large-scale emergencies (Guerra, 2013). In an attempt to engage social media, traditionally structured organizations have developed intricate social media policies, where responsibility and authority for disseminating social media messages are assigned

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to key public information officials. These policies allow spokespersons the freedom to utilize social media under a controlled, measured environment (Coombs, 2012).

On the other hand, social media's networking potential can be very helpful in providing stakeholder information in the absence of other communication methods. In the aftermath of a large scale emergency, such as a major storm or earthquake, communication infrastructure may be significantly impaired. Social media has allowed for spontaneous groups to initiate emergency messaging to help organize relief efforts, reunite lost family members, and communicate with vulnerable populations, such as senior citizens, the disabled, and those with special needs (Maron, 2013).

This study will evaluate the use of social media in risk and crisis communication. This is important for two reasons. First, it can be used to show that social media can be effectively used to communicate with a wide range of stakeholders by providing timely, accurate information that is backed by the credibility of the emergency management agency. By embracing this form of communication, emergency managers have the possibility to increase public safety by increasing community involvement and issue awareness. Secondly, this study is important because it will provide an evaluation of current efforts by public safety authorities to use social media during actual crises. This evaluation of best practices may lead to recommendations for expanded use by public safety professionals.

This research considered that the use of social media might be advantageous in reducing risk to public safety and in providing critical information during crises, benefits which could be highlighted and explained. The study also looked for significant disadvantages that should discourage widespread acceptance and use of social media, which could lead to changes to address the issues related to its use.

LITERATURE REVIEW

Emergency managers have at their disposal a variety of communication tools to help control risk and manage disasters. Traditionally, response agencies have relied upon established technology to deliver their message during times of crisis, such as the aftermath of a major disaster. With the advent of the internet, and specifically social media, organizations have needed to adapt to a changing media environment in order to ensure that credible public safety messages are properly delivered to the appropriate stakeholders to maximize the possibility of a successful outcome (Crowe, 2010). Public information officers will find risk and crisis messaging difficult to coordinate and control when using social media (Maron, 2013).   Properly utilized, however, this new form of mass communication can be leveraged to help build relationships with the public, establish credibility, and coordinate the spontaneous activities of volunteer rescuers and helpers (Majchrzak & More, 2011).

Most emergency response organizations are hierarchical in structure, where command and control is top-down in nature, including the flow of information (Morgan, 2012). PIOs generally release information after receiving approval from the leader of the organization. In times of crisis, the PIO distributes approved content through established channels, such as newspaper articles, television and radio interviews, formal press briefings, and web page postings. For critical, life-safety messages, emergency managers have used the emergency broadcast system.   Traditionally, the public has viewed these sources as trustworthy (Stallings, 1990).

Social media, however, is a bottom-up form of communication, lacking formal command and control, where the user controls the information, not an organization (Coombs, 2012). In

this situation, the PIO now becomes a listener to the message as much as a creator (Maron, 2013).

There may be benefits for using social media specifically for crisis communication. White, (2012) lists several benefits for using this medium for disseminating critical information during crises:

- Lots of people use social media
- It is a great way for information to be distributed
- Information reaches more people
- It provides immediate responses to large numbers of people
- Surveys can be distributed anytime in a variety of ways in order to get quick feedback
- If emergency managers could use all their resources, which include the Internet, then they can create almost boundless means of communication

Emergency managers should realize that this new form of communication might have value as a tool to help manage and control emergencies.

Building Trust and Credibility

During disasters, trust and credibility are important factors for the public to consider when analyzing the validity of risk messaging. The public will comply with the direction of emergency managers if they believe the messengers are competent, accurate, and caring (Peters, Covello, & McCallum, 1997).

During crises, the public also demands that authorities exercise leadership, especially when perceived threats are severe (Hwang & Cameron, 2008). Crafting an appropriate message is critical. During periods of perceived risk, messaging should be focused on delivering succinct, prepared messages delivered by a trained information officer, using appropriate communication channels, by trusted individuals or organizations (Covello, 2002). Research indicates, according to Covello (2002), that crisis communication should be mapped, and include three key points,

using no more than 27 words, or 135-140 characters. This ensures that risk communication has the optimum chance of being read, understood, and remembered. Current social media sites, such as Twitter, are designed to provide this type of concise messaging.

Community Building

Social media creates a shared connection of people with common interests and values, who choose to exchange information for the common good (Crowe, 2010). During disasters, social media plays an important role for family members to communicate the status of their personal safety and wellbeing. With social media, two-way dialogue is available between emergency managers and the public. For the American Red Cross, building relationships with the public has provided benefits when organizing volunteers, and reaching out to the media (Briones, Kuch, Liu & Jin, 2010). Social media also has benefits with reputation management after a crisis or emergency.

Case Studies

The 2007 San Diego Wildfires

During the firestorm in San Diego, California in 2007, social media proved extremely valuable in disseminating official, credible information. Using Twitter, residents were able to send updated newspaper and television reports to affected residents in the fire area (Poulsen, 2007). Use of social media during the fires indicated that community information resource sharing is becoming more widespread, despite legitimacy concerns from emergency managers (Sutton, Palen & Shklovski, 2008). Due to an overwhelming amount of online activity, local media communication technology became overloaded, which required news reporters to provide news updates via social media platforms (Poulsen, 2007).

2011 Fukushima Daiichi Nuclear Disaster

During the aftermath of the earthquake and tsunami that struck Japan in March, 2011, social media was a primary source of news and information. Only an hour after the quake, 1,200 Twitter posts, or "tweets" per minute were being sent from Tokyo (Skarda, 2011). These tweets helped families relay bits of information from the emergency scene and allowed family members to communicate their condition. Skarda (2011) further explains that during emergencies affecting infrastructure integrity, users find it easier to text or tweet than to place a phone call.

2012 Hurricane Sandy

In 2012, a large Atlantic storm made landfall in southern New Jersey, affecting the densely populated areas of New York and New Jersey. The storms damaged hundreds of thousands of homes, caused tens of billions of dollars in damage and killed at least 162 people (Fugate, 2013). During the aftermath of the storm, social media helped the Federal Emergency Management Agency (FEMA) broadcast shelter locations and help victims find assistance. The Fire Department of New York also monitored social media for citizens reporting emergencies (Ngak, 2012). FEMA also has found that social media is a valuable tool for soliciting feedback post-emergency (U.S. House of Representatives, 2013). During and immediately following the storm, users sent more than 20 million Sandy-related tweets, despite the loss of cell phone service during the peak of the storm (Maron, 2013).

2013 Boston Marathon Bombing

After the terrorist bombing in Boston, Massachusetts in 2013, citizens went first to social media to obtain information on the incident. Public safety authorities used Twitter to direct

followers to official news sites to receive updates. Social media was also used to build a sense of community through the expression of empathy from law enforcement authorities (Gilgoff & Lee, 2013). This form of communication is not without problems. Misinformation regarding the arrest of suspects, or the status of family victims, elevated the perception of risk, while reducing the credibility of news sources (Petrecca, 2012). In the days following the event, CNN mistakenly reported that arrests had been made, a newspaper ran photos of two suspects it incorrectly implied were the bombers, and social media erroneously speculated about specific individuals (Leonard and Howitt, 2013).

2013 Rim Fire

Social media use during a crisis can introduce problems for authorities. In 2013, the Rim Fire in Yosemite, California, was the third largest fire in California history, burning 398 square miles, and destroying 112 structures, at a cost of over $127 million dollars (Ceasar, 2013). During the fire, authorities found that citizens were using social media to post information on the fire location or escape routes, however, the information often was wrong. This required fire officials to spend valuable time providing correct information (Guerra, 2013). The spreading of misinformation can be problematic for emergency management agencies, especially those with few staff members available to monitor social media sites.

The Future of Social Media

To fully realize the benefits of social media in risk and crisis communication, organizations should recognize the value in joining the online community. Social media is more than just a trendy method for distributing information; rather it is about conversing and listening

to community concerns. In the case of the Los Angeles Fire Department, social media allows a two-way conversation to take place between rescuer and citizen (Latonero & Shklovski, 2010).

Information from traditional media will continue to be viewed as credible and reliable, but will not be widely disseminated during fast-evolving crises. Research on Twitter behavior during emergency events suggests that tweets originating from official sources of information will get picked up, re-tweeted, and rapidly retransmitted online (Starbird & Stamberger, 2010).

One of the greatest promises for social media is in the area of volunteer management and donation coordination. It is difficult to organize volunteers due to their spontaneous formation. Social media can be effectively used to request assistance from volunteers and deploy them to increase response capabilities (Majchrzak & More, 2011).

Summary

Traditional means of disseminating risk and crisis communication will continue to have value for emergency managers. Many recent disasters have highlighted the benefits of using social media to disseminate accurate, timely and credible messaging to help victims during times of crisis. Social media helps to build a sense of community between stakeholders, which include emergency authorities, public information officers, victims, families and news providers. The online community is extensive and sophisticated. Emergency managers would be wise to engage in conversation with this community to enhance their ability to serve.

METHODOLOGY

To determine if social media provides a helpful tool for the dissemination of crisis and risk communication, an evaluation of current practices is necessary. This research used the four-phase process evaluation research method (Sylvia & Sylvia, 2004), which is useful for

monitoring and improving internal processes. The phases include: 1) Problem Identification, 2) Solution Development, 3) Implementation, and 4) Feedback Evaluation. This research project focused on Phases One and Two.

Phase I: Problem Identification

To understand the various challenges and opportunities presented by incorporating social media in emergency communication, a systematic assessment of current practices used by emergency managers is necessary. This phase involved the collection of data to determine the current procedures used by emergency managers when designing, approving, and disseminating risk and crisis communications. The following research methods were used for data collection:

1. Online study of traditional public communication methods and procedures

2. Case studies of five large-scale emergencies in which social media was incorporated in risk and crisis communication: 1) the 2007 San Diego wildfires, 2) the 2011 Fukushima Nuclear Plant disaster, 3) 2012 Hurricane Sandy 4) the 2013 Boston Marathon terrorist bombing, and 5) the 2013 Rim Fire in Yosemite National Park.

3. Online literature review of best practices in developing crisis and risk communication, to determine if social media provides an effective medium for delivering these messages.

4. Survey of emergency managers from regions across the country to determine the benefits and limitations of social media as a medium for emergency communication. A twenty-eight question survey was sent to members of the International Association of Fire Chiefs (IAFC), the California Fire Chiefs (CalChiefs) and the California Emergency Services Association (CESA). Personal interviews were conducted with local emergency managers in Santa Clara County, California.

The surveys that were used in this research included both yes and no questions and multiple-choice formats. The intent was to determine an organization's level of social media use, as well as identify current challenges and future opportunities. A total of sixty-three respondents participated in the online survey and represented several types of emergency management organizations, including law enforcement, fire services, environmental management, the military, transportation management, and municipal, state and federal governments. The author also served as a participant/observer in his current emergency manager role to study the impact social media usage has on local emergency management agencies.

Phase II: Solution Development

According to Sylvia & Sylvia (2004), an assessment can result in service quality improvements for agencies that may wish to know how well they are meeting the needs of their customers, or how effectively they are maximizing their outreach to potential clientele. Social media were evaluated to determine if risk and crisis communication may be enhanced to reach intended audiences, including vulnerable populations, media, and those who rely on the delivery of timely, reliable information to escape harm.

The research accomplished this assessment using personal interviews and surveys to determine the efficacy of using social media for communication, the possible need to reallocate resources, the reordering of agency activities, and the ability of current employees to adapt to change. Interviews were conducted with representatives of four public safety organizations in Santa Clara County, California.

Findings

Between January 25, 2014 and April 5, 2014 a survey was administered to 4,325 public safety officials through online professional networking sites. Seventy-nine additional public

safety professionals from the San Francisco Bay Area region were emailed the survey individually. Survey participants were employed in a wide variety of public agencies, across multiple disciplines. A total of sixty-three respondents completed the online survey.

Survey Questions:

1. Describe your organization:
   - ❑ Law Enforcement   6
   - ❑ Fire Department   24
   - ❑ Health Care   3
   - ❑ School   0
   - ❑ Special District   0
   - ❑ Emergency Management   12
   - ❑ Other: _____   17

   Total Responses: 62

2. Number of Employees:
   - ❑ 1-100   25
   - ❑ 101 - 500   17
   - ❑ 501-1,000   5
   - ❑ 1,000+   16

   Total Responses: 63

3. Population Served
   - ❑ Less than 10,000   4
   - ❑ 10,001 to 100,000   27
   - ❑ 100,001 to 250,000   11
   - ❑ 250,001 to 500,000   6
   - ❑ 500,000+   15

   Total Responses: 63

4. Do you have a dedicated Public Information Officer?
   - ❑ Yes   41
   - ❑ No   22

   Total Responses: 63

5. What is your title?
   - ❑ Business Consultant   1
   - ❑ Law Enforcement Official: specify   3
   - ❑ Fire Department Official: specify   20
   - ❑ Risk Manager   0

❑ Emergency Manager   7
❑ Public Information Officer   15
❑ Other   14
Total Responses: 60

6. Types of Social Media Used (check all that apply)

❑ Twitter   43
❑ facebook   50
❑ tumblr.   1
❑ YouTube   24
❑ LinkedIn   26
❑ Skype   7
❑ Nixle   17
❑ Direct Notification (Alerting) System   26
❑ Other, Explain _____   13
Total Responses: 60

7. Please prioritize (rank from 1-6) the reason(s) for establishing a presence on Social Media:

	Ranking	Score
❑ Public Relations	1	5.35
❑ Community Risk Communication	2	4.26
❑ Crisis management	3	3.94
❑ Monitoring Organization's Reputation	4	2.87
❑ Networking with other Agencies	5	2.44
❑ Communicating with employees	6	2.15

Total Responses: 62

8. How often is information from your organization posted on social media

❑ Once daily   11
❑ More than once daily   11
❑ Several days per week   14
❑ Weekly   13
❑ Monthly   1
❑ Rarely/Intermittently   11
Total Responses: 61

9. Does your organization have a formal, approved social media policy for employees?

❑ Yes   32
❑ No   31
Total Responses: 63

As a follow-up to the questionnaire, a series of interviews on the use of social media was conducted between March 5, 2014 and April 7, 2014 with officials from four public agencies. There was one from the fire service, two from law enforcement, and one from local government. The results of these interviews are reported in this section.

Phase I: Problem Identification

For the first phase of this study, several problems were identified when using social media for risk and crisis communication. Issues involving organizational culture have been found to hinder traditional organizations that stress accountability over adaptation. The amount of human resources necessary to establish and maintain a social media presence is significant, and this needs to be fully understood before an organization begins developing its communication strategies. Since social media is a two-way conversation, control of information is limited, and the likelihood for misinformation being circulated is high. Organizations often lack the resources to validate information being posted online, and therefore, fail to correct inaccuracies. Organizations and their employees will find the need to adapt to this change in communication system, and reorder communication activities and systems accordingly. Finally, emergency management professionals must consider social media as a single component of a much larger communication system, one which combines traditional media, social media, and other complementary forms of communication.

Changing Organizational Culture

Incorporating new methods of risk and crisis communication can be challenging to organizations that have relied upon traditional methods for disseminating information. In order

to address these challenges, an understanding of how social media challenges traditional

mediums for disseminating public information is needed. As social media usage becomes more

prevalent, organizations need to evaluate their current practices, communications systems, and

organizational policies in order to effectively build an efficient message delivery system.

Prior to the rise of online technologies, risk and crisis communication were developed

using the standard, well-established methods for disseminating information, primarily the press

release. Public information managers would develop a message for targeted stakeholders, then

disseminate that information through print and broadcast media. Often, a press conference

would be scheduled where local media representatives could ask questions and obtain clarifying

information. The information would be delivered according to the schedule established by the

media to ensure the information would be broadcast during preschedule intervals, such as the

nightly newscast, or for print outlets, the morning newspaper or weekly magazine. This form of

communication is typically one-way, with the message producer delivering to anonymous

receivers, with a clear distinction between producers and receivers (Croteau & Haynes, 2013).

Through the use of social media, users are both producers and receivers and are all part of the

communication network.

Social Media and the National Incident Management System (NIMS)

Since the events of 9/11, emergency services have been slow to recognize the benefits of

using social media and other online tools for risk and crisis communication. In 2004, Homeland

Security Presidential Directive (HSPD)-5, *Management of Domestic Incidents,* directed the

development and administration of the National Incident Management System (NIMS), to

provide a consistent guideline for cooperating agencies to work together in preventing,

Responding to, recovering from, and mitigating the effects of emergency incidents (Chertoff, 2008).

National Incident Management System, 2008
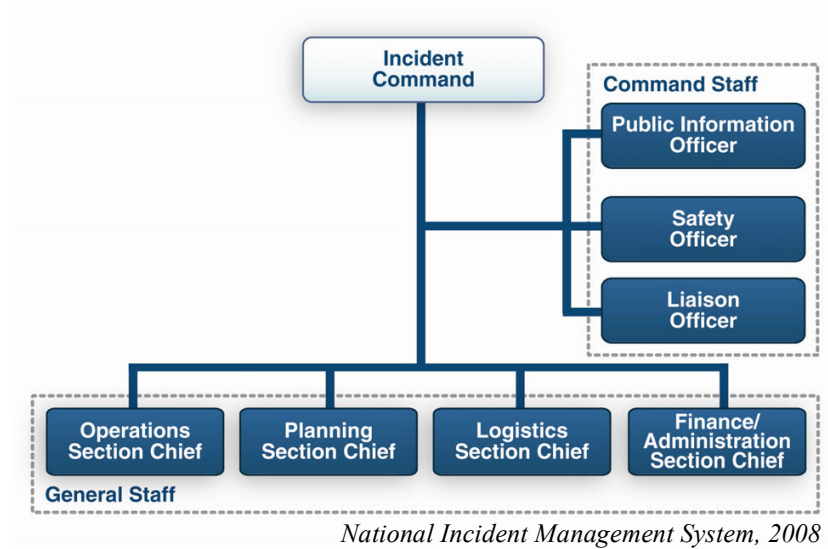
Under NIMS, the role of public information officer is well defined within a hierarchical chain of command, which ensures strict accountability and control. NIMS directs the PIO to work within a bureaucratic system, and requires the Incident Commander to approve all public communications. The dynamic nature of social media, where messages are brief and timely, makes it difficult for PIOs to obtain approval as required under NIMS for each and every communication (Hughes & Palen, 2012). Using multiple methods for disseminating information is recommended under NIMS, however online methods are only given a brief mention of their potential value as a broadcast tool (Chertoff, 2008).

Social media may be used within a hierarchical structure, when clear direction and authority are assigned to a properly trained PIO. When delivering information through social media, it is important that the organization develop a policy that clearly defines the role of the social media manager and those who disseminate information. Establishing a policy is the first and most important step an organization can take when establishing an online social media

presence (Clarke, 2014). Emergency managers when surveyed, however, indicated that slightly

over half were operating without a formal policy in place.

**Does your organization have a social media
policy in place to guide your Public Information
Officer on accepted practices when using social media?**

|	
NO	52.46%
Yes	47.54%

0%　　20%　　40%　　60%　　80%　　100%
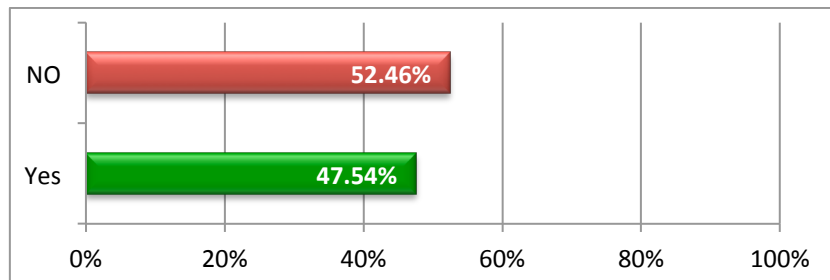
Without a formal policy in place, PIOs are not able to clearly understand their authority and

responsibility when using social media for communication. Having clear guidelines in place

through an official policy provides the social media manager with the appropriate level of

authority and responsibility necessary to create and disseminate critical, timely information.

During the aftermath of Hurricane Sandy in 2013, New York social media managers

understood the importance of ensuring that PIOs received adequate training about proper

procedures for interacting with the media. Agency approved training instructed social media

managers in the proper way to interact with people (McKay, 2014).

When surveyed, a majority of emergency managers indicated that they do not have a

designated PIO or social media manager established as an official position in their agency. This

can lead to issues relating to authority and responsibility when communicating in the fast-paced

environment of online social media.

**Does your organization have a designated
Public Information Officer (other than the
top official of the organization)?**

NO — 36.07%

Yes — 63.93%

0%   20%   40%   60%   80%   100%
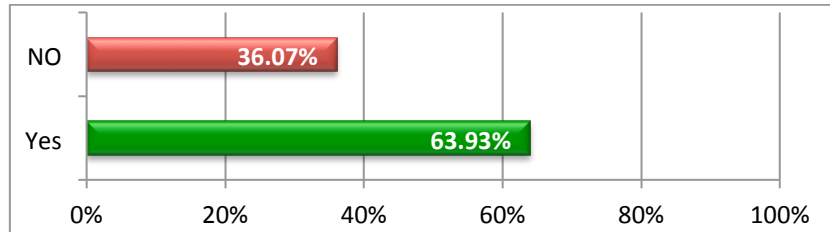
The role of an agency's PIO is complex, and significant responsibility is assigned to this key position. According to NIMS, the PIO is responsible for creating coordinated and consistent messages by collaborating to:

- Identify key information that needs to be communicated to the public.
- Craft messages conveying key information that are clear and easily understood by all, including those with special needs.
- Prioritize messages to ensure timely delivery of information without overwhelming the audience.
- Verify accuracy of information through appropriate channels.
- Disseminate messages using the most effective means available.

Identifying a single PIO allows an organization to affix responsibility and delegate authority effectively to ensure the proper dissemination of information. Identifying and training a social media information manager is critical when using social media. Having an experienced manager create the social media message helps ensure that the message includes the interests of the agency, the City, and any other pertinent stakeholders (Perron, 2014). With the establishment of an official spokesperson, organizations can then train individuals to acquire the knowledge, skills, and abilities to function in that role. Training for social media managers is becoming more prevalent, with classes conducted throughout the United States. FEMA, for example, has recognized the need for such training and has developed courses to assist information officials in

their use of social media (Federal Emergency Management Agency, 2013).

Active involvement with social media requires the commitment of significant resources, primarily human resources. Many organizations have not dedicated enough staffing to adequately use social media for risk and crisis communication. Emergency management agencies may find it difficult to reallocate resources in order to adequately incorporate this evolving communication medium into their communication strategy, especially during difficult financial times of budgetary stress when resources are diminished. When surveyed, managers indicated that lack of dedicated staffing was the primary limiting factor in this regard.

**The biggest reason for NOT using social media more frequently
for crisis and risk communication is:
Top 4 answers:**

Ranking	Response	
1	Lack of dedicated staffing	47.46%
2	No established organizational policy	16.95%
3	Lack of staff expertise	10.17%
4	Other mass communication tools more effective	5.08%

Social media is a two-way conversation, where frequent interaction is required with established followers. Effective social media programs require managers to devote enough staff time to ensure a high level of interaction between the organization and the stakeholders whom they intend to reach.

Once a social media presence is established, agencies need to continue feeding information to their followers to ensure active participation from stakeholders (Clarke, 2014). Emergency managers were asked about the frequency with which they post content to their

social media sites, with over eighty percent of respondents indicating that they post several at least once per week.

How frequently is information from your organization posted on social media?

Answer Choices	Responses
Once per day	16.95%
More than once per day	18.64%
Several days per week	22.03%
Weekly	22.03%
Monthly	1.69%
Rarely/Intermittently	18.64%

With increased frequency of communication comes the increased possibility for misuse. Employers would be wise to establish a formal policy, which guides all of their employees to use this medium responsibly. Yet when asked, only half of the organizations surveyed indicated that they have a formal policy in place to guide employees on the proper use of social media.

Does your organization have a formal policy in place directing employee use of social media?
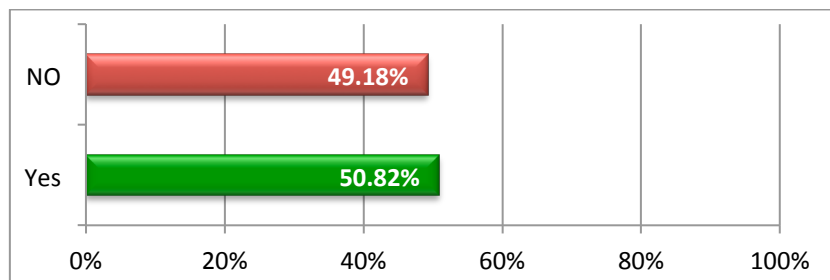
Misuse of social media by employees can be problematic for an organization. A firefighter, for example, who collects video images at an emergency scene and posts them on social media may be violating the privacy rights of a victim. Or perhaps a law enforcement

officer who has information gained during an undercover assignment might inadvertently posts

information that would jeopardize a legal proceeding. Questions arise as to what is protected

speech and what is prohibited. A clearly defined policy will help guide employees in their use of

social media.

It is important for communication managers to realize that social media is but one of

many tools that can be used to disseminate information. An effective strategy to reach the entire

community must reach the full spectrum of stakeholders, including those that may not use the

Internet. Vulnerable populations, such as the elderly, disabled, or vision-impaired may not be

easily reached through social media. A current view from emergency management professionals

shows that a majority does not believe that vulnerable populations are more reliant on social

media than other members of the public.

**Vulnerable populations (elderly, disabled, hearing impaired, etc.) are more reliant
on social media for communication than other members of the public.**

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8.33%	43.33%	35%	6.67%	6.67%

Social media can be extremely valuable in providing timely, actionable information to the public,

however, to maximize the reach of a crisis message, a balanced approach is required that

includes traditional media as well as electronic media (Capriles, 2014).

With the increased use of social media during crises, so too is the likelihood that

misinformation will be spread that hinders the emergency response. During a rapidly evolving

emergency, inaccurate information can prove extremely detrimental to public safety. A social

media user that posts inaccurate evacuation instructions during a wildfire incident, for example,

may actually cause evacuees to flee to a dangerous location. Misinformation spread during the

2013 Rim Fire in California caused officials to request that the public avoid social media for fire updates (Carrol, 2013). Agencies that fail to control misinformation generated from their organization may find that they will suffer issues with their credibility with their stakeholders.

News media personnel also have the responsibility to use social media effectively to help protect the public. During the 2013 Boston Marathon bombing incident, CNN reported that a suspect was in custody, which turned out to be false, and the story was later corrected by public safety authorities (Carr, 2013). Survey results show that emergency managers are highly concerned with the issue of misinformation when using social media.

**In your opinion, the biggest risk when using social media during
a crisis situation is (explain):
Top 5 answers:**

Ranking	Response	
1	Followers posting misinformation	38.6%
2	Using Social Media as the primary tool for public information	22.81%
3	Making decisions based upon unverified information	19.3%
4	Focusing on timely communication rather than accurate information	8.77%
5	Reputation management	5.26%

Another major concern of emergency managers was the tendency of some information officials to use social media as the primary communication tool, thereby neglecting to incorporate multiple communication methods as part of a larger crisis communication strategy. Emergency managers expressed concern for the need to disseminate timely information tempting officials to base releases on unverified intelligence gained from social media conversations. During the initial phases of a crisis, when social media activity may be heightened, agencies may not have the staff necessary to correct misinformation, and the corresponding ability to protect an agency's reputation against false and misleading claims.

Reputation management may become a labor-intensive activity, whereby information officials would monitor social media sites to check the validity of information posted on social media.

Does your organization have resources in place during a crisis to verify the validity of information gathered on social media?

NO	65.57%
Yes	34.43%

0%   20%   40%   60%   80%   100%
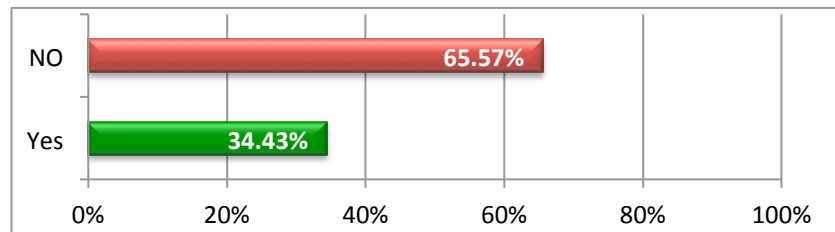
The speed at which social media broadcasts information often does not allow enough time to for public safety authorities to verify its accuracy or validity. This can be especially problematic when using *crowdsourcing*, the practice of collecting information from a wide variety of online sources to provide a common picture, to enhance situational awareness. During the immediate aftermath of the disaster at the Fukushima Daiichi nuclear facility, the public was skeptical of the general assurances of safety offered by official government agencies. The public, wanting specific information about radiation levels, turned to crowdsourcing sites to assemble and map radiation levels in Japan (Rosenberg, 2011). The credibility of information gained by crowdsourcing may be suspect during times when emergency response officials lack the resources to validate the accuracy of the information.

Absent a presence on social media, emergency response agencies are reliant upon traditional media outlets to disseminate information to the community. During the 2007 San Diego wildfires, users of social media acted as news aggregators, colleting news from local radio reports, television news broadcasts, and streaming videos on the web, then posted information to personal twitter accounts (Poulsen, 2007). Public information messages released during the

wildfire were mediated through a third party, which acted as a filter between the agency and the public.

Phase II: *Solution Development*

In Phase II, specific steps are identified to resolve issues related to the proper use of social media for risk and crisis communication. In order to realize the benefits of social media, agencies must first develop and enforce a social media policy.   The policy must provide direction to the PIO, as well as provide expectations for employees who use social media. Once policy is established, the agency should begin building their specific "brand", or unique presence on social media, which provides a specific online identity to the organization. After a policy and brand are established, the organization should begin using social media in ways that help build followers and enhance two-way conversations about a range of topics, from public relations activities, image and reputation management, and community outreach messaging. Once a distinct followership is established, the organization will have built the trust and credibility necessary for proper risk and crisis communication. Monitoring social media messaging is important in all areas of communication, but especially when posting risk and crisis communication. Careful consideration must be given to the impact, and possible unintended consequences, of posting sensitive information online during a crisis response. Furthermore, agencies should take advantage of online tools that provide analytics that help determine the efficacy of social media communication.

Establishing a Social Media Policy

Communicating through social media is not as simple as turning on a computer and sending a few online messages through well-known sites; rather it takes a sustained effort to build a group of followers with whom communication is routine and meaningful. The first step

in building an online presence is the establishment of a social media policy. This policy should outline the roles and responsibilities of the social media manager, and for employees in the organization who use social media (Clarke, 2014). This is especially important in those organizations that rely on a hierarchical chain of command structure, which is built to provide for maximum accountability and control (Morgan, 2012). Emergency response agencies traditionally use this type of structure, where the organizational leader, such as a Fire Chief or Police Chief, is responsible for establishing policy and assigning responsibility to subordinates throughout the organization. Responsibility for media correspondence is usually assigned to the PIO. Press releases and other media correspondence are developed by the PIO, and then approved by the leader before release, to ensure that only authorized, controlled messages are delivered. This reduces the potential for misinformation to be disseminated, which could be harmful to stakeholders or to the organization's reputation.

When communicating through social media, however, rigid hierarchical procedures are often seen as cumbersome, and social media managers find little time to have each message approved by authorities. Social media, with users communicating on mobile devices, is a bottom-up and self-organizing process, unguided by top-down standards and oversight (Starbird and Stamberger, 2010). A clear policy is needed to provide guidance to the PIO, while affixing an appropriate amount of responsibility to the position. Organizations should develop staff to sustain a social media program and not place the expertise in the hands of a few employees that may transfer between assignments or leave the organization entirely.

Another benefit for establishing an official social media policy is that it allows the top management of an organization the opportunity to officially sanction the adoption of a social media program into the organization. Director of the Federal Emergency Management Agency

(FEMA), Craig Fugate, has expressed his belief in the value of using social media for crisis communication. Fugate understands that social media was not designed with disasters in mind, however, citizens who use these tools become the first sources of information in a disaster situation prior to the arrival of first responders (McCarter, 2011).

FEMA has established a focused educational program for social use in emergency management. An awareness level course is offered online to emergency managers throughout the United States (Federal Emergency Management Agency, 2013).

A comprehensive social media policy should establish boundaries and expectations for all employees in the organization. Employees should know that online posting of video files, photographs, audio files and other media should not result in harm to the reputation, image or integrity of the organization. Strict adherence to a social media code of conduct is needed to keep employees out of legal jeopardy, and the organization operating in a safe manner.

Develop your "Brand"

Once a social media policy has been established, an organization should establish a unique online presence. According to Lieutenant Kurt Clarke (2014), social media manager for the Santa Clara Police Department,

> "It is important to establish your social media *brand:* What do you want to do and for whom? What services do you provide for the community? It is important to stick with your brand, once developed, to build an audience. If you find you lack followers, change the message over time. The objective is to build followers."

Clarke (2014) explains further that it is important to create a conversation with the online community. "Talk with them routinely, so they're listening when you want to send critical information." Most emergency management organizations polled indicated that they post content routinely and frequently in an attempt to converse with social media users.

How frequently is information from your organization posted on social media?

Answer Choices	Responses
Once per day	16.95%
More than once per day	18.64%
Several days per week	22.03%
Weekly	22.03%
Monthly	1.69%
Rarely/Intermittently	18.64%

Frequent engagement with the public is an important part in building followers of an organization. According to Lieutenant Zach Perron (2014) of the Palo Alto Police Department, "There are two primary goals when using social media: Enhance communication to engage the community, and build followers in advance of a crisis." Perron (2014) further explains that branding for his organization includes a little light-hearted humor. "The goal is to build followers, and showing a little personality once in awhile is helpful. It shows that you're human. You should not be afraid to be social on social media".

Use Social Media Properly

When using social media, it is important to use the correct tool for the intended audience. There is an ever-expanding variety of online tools available for any given audience and any situation. When creating a social media message, it is important to structure the message for the intended audience. For risk communication, social media managers use sites such as Twitter, which provides concise messages that include important safety information.

At times, it can be beneficial to create a specific message for a single neighborhood, rather than issue a message citywide. The social media site, *Nextdoor*, organizes members by city neighborhood, and is designed to share messages between members. The city of San José,

California uses *Nextdoor* to send useful information to neighborhood members. According to

Lenka Wright (2014), Assistant Director of Communications,

> "*Nextdoor* allows us to share information with residents by neighborhood, which is
> especially helpful when a situation only impacts a portion of the city. Through *Nextdoor*,
> we're able to provide specific, actionable information to those affected in an emergency.
> We use a variety of social media tools, including *Nextdoor*, which allow us to reach out
> to the community where they are online so they don't have to make a deliberate effort
> to come to the City for information".

Social media has been identified as an excellent tool for communicating risk to members of the

community. When polled, a large majority of respondents indicated that they use social media

for risk messaging.

Does your organization use social media to alert the public during periods of increased risk to public safety?
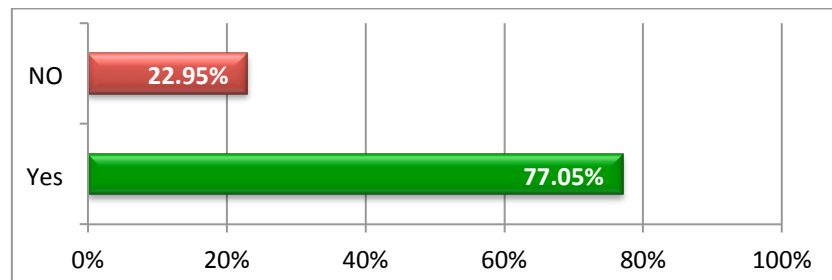
Risk communications can vary between routine and risk awareness to critical, timely

messages. For example, a fire department may advise citizens to change batteries in a smoke

detector, or weather forecasters may provide safety information in advance of a storm. Time-

critical risk messaging may include information such as a shelter-in-place order during a

hazardous materials release, or during a police action such as a high-speed pursuit of a crime

suspect. It is important to routinely converse with the public regarding risk in order to build

credibility (Clarke, 2014). Social media provides emergency managers an opportunity to engage in a two-way conversation to ensure that risk messages are acknowledged and understood.

Social media is extremely valuable as a tool for enhancing the reputation of an organization, due to the ability to control message content. Data suggests that organizations place a high priority on using social media for public relations activity.

**Please prioritize (rank from 1 to 6) the reasons for
establishing a presence on social media.**

Rank	Reason	Average Ranking
1	Public Relations	5.35
2	Community Risk Communication	4.28
3	Crisis Management	3.95
4	Monitoring the Organization's Reputation	2.92
5	Networking with other organizations	2.42
6	Communicating with employees	2.08

Public safety organizations often establish an online presence through social media primarily for public outreach efforts, and then evolve to include risk and crisis communication (Capriles, 2014).

Monitoring social media conversations

Engaging in a two-way conversation via social media has several benefits in controlling and correcting the content of information contained in online messages. Social media allows public safety managers to directly control message content without a third party to filter the message (Capriles, 2014).

Social media users can provide a wealth of information that can be used to establish situational awareness. Often, social media is used by the public to enhance situational awareness by posting photos, videos and messages well in advance of the arrival of emergency responders.

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Emergency managers are able to utilize this information to obtain information helpful to establishing an appropriate response (McCarter, 2011).

Crowdsourcing can be another advantage when using social media. Asking the public to provide information during a crisis can be helpful in obtaining information, but it can also lead to problems. During the aftermath of the 2013 Boston Marathon Bombing incident, authorities released photos of two young men and asked for help in identifying them.   The FBI released video footage of the two young men, also asking the public for their help identifying the suspects. After images were posted online, there was a convenience store holdup, a fatal shooting of an MIT police officer, and a high-speed chase through a Boston suburb. The individuals involved in these events were in fact the two suspects in the images released by the FBI (Mack, 2013).   Authorities must use extreme caution when releasing sensitive information that could be widely circulated and soon reach beyond their ability to control its distribution.

The Internet has made possible the broadcast of public safety radio frequencies online. The public now has the ability to listen to conversation between public safety officials, where tactics are being discussed and action plans developed. During the aftermath of the Boston incident, police officials asked the public to refrain from broadcasting police tactics during the search for suspects (Mack, 2013). A solution would be for public safety officials to encrypt their radio transmissions to exclude the public, and thereby reduce the possibility of sensitive information being shared online.

Once a message is posted, organizations are able to quickly monitor social media to determine the effectiveness of the message. During the initial stages of a crisis, emergency managers look to obtain feedback in a timely manner.

Which social media tool is best for monitoring citizen or stakeholder behavior during the initial phases a crisis?
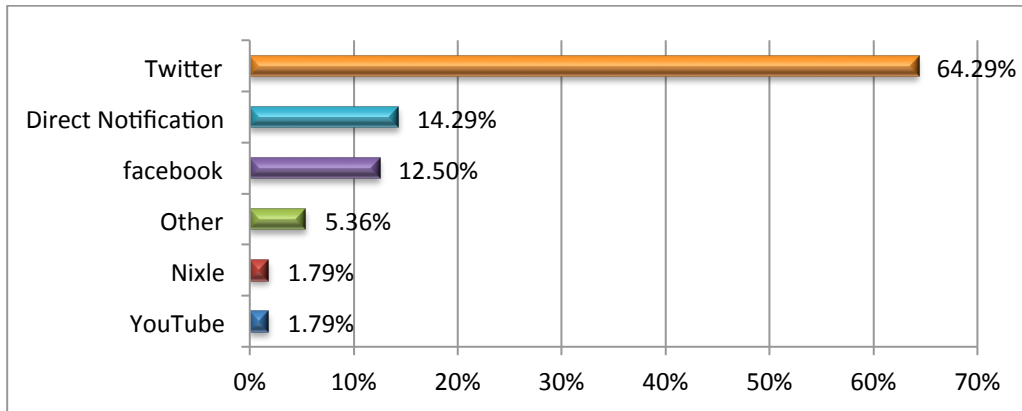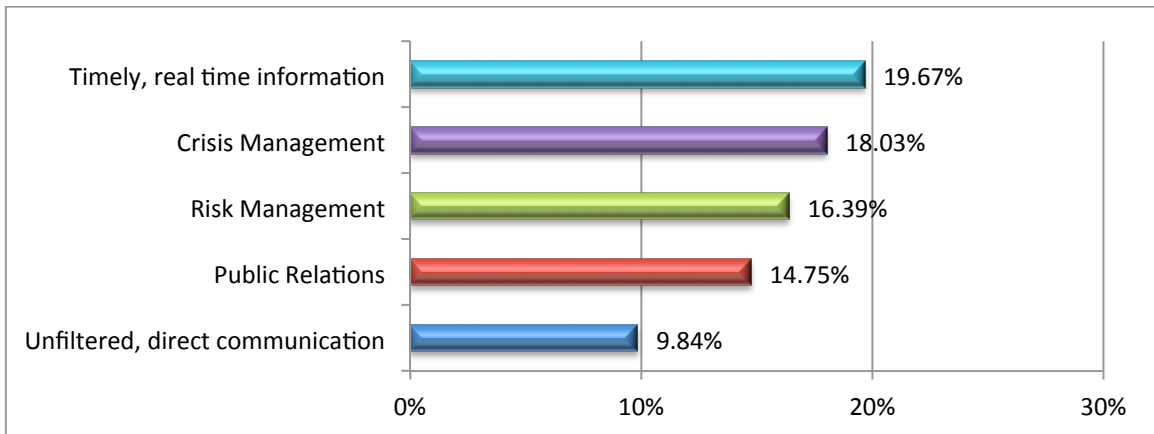

Although there are many social media tools available, most respondents chose a platform such as Twitter that allows for rapid response. Speed in correcting misinformation is critical, therefore monitoring conversations on Twitter is important.

> "Social media is great for monitoring misinformation. You have the ability to correct misinformation very quickly. The traditional media will help you re-tweet corrected information. It's a win-win for everyone involved" (Perron, 2014).

The fact that social media expedites the messaging process has been viewed as a very positive attribute. Whether social media is used to send initial incident information, or monitor the input from users, the ability to send messages rapidly was seen by emergency managers as the best attribute of social media.

In your opinion, social media is most beneficial when used for (explain):

| Category	Percentage
Timely, real time information	19.67%
Crisis Management	18.03%
Risk Management	16.39%
Public Relations	14.75%
Unfiltered, direct communication	9.84%

Reputation management

Establishing and maintaining a positive reputation with stakeholders is important to emergency response organizations as they look to build trust and credibility. When managing reputation, emergency managers seek to influence public perception of their organization. Direct interaction with stakeholders provides an organization the opportunity to form positive evaluations if their services rendered resolve a problem, or improve a situation. Reputation in large part is predicated on how stakeholders assess an organization's ability to solve problems and meet expectations (Coombs, 2012). Using Twitter, specifically during crises, leads to higher reputation than crisis communication via blogs or traditional newspapers (Shultz, Utz, & Goritz, 2011).

Stakeholders, however, also assess an organization's ability to meet expectations through indirect contact, often by receiving reports through traditional media, online comments through blogs, or through social contact (Coombs, 2012). Social media can be an effective tool for organizations to reach out to stakeholders directly and build relationships. This interactive contact helps create a personal connection with users, facilitates positive attitudes towards the

organization, and encourages supportive word-of-mouth intentions (Yang & Kang, 2009). Social

media practitioners believe in the value of proactive reputation management, with a clear

majority of respondents citing social media as the best communication tool for this effort.

**In your opinion, which form of communication allows an organization
to best manage its reputation with stakeholders?**

Traditional Media	38.33%
Social Media	61.67%

0%   20%   40%   60%   80%   100%
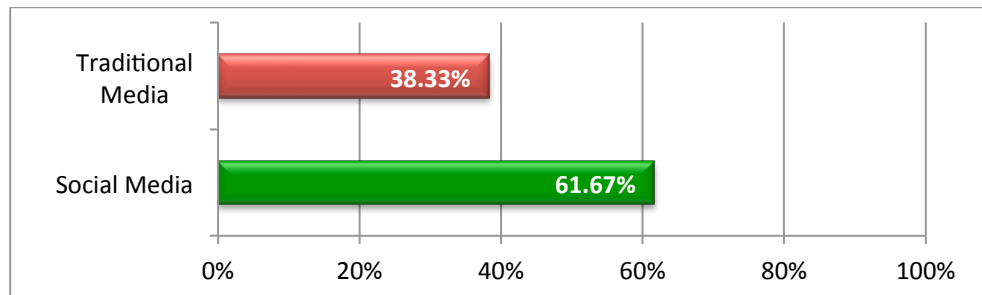
Research regarding the use of social media in the aftermath of the Fukushima nuclear disaster

indicates that crisis communication via social media is better for an organization's reputation and

reduces unfavorable secondary crisis reactions, however, the public continues to look to

traditional journalists to play an important role as credible gatekeepers of information (Utz,

Shultz, & Glocka, 2013).

Social media can be extremely effective in providing information that helps address

negative feedback from stakeholders that are dissatisfied with the performance of an

organization, or believe that their interests or needs have not been met.

> "The goal of our organization is transparency. We want our citizens to know what we're
> all about. We have a 48-hour turnaround on messages posted on social media. This is
> especially important when dealing with messages that are critical of the organization.
> Communicating quickly, responding with a message promising to address the issue can
> turn a negative situation into a positive one" (Clarke, 2014).

Organizations that use social media to build relationships foster a positive reputation with their

stakeholders. The American Red Cross (ARC) is currently using a wide variety of social media

tools to engage in a two-way conversation to build and enhance relationships with publics such as volunteers, the media and the community. The ARC reports that through social media they provide faster service for the community, generate more media coverage, and receive both positive and negative feedback from the stakeholders to improve their organization (Briones, Kuch, Liu, & Jin, 2011).

Organizing Volunteers

During times of disaster citizens often spontaneously volunteer to provide assistance to those in need. Without coordination, however, volunteer efforts may be of limited effectiveness. Social media allows volunteers to self-organize to provide innovative solutions to disaster relief efforts. During the aftermath of Hurricane Sandy, grassroots volunteers self-organized to provide relief to disaster victims. The volunteer effort amassed 60,000 volunteers, collected nearly $1 million in donation for survivors, and distributed food, clothing, medical supplies and construction materials for survivors in New York and New Jersey (Fugate, 2013). Volunteers were recruited via social media.

A majority of social media managers, when polled, expressed a belief in the value of using social media for use in managing volunteer efforts in the aftermath of an emergency.

Social media is highly effective for organizing the activities of volunteers.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.67%	3.33%	35%	45%	15%

Sixty percent of respondents indicated that they agree or strongly agree that social media can be used to effectively organize the activities of volunteers. This may be especially beneficial during large-scale emergencies such as an earthquake or significant weather event where the

communication infrastructure may be damaged. Volunteers may use social media in locations far away from the emergency to manage donations, solicit financial contributions, and organize an effective logistics supply chain. Social media may also be used to help disaster victims communicate to their family members the status of their health and wellbeing.

Social media versus direct notification

The primary objective when delivering risk or crisis communication is to provide timely, accurate, and actionable information to an intended audience. Social media and its two-way communication method provides several ways in which to accomplish this objective, however, it is important to recognize that specific, one-way notification systems are highly effective as well. For example, many universities utilize one-way, web-based emergency alerting systems to notify students and employees of an emergency that threatens the health and safety of the school community. Alert-SJSU is the web-based notification system in use at San José State University, and is typical of alerting systems used throughout the United States. Through the use of these systems, officials are able to send risk and crisis response messages directly to registered users through voice, text, and email platforms. Information disseminated through these systems will describe the nature of the emergency and may caution users to avoid certain areas of the campus, advise if classes are cancelled or delayed, and provide vital information and specific actions to take when on campus during an emergency situation (San José State University, 2014).

Survey respondents indicated their preference for using direct notification systems for sending risk and crisis communication during emergencies.

**The best social media tool for alerting citizens of
imminent risk to life and safety is:**

| Tool	Percentage
Direct Notification	63.16%
Twitter	21.05%
facebook	8.77%
Other	7.02%
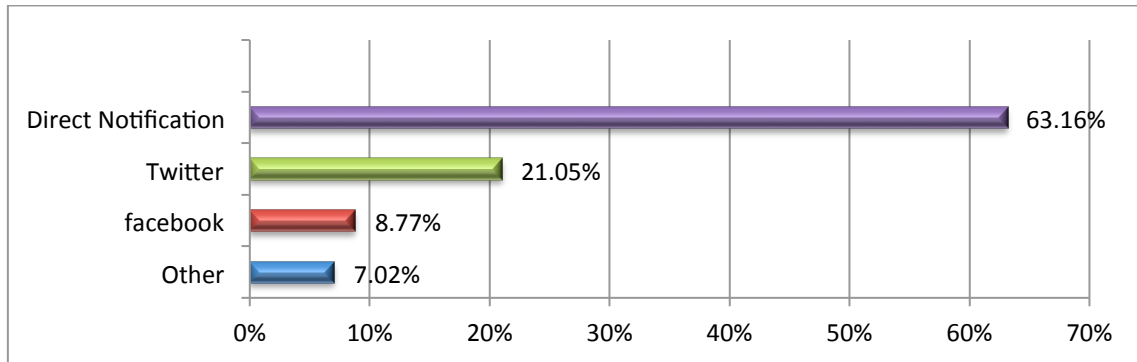
Local governments also use web-based direct notification systems for disseminating risk and crisis communication during emergencies. In Santa Clara County (California), emergency managers use a system called, "AlertSCC" to notify residents via landline phones in a specific geographic area, or through email, text or voice messages to registered users (Santa Clara County, 2014). Emergency response personnel are able to use this alert system to advise residents to take action during emergencies, such as sheltering in place to avoid smoke during a fire, or taking safety precautions during an active-shooting incident involving law enforcement personnel.

Direct notification systems can be effective in providing timely, actionable information, however other communication platforms should be included as part of an overall risk and crisis communication strategy. Public safety officials recognize the need to use multiple communication platforms when alerting stakeholders, and often combine direct notification systems with social media tools, radio broadcasts, and telephone hotline systems (San José State University, 2014).
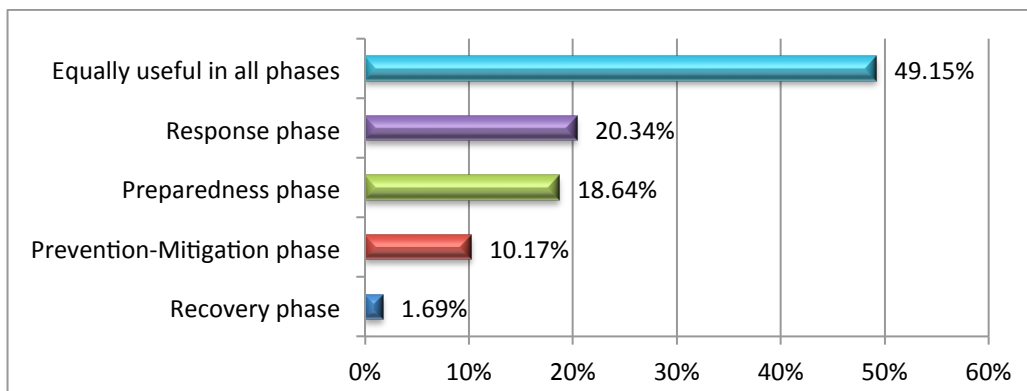
Social media and the Emergency Management Cycle

Emergency managers replied to survey questions inquiring about their habits in communicating throughout all phases of the emergency management cycle: Prevention/Mitigation, Preparedness, Response, and Recovery.
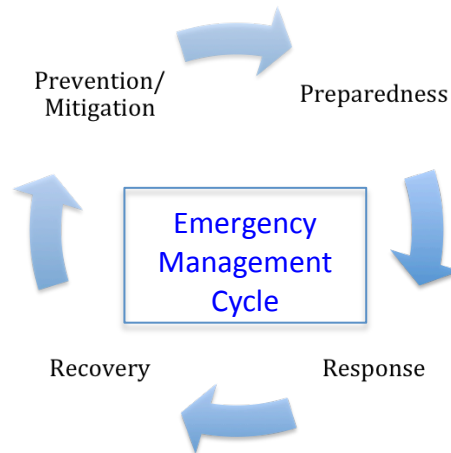
In each phase of the emergency management cycle, social media has been used effectively as part of an overall communication strategy. Of the four phases of the emergency management cycle, social media was viewed as effective in all phases.

In your opinion, during which phase of the Emergency Management Cycle is social media most effective for communicating risk to the community:

Of those surveyed, nearly fifty percent believed in its value as an effective tool for risk communication in all phases of the emergency management cycle. Social media has made a profound impact on the public's ability to cope during an emergency and recover in its aftermath. By sharing images, texting and tweeting, citizens have become part of the response network itself, rather than mere victims of the emergency (Merchant, Elmer & Lurie, 2011).

Preparedness Phase

Social media is seen as beneficial to practitioners during the preparedness phase of the emergency management cycle. Through the use of pictures, links to websites, and online discussions, officials are able to post emergency preparedness advice. A strong majority of those surveyed indicated that they currently use social media to post emergency preparedness advice.

Does your agency use social media to educate the public on emergency preparedness procedures, such as earthquake preparedness, crime prevention tips, public health issues, etc.?

NO	27.87%
Yes	72.13%

0%   20%   40%   60%   80%   100%
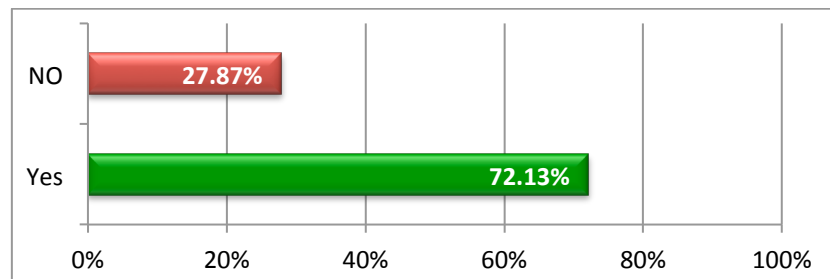
Emergency response agencies that use social media generally communicate frequently with their online followers, which necessitates daily posting of information on social media sites (Clarke, 2014). Occasional posting of emergency preparedness advice can be included as a part of a social media communication strategy that uses preparedness messages in combination with risk and crisis messaging. A fire department, for example, may want to post advice on smoke detector maintenance, or a health organization may provide health advice during flu season. By monitoring social media conversations during the preparedness phase, emergency managers are

able to monitor the effectiveness of their messages and adjust the message to reach larger audiences, if warranted.

Response Phase

Social media's ability to share information through two-way conversation during emergency response provides emergency managers with expanded resources that provide real-time situational awareness.   The public is able to share information in a fast moving emergency well before emergency responders can arrive on scene. The public may also be used in a crowdsourcing role, helping authorities obtain information helpful in mitigating the emergency, or in disseminating critical life-safety information. An extension of crowdsourcing, is "crowdmapping", which uses crowd-sourced information to create real-time maps during an evolving emergency (Tobias, 2011). The public posts input directly to online maps of emergency conditions or response activities in a graphic form, to highlight the impact in a specific neighborhood or geographic region. Using the public as a resource directly enhances situational awareness and resource status for emergency response personnel.

During the initial phase of a crisis response, emergency managers rely on social media tools such as Twitter, which emphasize short, concise messages of 140 characters or less. When polled, sixty-four percent of respondents indicated that Twitter was the preferred social media tool for use in monitoring citizen or stakeholder behavior during the initial phases of an emergency. People who are on the ground during an emergency are uniquely positioned to share information not available through other information sources. Additionally, locals may possess knowledge about geographic or cultural features that may be helpful to those responding from outside of the affected area (Starbird, Muzny, & Palen, 2012).

Recovery Phase

During a prolonged emergency incident lasting several days, social media can be useful in compiling information gained during the initial moments of the event, which will aid in recovery efforts. Personal stories, photographs and other forms of information can be organized in such a way to chronicle events, help provide initial damage estimates, and direct the public to sources of individual assistance. In the aftermath of a major emergency, citizens may need help with housing, should the event be large enough to damage homes and cause displacement of residents. Economic needs may arise as the result of damage in the economic sector, with the associated loss of business activity. And certainly, there could be social and psychological needs as citizens cope with the stress of experiencing loss. During these situations, social media may prove particularly beneficial, as the built-in social networks allow for two-way communication between victim and helper.

Efforts to coordinate the activities of well-meaning volunteers during recovery can be enhanced through the use of social media. Organizing volunteer efforts through social media is often a bottom-up approach as participants work collaboratively to manage donations, solicit financial support, and provide timely information to help family members locate one another. Social media involves the broader community in the recovery effort, which allows stakeholders the opportunity to invest their input at a grassroots level to change conditions for the better.

Prevention/Mitigation Phase

Social media can play a helpful role in efforts to reduce or eliminate hazard risk. Mitigation efforts are intergovernmental in nature, and typically involve agencies that include emergency management, planning, housing, community development, commerce, economic development, transportation and environmental protection (Waugh & Tierney, 2007). Agencies

that have an established social media presence can provide prevention and mitigation advice to their followers through routine and frequent communication. The Federal Emergency Management Agency (2014) uses a Twitter account to post web links to their main agency web page, which offers planning, prevention, and mitigation steps for followers to take to reduce risk:

ANALYSIS

Phase I: Problem Identification

The findings indicate that the use of social media has proven effective as a tool for risk and crisis communication, however, practitioners should be cautious and establish a solid foundation before implementing a social media program. The data outline several challenges that agencies have experienced when establishing and implementing a social media program for the intent of disseminating risk and crisis communication. Agencies have found that adopting a social media program exposes the organization to increased risk, requires significant personnel resources and involves the reordering of activities within an organization to adapt to a new way of communicating.

The findings show that many agencies lack an appropriate social media policy that provides a clear level of authority and responsibility to the social media manager, as well as

provide expectations for employee conduct while using social media. The rapid pace of social media messaging, especially during a crisis situation, requires the PIO to understand what level of authority is afforded from the top level of the organization. Since most emergency management agencies are hierarchical in structure, authority and responsibility must be delegated appropriately to the PIO and social media information officer in advance of a crisis. Establishing a social media policy is critical to the success of any social media program.

Social media programs require significant resources, especially human resources, to be effective. Many agencies surveyed do not have a PIO dedicated to developing and implementing an effective program. Risk and crisis communication require short, concise messages that convey compassion and rely on credibility established in advance of a crisis. Many agencies lack a PIO trained specifically in risk and crisis communication.

Resources are also needed to monitor user input for misinformation, and have been identified as a reason that organizations do not fully utilize social media in their communications. Monitoring social media sites, especially during a crisis situation when the volume of messages is high, can require more resources than available. This requires organizations to adapt by reassigning current personnel to this task, or reorder activities in the organization to accommodate the demands of using social media.

Social media must be considered but one component of an overall communication strategy. Many publics, including vulnerable populations, rely on other communication methods for receiving information. Enough resources must be allocated for communicating through traditional media to ensure that all publics receive adequate risk and crisis communication.

Federal, state and local governments must commit an appropriate level of resources to the adoption of social media for use during large-scale emergencies. Advanced training for

emergency managers and response personnel is needed to build the capability necessary to fully incorporate social media as a valuable, reliable communication tool.

Phase II: Solution Development

The findings show that organizations that thrive in the social media environment have an established policy in place to guide social media managers and set expectations when using the medium for risk and crisis communication. Successful organizations develop a unique social media presence, which garners support from followers well in advance of a crisis. Once an online brand has been developed, specific audiences are targeted and appropriate social media tools utilized to send useful information.

Social media has proven beneficial in all phases of the emergency management cycle. As proven during the case studies involving the Boston Marathon bombing incident and the 2007 San Diego wildfires, the public can be a valuable source of information to emergency managers. Through the techniques of crowdsourcing and crowdmapping, emergency managers gain situational awareness early and often during an incident. With social media, victims are no longer merely bystanders, but part of the overall communication team.

Communication through social media is best achieved through a trained PIO who posts information frequently, at least several times per week. This engagement with the public helps build transparency and credibility. Once a high level of trust is established, agencies become the primary source for trusted information, which is helpful when correcting misinformation posted online.

Social media is an effective tool for reputation management. The initial reason most agencies establish a social media presence is to enhance public relations and community

outreach. If used effectively, messaging delivered through social media is considered more credible than if delivered through traditional media.

Organizations can use social media for building relationships with stakeholders in advance of a crisis. This can be extremely valuable post crisis, when social contact is needed to help affected victims. Well-meaning volunteers have used social media for organizing their activities to provide disaster assistance to those in need.

Finally, social media has been seen as effective when used in all phases of the emergency management cycle. Through two-way communication, emergency managers are able to send messages to help prepare individuals in advance of a crisis, provide actionable information during crisis response, help with recovery post incident, and offer information to help prevent and mitigate future hazards.

RECOMMENDATIONS

Social media can effectively be used for risk and crisis communication, especially if emergency managers first establish a strong foundation, which involves a comprehensive policy, a unique organizational brand, and a thorough commitment to transparency and trust. Once the groundwork has been laid, social media can be used to disseminate risk and crisis messaging to targeted stakeholders through trained spokespeople. Appropriate resources must be assembled to effectively monitor and direct the flow of online communication to achieve communication objectives.

Based upon the research, the following are recommendations for using social media effectively for risk and crisis communication.

Establish a social media policy

Developing and adopting a social media policy is the first step in building an effective

social media program, as it establishes standards of conduct for the use of social media by employees in the organization. The policy establishes the Department's position on the management of employees' use of social media and provides guidance on its management, administration, and oversight. The policy should explain to employees what is permissible information to share on social media sites and what is prohibited. Issues regarding the ownership of images, video or audio files obtained by employees during the course of their employment should be the spelled out as well. Most importantly, the social media policy should provide specific guidance to the authorized social media manager, or PIO who will be posting content on the organization's social media sites. The policy should assign the appropriate level of authority and responsibility to the social media manager so that there is no doubt as to what is approved conduct when posting information online. The rapidly changing environment of a disaster or crisis does not allow for a social media manager to seek approval for each message released. A clear policy regarding authorized conduct by the information official is crucial, especially in hierarchical organizations, such as public safety or emergency management agencies. An effective policy should also address any issues relating to local labor policies or contracts, as well as delineate the differences between personal and organizational use of social media. An organization's legal team should be consulted to ensure that the policy addresses legal and ethical issues related to the use of social media.

Develop an Individual "Brand"

Each organization is unique and its social media presence should reflect its individuality and personality. Humor has been used as an effective component of an organization's social media brand (Perron, Capriles, 2014) and has been shown to add a unique personality to an online conversation. A variety of social media sites should be used to ensure that a wide

audience receives the message. Although social media sites differ in their content and messaging capabilities, an emphasis should be placed on repeating a common message across all platforms. Some sites are better suited for posting multiple photos, while others rely primarily on text. A common message theme should be woven through each media site. Having a social media site that is interesting to the public encourages people to follow. A primary goal when using social media is to build followers well in advance of a crisis. Having a unique and interesting brand helps accomplish this goal.

Allocate Appropriate Resources

Communicating risk and crisis messages through social media is labor-intensive, and the demands placed on a media relations staff can be overwhelming, especially during an active emergency or crisis. Organizations must identify official spokespeople who will be charged with developing message content, monitoring online feedback, and making recommendations to senior decision makers regarding how best to communicate during crises. During a fast-evolving crisis, the duties of a social media manager can be overwhelming and require additional resources to effectively cope. In times of emergencies, help can be garnered through volunteer centers, where pre-identified social media helpers assemble to monitor communications and gather intelligence. Outside agencies or organizations can be asked to monitor social media sites during a crisis as well, which would reduce workload demand for the affected agency. It is important for social media managers to filter distractions during periods of social media saturation, when a tremendous amount of information is circulating through the community (Leonard, Cole, Howitt & Heymann, 2014). Incident commanders and senior decision makers must be allowed to focus on managing the incident, and not on responding to rumors, misinformation, or gossip, which can often be part of social media communication.

Risk and crisis communication is different than other forms of communication in that it requires messages to be concise, to the point, and delivered with compassion and empathy (Covello, 2001). Spokespeople who deliver risk and crisis communication should be trained in the techniques and procedures necessary to deliver this type of message. Properly delivered risk and crisis messages can increase safety, build trust and credibility, and enhance the reputation of the organization. Risk messaging should be consistent across all forms of social media used to disseminate information.

Build Program Sustainability

When building a social media relations team, it is important to develop a succession plan that addresses employee turnover. Having a single social media manager or individual spokesperson who is entirely responsible for developing and delivering messages can leave an organization vulnerable when that employee moves on from that assignment. Training multiple employees to be effective users of social media may require a substantial investment by an organization, however, it ensures sustainability and consistency of messaging over time. Having numerous employees trained as social media practitioners also builds a cadre of helpers during the peak resource demand of a crisis or emergency.

Build a Comprehensive Communication System

Organizations should use social media as part of a larger, comprehensive communication system that includes online sources, traditional broadcast media, print media, and direct notification systems. Social media currently uses widely available commercial sites, which are subject to Internet outages from time to time. Not all publics obtain their information from social media, therefore, traditional outlets should also be utilized. In major emergencies where

communication infrastructure is severely damaged or compromised, social media may not be a viable method for delivering risk and crisis information. In times of widespread emergency conditions, older traditional means such as amateur radio transmission and the emergency broadcast system, may be utilized. Emergency managers should consider social media as part of a much larger information delivery system.

Use Analytics to Evaluate Program Effectiveness

Communication managers should use available online analytic tools to evaluate the effectiveness of their social media program. If a particular message is not gaining the desired response from followers, the message should be adjusted to increase its reach in the community. Analytics can be extremely useful in evaluating whether or not a message is being heard, or whether the intended communication objectives have been met. The data gained through this analysis can help managers alter a message to increase its reach.

Continue to Evolve

Programs and content on the Internet are constantly evolving. Social media tools will change over time. As a result, practitioners will face an increased need for training and support to stay at the top of their game. Organizations should anticipate these changes to online content and be willing to put forth the resources necessary to adapt to a changing environment. Social media is relatively new to the emergency management discipline. Agencies must adapt to these changes in order to ensure that social media remains a viable part of their overall communication strategy.

CONCLUSION

The findings of this research show that social media is indeed an effective tool for risk

and crisis communication. The study shows that successful emergency management and response organizations first establish a solid foundation of policy development, dedicate the proper resources for success, and develop personnel to be proficient in its use. Social media has unique qualities that increase the reach of important risk and crisis messaging, and complement a messaging delivered through traditional information outlets. Properly implemented social media programs will enhance an organization's transparency, build trust and credibility, and help safeguard its reputation.

A well-developed policy will lay the groundwork for guiding employee conduct in the use of social media, and is the first building block of an effective social media program. Establishing a unique brand will help create online followership, which is necessary to build a receptive audience in advance of a crisis.

Organizations need to devote the appropriate resources necessary to manage and sustain a social media program, including the training and development of a social media manager, or PIO. Specialized training in risk and crisis communication must be provided to enhance the information official's ability to provide timely, actionable information to targeted stakeholders. Furthermore, social media communication needs to be frequently monitored for misinformation, with corrective information reposted quickly. Risk and crisis messaging, delivered through social media by trained information officers, has proven valuable in high risk, stressful emergency events.

The objective of any risk and crisis communication program is to deliver timely, actionable information to targeted stakeholders to ensure public safety. Social media is an effective tool to accomplish this objective, especially when combined with a variety of other

communication outlets as part of a comprehensive communication system.

The findings of this report show that social media is valuable in all phases of the emergency management cycle. In a changing world where information systems are constantly evolving, emergency response and emergency management agencies would be wise to include social media as part of their risk and crisis communication system.

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Appendix A - Social Media Questionnaire

Your Organization
1. Describe your organization:
   - ❑ Law Enforcement
   - ❑ Fire Department
   - ❑ Emergency Management
   - ❑ School
   - ❑ Special District
   - ❑ Health Care
   - ❑ Other: _____

2. Number of Employees:
   - ❑ 1-100
   - ❑ 101 - 500
   - ❑ 501-1,000
   - ❑ 1,000+

3. Population Served
   - ❑ Less than 10,000
   - ❑ 10,001 to 100,000
   - ❑ 100,001 to 250,000
   - ❑ 250,001 to 500,000
   - ❑ 500,000+

4. Do you have a dedicated Public Information Officer?
   - ❑ Yes ❑ No

5. What is your title?
   - ❑ Business Consultant
   - ❑ Law Enforcement Official: specify
   - ❑ Fire Department Official: specify
   - ❑ Risk Manager
   - ❑ Emergency Manager
   - ❑ Public Information Officer
   - ❑ Other _____

6. Types of Social Media Used (check all that apply)
   - ❑ Twitter ❑ facebook ❑ tumblr. ❑ YouTube ❑ LinkedIn ❑ Skype ❑ Nixle
   - ❑ Direct Notification (Alerting) System
   - ❑ Other, Explain _____

7. Main Purpose for establishing a presence on Social Media is (check one):
   - ❑ Public Relations   ❑ Monitoring Organization's Reputation ❑ Crisis management
   - ❑ Community Risk Communication ❑ Networking with other Agencies
   - ❑ Communicating with employees
   - ❑ Other, explain: _____

8. How often is information from your organization posted on social media
   - ❑ Once per day   ❑ More than once daily   ❑ Weekly
   - ❑ Monthly   ❑ Rarely/Intermittently   ❑ Several days per week

9. Does your organization have a formal, approved social media policy for employees?
   - ❑ Yes ❑ No

Crisis and Risk Communication

10. Does your organization use social media for alerting the public to increased risk to public safety?
    - ❑ Yes ❑ No

11. If used in a major incident, what was the nature of the emergency?
    Explain_____

12. Which social media tool is best for collecting information during a crisis?
    - ❑ Twitter ❑ facebook ❑ tumblr. ❑ YouTube ❑ LinkedIn ❑ Skype ❑ Nixle
    - ❑ Direct Notification (Alerting) System ❑ Other, Explain
    _____

13. Which social media tool is best for reaching employees during a crisis?
    - ❑ Twitter ❑ facebook ❑ tumblr. ❑ YouTube ❑ LinkedIn ❑ Skype ❑ Nixle
    - ❑ Direct Notification (Alerting) System ❑ Other, Explain
    _____

14. In your opinion, which form of communication is thought to be most credible during a crisis:
    - ❑ Social media ❑ traditional media

15. When delivering crisis communications during an emergency, mobile devices (smart phones, tablets, etc.) are vitally important:
    - ❑ Strongly disagree ❑ Disagree ❑ Neither Agree nor Disagree ❑ Agree ❑ Strongly Agree

16. Once information is gathered from social media, what will you do with the information?
❑ Use it to form a response ❑ Pass along to notify traditional media ❑ Directly act upon the information, if it poses a danger to life and safety ❑ Forward the information to the lead operations manager ❑ Not sure
❑ Other, explain_____

17. During a crisis, social media is best used for (check one):
❑ Public Relations ❑ Monitoring Organization's Reputation ❑ Crisis management
❑ Community Risk Communication ❑ Networking with other Agencies
❑ Communicating with employees ❑ Forwarding information to traditional media contacts
❑ Other, explain: _____

18. Do you have the resources in place during a crisis to verify the validity of info gathered on social media? ❑ Yes ❑ No

19. The greatest risk or concern when using social media is (explain)

_____

20. Social media is highly effective for organizing volunteers: ❑ Yes ❑ No

21. Vulnerable populations (elderly, disabled, hearing impaired, etc.) are more reliant on social media for communications than other members of the public.
❑ Strongly disagree ❑ Disagree ❑ Neither Agree nor Disagree ❑ Agree
❑ Strongly Agree

22. In your opinion, social media is most beneficial for: (explain)

_____

23. In your opinion, the biggest risks for using social media during crisis situations are :
(explain) _____

24. The best social media tool for alerting citizens of risk to life and safety is:
❑ Twitter ❑ facebook ❑ tumblr. ❑ YouTube ❑ LinkedIn ❑ Skype ❑ Nixle
❑ Direct Notification (Alerting) System
❑ Other, Explain _____

25. The biggest reason for not using social media more frequently for crisis or risk communication is:

❑ lack of dedicated staffing ❑ no established organizational policy
❑ lack of staff expertise ❑ lack of equipment ❑ Other, explain_____

26. In your opinion, during which phase of the Emergency Management Cycle is social media most effective for communicating risk to the community:
❑ Prevention-Mitigation Phase ❑ Preparedness Phase ❑ Response Phase
❑ Recover Phase ❑ Equally Useful in all Phases ❑ Not Sure

27. In your opinion, which form of communication is thought to provide the most credible information during a crisis?
❑ Social Media ❑ Traditional

28. In your opinion, which form of communication allows an organization to best manage its reputation with stakeholders?
❑ Social Media ❑ Traditional

Appendix B – Questions to be Answered by Survey Participants

Determine each type of organization that uses social media for risk and/or crisis communication.	Public safety entities may use social media for their unique needs: Law enforcement more for crime prevention and crime tips, while fire agencies may use the medium more for crisis response communication.
What is the main purpose for an agency to use social media?	This question provides feedback on the motivations for using social media. It may be that public relations activities take a priority over risk and crisis communication.
In your opinion, what are the biggest risks for using social media in crisis situations?	This question provides insights into the disadvantages of using social media. These may prove significant, requiring careful consideration to be used when designing public safety messages.
The biggest reason for an agency to not use social media is?	This question may show that agencies shy away from using social media primarily due to lack of adequate staffing to devote to public information activities. Those agencies that have significant resources to devote to increased social media activities may find this medium worthwhile.
Once social media information is gathered, what does an agency do with the information?	This question will provide information regarding the ability of an agency to be responsive to the citizen needs garnered by monitoring social media sites. Are emergency managers responsive to citizen feedback, or do they only use social media to send messages.
What is the title or rank of those who create social media messages?	This question would provide information as to the level at which each agency delegates authority and responsibility for creating social media messages. Do agencies use senior managers for this task, or is the task delegated down to lower ranking officials in the organization?
In your opinion, which type of medium is regarded as more credible: social media or traditional media?	The answer to this question may give insight as to the credibility of information delivered online versus over traditional means. Do emergency managers include traditional media outlets in their social media contacts?
Is social media useful for coordinating the activities of volunteers?	Often, volunteer activities are spontaneous and not easily controlled. This question may provide insights into the capacity of social media to help organize disparate volunteer efforts into a focused process.