Use of Social Media for Disaster Management:
A Prescriptive Framework

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ABSTRACT

Social media is emerging as an important information-based communication tool for disaster management. Yet there are many relief organizations that are not able to develop strategies and allocate resources to effectively use social media for disaster management. The reason behind this inability may be a lack of understanding regarding the different functionalities of social media. In this paper, we examine the literature using content analysis to understand the current usage of social media in disaster management. We draw on the honeycomb framework and the results of our content analysis to suggest a new framework that can help in utilizing social media more effectively during the different phases of disaster management. We also discuss the implications of our study.

KEYWORDS

Disaster Management, Disaster Phases, Honeycomb Framework, Social Media Functionality, Social Media

INTRODUCTION

Disaster conditions are unpredictable events that result in non-routine actions (Sutton et al., 2008). During any disaster, organizations and people adjust and improvise to accommodate the condition critical for warning, rescue, and recovery (Netten & Someren, 2011). Organizations try to leverage their own social networks to discover and deliver information necessary for making crucial decisions about heeding warnings and planning evacuations (Netten & Someren, 2011; Suton et al., 2008). During disasters, knowledge availability fluctuates tremendously as compared to normal situations. Sometimes it will be necessary to make decisions based on little or no information. Other times, multiple reports with contradictory information may demand increased information capabilities (Yates & Paquette, 2011).

The past decade has seen an increase in the use of information technology (IT) including social networking sites to manage disasters. boyd & Ellison (2007) define social networking sites as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system." Social media is the medium through which individuals utilize these networking sites to share information, ideas, and personal messages (White, 2012). Further, social media can be viewed as an umbrella term for the development of online systems that enable instant communication through shared networks and technological systems (Crowe, 2012). Edwards (2011) delineates five different groups of social media including (i) social media that allows the public to interact with each other and share information (e.g. Facebook), (ii) social media that provides ways to keep updated about news and activities (e.g. RSS and, Twitter), (iii) social media that delivers location-based services (e.g. Foursquare, and HotSpot), (iv) social media that fosters social gaming (e.g. Farmville), and (v) social media that supports social couponing (e.g. LivingSocial). The difference between these technologies and other standard forms of Information and Communication Technology (ICT) is that users are able to make their views, perceptions and knowledge public via the system, adding to the overall knowledge base available to the community. Social media can create opportunities for two-way dialogue and interaction among organizations, the public, and individuals (Bortree & Seltzer, 2009). Social media is emerging as an important information-based communication tool in the area of disaster response (Denis et al., 2014; Hiltz et al., 2014; Hughes, 2014; Yates & Paquette, 2011). Social media facilitates open online exchange of information through conversation and interactions (Yates & Paquette, 2011). Due to high levels of uncertainty and disruption of existing communication structures, emergencies require compressed information collection, processing, decision making and dissemination efforts (Kapucu *et al.*, 2008). Social media also has the potential to organize extensive communication and strengthen the flow of information and at the same time be flexible to the changing needs of responders (Sutton et al., 2008; Yates & Paquette, 2011). These characteristics of social media have made it an invaluable tool that can help during the time of disasters.

Despite the evidence of strong value of social media to those experiencing the disaster and those seeking disaster related information, very little is known about how these new technologies could be harnessed and more effectively used in different disaster management phases (Ngamassi et al. 2011; Ngamassi et al., 2014; Palen, et. al., 2010a). Social media varies significantly in terms of its functionalities and scope (Kietzmann et al., 2011). Further, although social media is powerful, there are not many executives who are able to develop strategies and allocate resources to effectively use social media for disaster management (Hiltz et al., 2014). One reason behind this inability is a lack of understanding regarding different functionalities of social media (Reynolds & Seeger, 2012; Williams et al., 2012). In this paper, we examine the literature using content analysis to understand the current usage of social media in disaster management. We draw on the honeycomb framework (Helm et al., 2012; Kietzmann et al., 2011) and the results of our content analysis to suggest a framework that can help in utilizing social media more effectively in all the phases of disaster management.

In the next section, we introduce the literature on disaster management phases and the use of social media in disaster management followed by a presentation of the seven building blocks of the honeycomb framework. After that, the research methodology is introduced, and our data analysis and extended framework regarding the use of social media with respect to disaster management are presented. In closing, limitations and future research possibilities are suggested.

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