2014

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Recommended Citation
http://aisel.aisnet.org/pacis2014/387

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THE COMMUNITY-BASED MODEL OF USING SOCIAL MEDIA TO SHARE KNOWLEDGE TO COMBAT CRISES

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Abstract

Social media has profound impact on society and affects many aspects of human life. Its applications in combating crises are unanticipated results of social media inventors and many lessons could be learned from its applications in combating real crises. From July 2011 to January 2012, Thailand experienced a 7-month flood disaster and more than 13.6 million people were affected. Hundreds of social communities in Thailand thrived to help prepare, combat, mitigate, and respond to this crisis. This paper offers a structuration perspective to examine knowledge-sharing activities employed by these local social communities to combat the crisis. Interviews were conducted with social community leaders, victims, and government officers to reflect actions taken before, during and after the disaster. Based on the structuration theory and rich data collected from key participants in this crisis event, a social media-based crisis management framework is proposed. The analysis results suggest that social media should be utilized to help a society thrive in crises by managing community-based knowledge and creating chaotic order. The findings of this study could guide crisis managers into turning each crisis into opportunity with the creative use of social media as a knowledge-sharing tool.

Keywords: Project management, Social media, Crisis management, Self-organization, Structuration
1. INTRODUCTION

The public turned to social media in face of natural disasters, including earthquake in China, bushfires in Australia, nuclear disaster in Japan, and flooding crisis in Thailand. In the face of uncertainty during disastrous moments, a growing number of people choose social media as a solution to retrieving updated information about the disaster areas, and disseminating information to support those suffering (Lai and Turban, 2008). The adoption of social media to help the public thrive in crisis events has become a new global phenomenon.

Theoretical and empirical evidences have substantiated the importance of using social media as effective knowledge-sharing tools during crisis for governments, agencies, communities, and social media providers (Sutton 2009; Palen et al. 2009). However, most previous studies fail to establish a theoretical framework that is applicable to most crises. Although social media has great potential of being leveraged for effective management of crises (Crowe 2010), very few theoretical models are available to validate its practical applications in crisis situations from knowledge sharing perspective. In addition, examining the project lifecycle of managing a disaster project based on an empirical framework is also lacking from previous study. The demand for an empirical framework to understand the effective use of social media through the lifecycle of a disaster and from knowledge sharing perspective can provide insights into the effective management of crisis projects.

In order to develop such a framework, we first discuss how various types of social media can be used in time of crisis. Second, we discuss a proposed theoretical framework for the use of social media in crisis management and further improve it by incorporating the structuration theory. Third, we take the 2011 Thai flooding disaster as a case to validate the usefulness of our proposed framework for the management of a crisis project before, during, and after its occurrence. Practical and theoretical implications are provided based on the findings of this study.

1.1 Combating Natural Disasters with Social Media

Social media are increasingly accepted in terms of their usefulness as effective knowledge-sharing tools to combat crises. For instance, Wiki and Google Doc. can help document, organize, archive, and disseminate information and knowledge from a central location (Crowe, 2010). YouTube, Flicker and Picasa’s multimedia sharing capability can be used as alternative channels to educate victims about effective ways to save themselves (Idugboe, 2011). Microblogs are nomadic social media that enables people to exchange short messages with each other via mobile devices (Yin et al. 2012). Social geolocation systems enable people to report live events based on geographical locations and can help rescue teams quickly locate victims.

One major reason for the successful use of social media in combating crises is its adaptability. People adapt social media to fit their needs during a crisis, and collaborate with others to produce useful content and information and help others thrive in the crisis. How online community members interact with each other and cope with crisis events can create a spontaneous structure. No top-down structure is readily available to direct people in the information exchange process. The bottom-up self-organization among community members is an embedded nature of social media. The use of social media to cope with each crisis event provides ample opportunities for the understanding of the self-organizing structure and how the structure evolves from the interaction between components of unorganized systems (Miller, 2010).

1.2 A Social Media-based Crisis Management Model

The disaster management literature asserts that a disaster should be managed in phases (Quarantelli 1996) because problems and needs can be more specifically identified and analyzed (Mills et al. 2011). Moreover, the social strategy ranges from highly institutionalized (structured and collective) to
individualized (unstructured and differentiated) strategy (Van Maanen and Schein 1979; Gilpin, 2010). Institutionalized strategy operates in push mode between government agencies and from agency to the online community. Individualized strategy operates in pull mode between online communities and from the online community to government agencies. Figure 1 is the proposed research model to examine the interactions between users in the same and different online communities by including the time and socialization strategy. Each line width indicates the direction and intensity of information flow between government agencies and community members, and between community members.

**Figure 1. Social Media-based Crisis Management Model**

### 1.2.1 Before Crisis

When preparing for an emerging crisis event, the central government aims to convey to local agencies and heterogeneous social community members uniform messages of what the government stands for, the roles of online community members, and what is expected of them. Institutionalized strategy dictates a formal hierarchical relationship, and has a fixed sequence and a defined timetable to promote direct interaction between agencies and community members. Unified messages broadcasted and announced via government websites and TV programs are general communication forms used by the institutionalized strategy. The government agency is in strict control of the content in these unified messages, communication channels, target population, and communication intervals.

### 1.2.2 During Crisis

During a crisis event, community members often exchange information with each other about the latest development, and express different views in response to crisis rescue activities organized by government agencies. Individualized pull strategy is often used during the crisis and can foster diversity in public views and expectations about the rescue efforts of government agencies. This pull strategy is informal and can address the unique needs of heterogeneous members. This strategy has no predefined timetable and sequences to disseminate and share information between community members and between agency and members. Only the most urgent and important information will be quickly circulated during the crisis. As a result, online community members often resort to individualized pull strategy to cope with crises during their occurrence. Government agencies become less influential in the use of online communities to combat crisis because they abhor a mess and are constrained with predefined rules to share information with the public.
1.2.3 After Crisis

The major efforts of government agencies and online communities are to help victims recover from damages and return to normal state after a crisis. The success of some online communities in assisting rescue efforts may bring attention to government agencies and receive recognition. Some lessons learned during the crisis can also be used for government agencies to improve the recovery effort. The two-way communication process between government agencies and community members begin to appear. Since most community members do not have resources to support rescue efforts, they will continue to spread and share information with government agencies, and ask for support of additional resources.

2. INTEGRATING THE CRISIS MANAGEMENT MODEL WITH STRUCTURATION THEORY

Government agencies and online communities are major entities of the social system in a crisis event. These two entities recursively interact with each other in order to produce and self-evolve into a social system that combats the crisis. Beyond the control of the government, the use of social media in coping with a crisis often evolves from the increased uncertainty and social instability. The public decides to adopt social media and self-organize how they interact with each other and government agencies. In the process of restructuring social dynamics before, during, and after the crisis, structuration theory can help explain the way in which social uncertainty is reduced or increased via the social media-based interaction between agency and community. The structuration theory provides a framework to help explain the dynamic interaction process between community and agency, community and community, as well as agency and agency during social media implementations. More importantly, the human factors (e.g. communication), when introducing a social media in coping with the crisis, can be assessed and further resolved via this theory.

Human interaction and social structure are comprised of three distinct dimensions according to the structuration theory. Each dimension of these two elements is moderated by three modalities. First, human communication takes place when human actors draw upon stocks of knowledge to justify their actions. Their actions will produce structures of meaning. Second, human agents use their powers to allocate materials, information, and other resources to produce a structure of domination. Finally, human agents sometimes sanction their actions by norms or standards of morality to reproduce social structures of legitimization. Each dimension of human agents and social structure are inextricably interlinked, moderated by these three modalities. Figure 2 integrates these structuration dimensions into the proposed social media-based crisis management model and provides an expanded theoretical framework to examine any crisis events in a systematic manner.
2.1 A Case Study: Use of Social Media before, during, and after the Flood in Thailand

In July 2011, a tropical storm triggered a 9-month long flooding crisis and flooded through the provinces of northern, northeastern and central Thailand. This persistent disaster resulted in a total of 815 deaths and 13.6 million people affected. About 7,700 square miles of farmland and seven major industrial estates were inundated and caused the worst flooding ever in the history of Thailand in terms of the amount of water and people affected. Disruptions to the food and manufacturing supply chains caused about US$45.7 billion dollars in economic damages and losses, and affect the production of regional automobile and hard disk drives. In retrospect, the use of social media in combating Thai flooding took place in three phases: before (mitigation and preparedness), during (response), and after (recovery). Work culture is distinctly different in each phase because different stakeholders are involved and have different project goals to achieve. Communication is critical to the success of project implementations in a virtual environment with such a diverse work culture environment (Pokharel 2011). To overcome issues in each phase, social media were exploited to improve the communication and collaboration between agencies and agencies, between agencies and communities, and between communities and communities. The researchers did in-depth interviews with majors stakeholders that were both directly and indirectly with the 2011 flood disaster.

2.1.1 Phase 1: Pre-Crisis

Before Thai flooding occurred in July, Thai government had monitored any abnormal changes in the weather and precipitation because of the rainy season. All pre-crisis measures taken by Thai government in 2011 were not so much different from those in other years. “The government set up several websites that monitored the water level but we mostly share the information between relevance agencies before the flood since we did not deem the situation to escalate into a crisis.” Said Wim Rungwattanajinja; a secretary to Minister to Office of the Prime Minister. For instance, Thai government created two official sites and had been using them to publicize weather-related information updates so that local government agencies and community members can be aware of the new development of the potential crisis. ThaiFlood.com was used as a government portal containing all information about the potential flooding crisis. Opencare.org is a not-for-profit organization using its site to facilitate emergency communication about flooding disasters.
In anticipation of the flooding disaster, users in different social communities were pioneers in adopting social media, including Facebook and Twitter, to share information and knowledge (e.g. how to observe water level; how to lay sandbags) with each other. However, government agencies considered the information disseminated and shared by members in online communities mostly rumors and chose to ignore or underestimate the importance of those information. As such, the collaboration between government agencies and communities did not occur because of the preference of government agencies for the one-way communication modality. “Our group had followed the flood situation closely and we tried to warn our municipal government agents about it. However, the message was very slow in getting to the top people in the municipal office.” Said Ajarn Wanchai; A Parichart Village leader.

The Thai flooding crisis is unprecedented and involves a high degree of complexity. In the face of such high uncertainty and complexity in environment factors, Thai government adopted a regulative model based on previous flood-fighting experiences. A creative model to propose new solutions (e.g. aggressive use of social media for effective public communication) is more suitable than the regulative model to manage projects with high uncertainty (Jaafari 2003). As a result, the project scope was underestimated and social media for effective public communication were not considered in the pre-crisis phase. The Thai government adopted the top-down approach to legitimate the social structure (e.g. push information to the public) and sanction human interaction (prohibit the spread of uncensored information). The traditional channel (government website and/or portal) became the communication norm for agency and community. Educating the public about an ongoing effective crisis management policy is one of the best practices shown effective in the preparedness activities (Veil, Buehner and Palenchar, 2011). The potential benefits of using social media to educate the public in this phase were ignored.

2.1.2 Phase 2: During Crisis

During the crisis, the Thai government primarily used TV as the main medium to broadcast live news in order to keep local agencies aware of the ongoing flooding development. Social media began to gain its momentum. Those two official websites was continued to use as the secondary channel to communicate with the public. The national government agency (www.thaiflood.com) also collaborated with online social communities (e.g. www.kapook.com) to establish the “Thailand Information Center”, where local information about victims in different affected areas was updated, aggregated, and disseminated on a daily basis. Listening to the public’s concern without having a dialogue with the public and monitoring public opinions about evolving risks can develop rumors and non-trustful relationships (Venette, 2007). After the public no longer considered government agencies a source of trustworthy information, the battle in managing and combating crisis is lost (Veil, Buehner and Palenchar, 2011). Consequently, the use of social media for communication between agencies and communities added further chaos to the situation. “It was a total chaos. At first we were following the news on TV and radio but then time-after-time and day-after-day we kept getting the wrong information from TV and radio, so we decided to switch to social media to find the up-to-date information.”, said a victim whose first floor inside house had been completely underwater for 2 months.

Online social communities in Thailand mushroomed during the crisis after the public was disappointed with government agencies’ ineffectiveness at dealing with persistent flooding. More than 50 Facebook groups were formed during the crisis and most of them were established in Bangkok, the capital of Thailand, because it was the least affected city. These social sites did a great job in updating information and news about water levels in different affected areas, and the whereabouts of missing loved ones. Live pictures and videos sent by people from the affected areas were quickly updated on these social sites and shared among community members. This useful information enabled government agencies to prioritize the allocation of its limited resources. “We were able to pull some of the useful information from social media that was created by Thai citizen and then we disseminate those information through our Royal Army Facebook page.” Said, Lieutenant-Colonel Wanchana
Another successful example of using social media to cope with the crisis was the Roo-Soo-Flood (Know How to Cope with Flood) online community. This community was formed by a group of volunteers with experiences in combating flooding crises. They creatively used YouTube to educate people on effective measures of dealing with varying flooding issues and avoiding unnecessary panic. Issues addressed in this particular online community included the formation of emergency response plans, the timing of evacuation, and so forth. “We had more than 100,000 views just on the first day alone. Our videos were being spread very fast and a lot of people befriend with us on our Facebook page.” Said Mr. O; the leader of Roo-Soo-Flood group. “In the end, we had more than 10 videos about the flood to educate the people on how to deal with the flood. Basically we provide the information to the people on how to live their live for the next two months with the flood.”

2.1.3 Phase 3: After-Crisis

The primary objective in this phase is to enable individuals and organizations to return to normal life and begin their daily activities. After the crisis, government agencies began to publicize information, such as successful recovery activities executed by volunteer groups, and various medical services available to victims in different locations. “We set up national-level flood prevention program to take care of the Thai people after the flood. Basically we provide the necessary information to our citizen on how to file a flood victim claim, so each house hold can get up to 20,000 baht ($500) to fix their houses and help them cope with hardship after the flood.” Said Wim Rungwattanajija; a secretary to Minister to Office of the Prime Minister. Mr. Wittayen also head the Flood Fighting group also use social media to get volunteer effort to gather together to clean up the community. “We use social media to call for thousands of people to come out on the street to attend the ‘Big Cleaning Day’, where people gather together and help clean each other neighborhood.

After the crisis, government agencies and many online social communities began to share information about volunteering activities available to assist victims in their recovery process. Many agencies continued their corporate social responsibility (CSR) efforts by building relationships with people who were actively involved in various rescue efforts during the crisis. “PTT extensively used social media to help the flood victim. As a biggest Thai oil company, we used social media to disseminate information on the oil and natural gas availability, since a lot of people need to mobilize their resources after the flood. The information about oil and gas availability was very important to the flood victim.” Said Mr. Prasert; A VP , Corporate Communication Department of PTT.

An increased number of people teamed up to organize and promote recovery activities on Facebook and Twitter to help recover flooded areas. These social members also used these two media to send out moral support to each other and victims. Other social communities used YouTube to share funny and home-made video clips with victims to help reduce their stress level during the recovery process. “We create a funny and memorable video of the flood, in hope to lighten the mood of the flood victim. In-a-way, we wanted this memory to be shared amongst community members, so they can remember this flood for a long time. To Share when we as a community went through.” Said Ajarn Wanchai; Parichart Villege leader.
3. ACADEMIC AND PRACTICAL IMPLICATIONS ABOUT THE USE OF THE THEORETICAL MODEL IN PREPARING FOR, COMBATING, AND RECOVERING FROM CRISIS EVENTS

The proposed theoretical model for preparing, combating and recovering from crisis events has both academic and practical contributions. First, although there are studies on how social media are used to combat crises, none of the past studies proposed a model that covers the chronological timelines of before, during and after the crisis occurs. Past studies treated all crises as one single unit. In contrast, our model treats each phase as a single yet interrelated with the other two phases. This integrative framework enables future researchers to further investigate the use of social media in each phase and understand what roles social media can play in each respected timeframe. As Mr. Sasin said, “All natural crises are different from each other. However, each of them is similar in term of the timeline and how information can be shared once the crisis hit. It was clear that social media could have been used more extensively during the pre-crisis phase. I am sure if there are future crisis, we’ll increase our use of social media to make proper preparation for the crisis.” The government and community leaders can use the proposed model to more effectively collaborate with online communities and react properly to future crisis events.

4. CONCLUSION

Internet ubiquity and mobility (e.g. smartphones and tablets) enable all stakeholders (e.g. central and local governments, victims, and community leaders) to interact with each other anytime and from anywhere before, during and after each crisis event. Social media have become a technology-of-choice for many people facing crisis events. Our proposed model is developed based on the structuration theory. This model is validated with the 9-month long Thai flooding disaster occurred in 2011. The findings of this study help close the current research gap by offering a community-based and chronological view of using social media to combat crises. The government and community can develop effective crisis management strategies for future crises based on the proposed model.

References
