

CITIZEN RESPONSE IN CRISIS: INDIVIDUAL AND COLLECTIVE EFFORTS TO ENHANCE COMMUNITY RESILIENCE

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Abstract: *This paper reports on the process and findings of an extensive research project with the aim of investigating present initiatives and approaches within the area of community resilience and citizen involvement. The paper specifically addresses which emerging sociotechnical approaches can be discerned within these initiatives. The discussion is structured within three categories of potential voluntary engagement; organized volunteers, semiorganized individuals, and “nonorganized” individuals. The empirical material assembled in the research project is contrasted with contemporary international research literature regarding sociotechnical means for enhancing community resilience. Swedish approaches, as is noted in the Conclusion of the paper, are primarily focused on consuming information in the pre-event phase, rather than on producing information and engaging in collaboration in the response phase.*

Keywords: *community resilience, citizen involvement, voluntary organizations, social media, smart phone applications.*

INTRODUCTION

Contrary to some sociological theorizing about the individualization of modern societies (Bauman, 2000; Beck, 1992; Beck & Beck-Gernsheim, 2001; Giddens, 1991), indicators point to a growing interest in common needs and solutions. One might even consider this emerging trend in terms of a “new collectivism” (Kelly, 2009; New York Magazine, 2010; Turner, 2004) or a “culture of sharing” (Davis et al., 2010; Kiessling, 2013). Needless to say, this trend has been facilitated by the innovative use of information and communication technologies (ICTs) and social media. Claiming this, however, does not repudiate the broad stream of social theorists who have consistently emphasized the strength of collective life (e.g., Etzioni, 2009; Lewis, MacGregor, & Putnam, 2013; Putnam, 2006). On the contrary, I contend in this paper that the public’s (as individuals as well as collectivities) endeavor for participation in societal crisis management is a strong force. As noted by Castells (2008), among others, a shift has occurred

from a public sphere anchored in the national institutions of territorially bound societies to a public sphere constituted around media communication systems and Internet networks. Thus, new media has transformed the capacity for communication among and the mobilization of various collectivities (Della Porta, 2013, p. 93). In this paper, I report on some collectivities joined by their specific orientation toward enhancing community resilience.

New media and the Internet may facilitate prosocial behavior (e.g., Bosancianu, Powell, & Bratovic, 2013; Sproull, 2011; Sproull, Conley, & Moon, 2013; Wright & Li, 2012). However, as noted by Bierhoff (2002), prosocial behavior also is embedded in spatial environments and influenced by cultural factors that predict its likelihood on a community level. The community as a unit of analysis thus becomes crucial for understanding citizen involvement in responding to societal needs (Linnell, 2013).

As a key concept in this Introduction, *societal crisis management* refers to the measures taken by all sectors in society (public, civic, private) to maintain societal security. Societal security is a debated concept, defined by Burgess (2012, p. 8) as “protection from crises caused by intentional and unintentional human acts, natural hazards and technical failures [which] depends heavily on the cultural and even moral facility of people.” This also indicates that society is not simply the passive object of security (i.e., that which is to be protected) but is also an active producer of security (i.e., that which protects). Accordingly, the notions of security and resilience (soon to be explained) share some basic characteristics. In this paper, the community is seen as a potential producer of security; hence, attention is focused on efforts aimed at enhancing community resilience. The various types of communities, including communities of place, interest, belief, and circumstance, can exist both geographically and virtually (e.g., Federal Emergency Management Agency [United States of America; FEMA], 2011b; United Kingdom [UK] Cabinet Office, 2011). Communities are innately dynamic: People may join together for common goals and separate once these have been achieved (Twigg, 2009). For the purpose of this paper, I have chosen an inclusive definition of *community*. Like community, the concept of *resilience* has been defined in many ways. Aguirre (2006, p. 1) defined resilience as “physical, biological, personality, social, and cultural systems’ capability to effectively absorb, respond, and recover from an internally or externally induced set of extraordinary demands.” Community resilience, then, might be defined as “communities and individuals harnessing local resources and expertise to help themselves in an emergency, in a way that complements the response of the emergency services” (Government of Scotland, 2013, p. 4). Consequently, the public’s individual and collective efforts to enhance community resilience is understood here as the ambition to maintain and strengthen societal security.

From a political perspective, the understanding of communities as providers of societal security seems appealing because of its emphasis on voluntary citizen involvement rather than on top-down governmental solutions. Accordingly, at the level of national policy, expectations for the general public to engage in societal crisis preparedness and response become increasingly explicit. For example, the Australian government has proposed a community engagement framework as part of their national strategy for disaster resilience (Commonwealth of Australia, 2013); FEMA (2011b) has proposed a framework, titled *A Whole Community Approach to Emergency Management*; and the UK Cabinet Office (2011) has proposed a strategic national framework on community resilience.

Naturally, new forms of social communication and organization have made their way into the realm of emergency and crisis management. The last decades have shown a shift from civil defense to societal security and, in the system for managing societal crisis, bottom-up oriented approaches from the public have begun to be considered more seriously. Accordingly, local authorities must take on more responsibility to act than previously expected; yet, in the face of scarce resources, both government and local authorities look to the civil sector for assistance (Brennan, 2007). The shift from civil defense to societal security has put pressure on traditional players in the civil defense sector to adapt and increase preparedness in the event of an evolving security policy situation (Government of Sweden, Ministry of Defence, 2013).

An additional challenge is that participation in civil society and voluntary organizations has taken on new forms in many western societies. People are no longer willing to commit themselves to demanding memberships in bureaucratic voluntary organizations for the sake of social belonging. Still, the will to engage in prosocial efforts to assist one's fellow humans is greater than ever (Rodríguez, Trainor, & Quarantelli, 2006). Given these recent transformations in social communication and organization, communities and citizens become increasingly important for enhancing societal resilience. Thus the social and technological aspects of voluntary engagement in societal crisis management ought to be further elucidated.

The aforementioned trends and challenges were investigated within the framework of an extensive research project called Public Empowerment Policies for Crisis Management.¹ The overall aim of the project was to explore two key areas in crisis management: (a) the role of local communities in crisis preparedness and response and (b) how to involve the citizens in this task. As part of this project, a literature review was conducted with the aim of summarizing previous research on community approaches involving the public in crisis management (see Linnell, 2013). In addition, an interview study was conducted with the aim of enhancing knowledge regarding current collaborative efforts among response organizations, public authorities, and local residents in building community resilience. The interview study was carried out in Sweden, thus presenting contemporary themes and trends within a nation-specific context. The aim of the present paper is to report on the process of the research project and to place the findings within an international context. Achieving this aim involves investigating the aforementioned trends of new collectivism and the innovative uses of ICTs and social media.

Examples of innovative uses of social media and ICTs have been elaborated in previous research within the field, especially within the discipline of crisis informatics (Liu & Palen, 2010). Ortiz and Ostertag (2014), for example, report on the formation of a community of "Katrina bloggers" and their engagement on a range of offline collective civic actions during and following Hurricane Katrina in the United States (USA) in 2005. The authors show how digital communication technologies facilitated the creation of new social ties and how the Web served as a mobilizing structure enabling individuals to link their civic engagement with collective civic actions. Richter (2012) and Santos Brion (2013) provided similar examples that emerged during another US natural disaster, Superstorm Sandy in 2012. Occupy Sandy, a grassroots relief effort, was developed by the original members of Occupy Wall Street² using the communication networks built by members of the earlier protest camp (Richter, 2012, p. 324). Likewise, Palen, Hiltz, and Liu (2007, p. 58) described some citizen-led online forums that emerged following Hurricane Katrina, pointing to the challenges facing the scientific community in helping to produce sociotechnical solutions that address the issues of usability

and organizational applicability of citizen-generated information. In another paper, Palen (2008) investigated ICTs and social media use during the 2007 Southern California (USA) wildfires. Online behavior, she concluded, parallels the social phenomenon of geographical convergence that occurs at every disaster event (Palen, 2008, p. 78). Liu and Iacucci (2010) reported on new participatory forms of crisis mapping enabled by Google Maps and GPS-enabled devices. These crisis map mash-ups combine multiple sources of data that are then displayed in some geographic form. On the whole, crisis mapping seems to be an area of growing interest in the informatics research community. In a recent book on participatory cultures, Liu and Ziemke (2013) discussed how a specific crisis mapping community, the Crisis Mappers Net, emerged and became officially established through online networking technologies. The authors concluded that crisis mapping is but one part of an emergent global participatory culture in which everyone contributes his or her own localized or specific knowledge to the global commons (Liu & Ziemke, 2013, p. 10).

Although innovative uses of ICTs and social media were not the focus of the research project reported on here, the results nonetheless showed that sociotechnical aspects are crucial for successfully harnessing the public in societal crisis management. Informants of the interview study reported on the use of text messaging, mobile phone applications, and specific Web sites, whereas less was said about the use of blogs, crowdsourcing, and crisis mapping. This issue will be further explored later in this paper. First, however, the research questions guiding this paper will be clarified. Building on the insights of the research project, the focus of this paper is on exploring some emerging approaches that aim to enhance community resilience with the help of ICTs and social media. So how, in a contemporary Swedish context, do individual and collective grassroots initiatives organize in order to connect with the wider crisis management system, and what emerging sociotechnical approaches can be discerned within these initiatives?

To account for these issues, the literature review and the interview study conducted as part of the project will be briefly summarized. The relevance of the Swedish crisis management policy context and the methods and materials employed in the project will be clarified. Thereinafter the focus will be on discussing the findings as related to the sociotechnical aspects described in the Introduction. Finally, some theoretical insights and suggestions for further research within the area of public participation and community resilience are provided.

THE SWEDISH CRISIS MANAGEMENT POLICY CONTEXT

The participants of the Public Empowerment Policies for Crisis Management research project (with research teams from Sweden,³ Finland, Switzerland, and the Netherlands) agreed that the Swedish crisis management policy context was particularly well-suited for the interview study. It was considered so because national regulations, as will be demonstrated, stress individual responsibility as well as collaborative efforts for managing societal crises.⁴ According to the government bill on civil security and preparedness (Government of Sweden, 2001/02:158), the Swedish crisis management system builds on three principles: responsibility, similarity, and proximity. The principle of responsibility states that actors who are responsible for an activity (e.g., providers of transport and logistics, food provisions, education, child care, geriatric care) during normal conditions are also responsible during an extraordinary event. In

addition, the principle of responsibility means that every actor is responsible for working with others. The principle of similarity states that an activity, to the extent possible, should be performed similarly during an extraordinary situation as during normal conditions. Finally, the principle of proximity states that a crisis should be managed where it occurs and by the individuals or organizations concerned. Thus, primary responsibility for managing a specific crisis is decidedly within the affected local community or municipality.

The Swedish act on municipal and county council measures prior to and during extraordinary events (Government of Sweden, 2006:544) states that local and county councils shall reduce vulnerabilities and cultivate sufficient capacity for handling extraordinary events during peacetime. Because local and county council resources are often very limited, this act provides a good basis for engaging the general public and the voluntary sector in order to coproduce community resilience. The act thus stipulates,

Crises should be solved at a local level and as close to the private citizen as possible. The situations that may arise in the future will occur locally; thus it is extra important that these can be handled by a civil organization (Swedish Civil Defence League, 2004, p. 4).

The Swedish Civil Protection Act (Government of Sweden, 2003:778) states that individuals are primarily responsible for protecting their own lives and property. Accordingly, individual citizens are expected to be aware of and prepare for the fact that accidents and crises might occur and affect everyday routines. In addition, local residents should be aware that societal resources during extraordinary events must be directed primarily toward individuals incapable of taking care of themselves. In other words, the ordinary person is expected to provide for his or her basic personal needs regarding water, food, and shelter during the initial phase of a crisis. All in all, these acts present a crisis management system in which “everybody in society should be mentally and practically prepared for unexpected situations that may arise” (Swedish Civil Defence League, 2004, p. 5).

A number of recent Swedish government bills emphasize the necessity of collaborative efforts in order to secure sufficient capacity for maintaining societal safety. The importance of the voluntary sector in collaborative efforts is emphasized in the government bill on collaboration during crisis (Government of Sweden, 2005/06:133) and the bill on strengthened crisis preparedness (Government of Sweden, 2007/08:92). Accordingly, voluntary engagement is crucial for society’s capacity to protect the lives and health of the population, to maintain a functioning society, and to maintain basic values (Government of Sweden, 2007/08:92, p. 27).

METHODS

The Literature Study

One objective of the literature review for the project was to go beyond merely summarizing previous research. The method employed for conducting the review is best described as a mix of metasynthesis and a systematic literature review. The former is a nonstatistical technique with the aim of integrating, evaluating, and interpreting the findings of multiple qualitative research studies, whereas the latter is a more rigorous and well-defined approach with the aim of clarifying the frame within which the literature was selected.⁵

Literature was gathered through database searches employing primarily the Academic Search Elite and ProQuest Social Sciences databases. The strategy for eliciting previous research focused on literature about community approaches and citizen participation in crisis management. To narrow down and distill the material, a number of inclusion criteria were used. For this research, the literature must have (a) covered research on community approaches to crisis management, (b) addressed issues of citizen participation in crisis management, or (c) presented models of coproduction between emergency professionals and the public. These criteria also served the purpose of excluding literature on risk- and crisis- management practices that was not in line with the present study. Such excluded literature pertained to health-related risk management (e.g., issues of patient safety, lifestyle factors, medical conditions, and general well-being), crisis management in regard to work and employment (e.g., safety and health at work, occupational accidents, and individual experiences of unemployment), and risk management related to finance and banking (e.g., stock exchange fluctuations and economic speculation). Finally, to further organize the articles retrieved from the databases, three questions structured the analysis: (a) Does the article employ a bottom-up or a top-down perspective, (b) at which phase of the emergency and crisis (i.e., preparedness, response, or recovery) is the research aimed, and (c) what is the national context of the research? The elicited and reviewed literature was presented thematically in order to organize the extensive material. The themes are concisely presented in the Findings section below.

The Interview Study

The objective of the interview study was to clarify how community approaches involving various social groups in crisis preparedness and response are currently utilized on the local level. In addition, the interview study aimed to explore individual experiences of challenges and opportunities regarding the involvement of citizens in societal crisis management. In total, the study was intended to deepen the understanding of how crisis management and communication can be coproduced by building trust and creating partnership-like relations between the public and stakeholders specifically in Sweden.

The crisis management policy context in Sweden assumes a high level of citizen involvement. Hence, policy documents emphasize the multitude of possibilities for the general public to engage in societal crisis management. The interview study specifically focused on initiatives springing from the voluntary sector and on the intersection between the bottom-up approaches of the engaged public and the top-down approaches of traditional emergency and crisis management professionals.

To make certain that a multitude of perspectives were taken into consideration, informants were defined through four categories. The first three categories were formulated on the basis of the theoretical knowledge gained through reviewing previous research. These categories were operationalized as (a) representatives of the local community or municipality, such as safety coordinators or those in similar posts; (b) members of voluntary organizations dealing with basic forms of societal crisis management; and (c) semiorganized individuals, which refers to individuals performing specific tasks in the name of an organization without being members in a traditional sense. However, as the first round of interviews was being analyzed, the need of an additional perspective was recognized in order to reach a comprehensive understanding of the challenges and possibilities within this field of study. The additional perspective was that of the

average citizen. Hence, the fourth category was operationalized as (d) “nonorganized” individuals, which refers to individuals with no organizational ties. Consequently a second round of interviews, focusing on the fourth category, was carried out according to the same strategy.

The concept of nonorganized individuals is not to be confused with the well-established concept of unaffiliated volunteers. The former concept was developed by the Swedish research team in order to capture the positive assets and efforts of ordinary citizens. The aim was thus to elucidate resilient behavior on the individual level from a “salutogenic” perspective (Paton & Johnston, 2001, p. 272). The latter category is commonly associated with negative qualities. Barsky, Trainor, Torres, & Aguirre (2007, p. 506), for example, define unaffiliated volunteers as “those who are not part of a recognized voluntary agency and often have no formal training in emergency response, come from unmanageable (or unknown) numbers of volunteers, [do] poorly directed work, and [are characterized by] a general lack of control.” Similarly, according to Phillips, Neal, and Webb (2012, p. 283), unaffiliated volunteers “create more problems than help.” However, as noted by Trainor and Barsky (2011, p. 25), in any large-scale event, untrained volunteers will be part of the response; “Given this reality, it is in the best interests of both governmental agencies and the affected community to consider how to best utilize this resource.” Accordingly, the overarching aim of the research project reported here is to develop strategies for harnessing the willingness to help, but to do so in a systematic manner. Thus, in order to distinguish between the negatively charged concept of unaffiliated volunteers and the salutogenic concept of nonorganized individuals, in referring to the potential resource of ordinary citizens, the researchers in the present project chose to elaborate the concept of nonorganized individuals.

Within the first category, formal and informal collaboration between local community authorities and private, public, and civil organizations were investigated. An additional aim was to understand the ways in which local community authorities attend to grass root initiatives and how such initiatives are included in municipal emergency plans. The aim of the second and third categories was to clarify the scope and depth of formal and informal collaboration between civil society and actors within the public and private sectors. The organization representatives and semiorganized individuals selected as informants deal primarily with societal crisis preparedness and response, and are regularly attending supplementary training in issues and practices of societal safety and emergency preparedness. However, some selected informants belonged to organizations characterized as interest focused, which means that they possess material or human resources that might become valuable during extreme events (e.g., the working dog associations and associations of boat owners). Such organizations do not necessarily educate their members in issues of societal safety and emergency preparedness. Through the fourth category, a deeper understanding of and arguments for supporting the use of individuals with no known organized involvement in societal crisis management were explored. Nonorganized individuals thus provided fruitful input and insights on crisis management as opposite perspectives (i.e., a bottom-up approach). Some aspects explored in the interviews with nonorganized individuals were the understanding of risk, motivational factors, and thoughts on potential engagement in societal crisis management.

To obtain maximum variation in our informants’ views and experiences, participants were recruited from three regions of Sweden with distinctive demographic and geographic challenges. The most southern region of Sweden is somewhat densely populated and vulnerable due to its flat topography and relative inexperience with extreme winter conditions. The middle area is very densely populated, yet, because of its key position in terms of administrative

influence on the rest of the country, collaboration between societal actors in this region is somewhat more professional when compared to the other regions. The sparsely populated northern region of Sweden is characterized by its mountains and its inland climate. Due to extreme atmospheric conditions, especially during the winter, people are relatively experienced in weather-related precautions. The strategy for locating informants might thus be characterized as a mix of theoretical sampling (Corbin & Strauss, 2008), purposive sampling (Jupp, 2006), and snowball sampling strategies (Atkinson & Flint, 2004).

An interview guide was developed collectively by the Swedish research team. Examples of themes covered in the guide were (a) individual responsibility to respond in emergency situations, (b) preparedness education and training, (c) collaboration between voluntary organizations and public authorities, (d) communication strategies and technologies employed by public authorities during crisis, (e) the role of civil society in the present crisis management system, and (f) real-life experiences (e.g., successful and unsuccessful collaboration or communication). Table 1 provides a schematic outline of the interviews.

The interviews were conducted (in Swedish) throughout 2013 by the author and a research assistant. In this study, we (the Swedish research team) were primarily interested in factual matters, that is, interview content. Thus, less attention was given to the structural, linguistic, and interactional aspects of the interview conversation. In conducting the in-depth interviews, each interview was audiotaped and the recordings were transcribed continuously throughout the research process by two hired assistants. The amount and form of transcribing depended on factors such as the nature of the material and the purpose of the investigation, as proposed by Kvale (2007). Recorded interviews were transcribed following the conventions of basic transcription of conversational content, meaning verbatim from beginning to end. Contextual sounds and occurrences influencing the interview were briefly described, and pauses and accentuations were noted; voice quality (e.g., tone and pitch) and dialect were not. The goal of such transcription, as stated by Bloom (1993), is to selectively reduce the data in a way that preserves the possibility of different analyses and interpretations. In other words, the goal is to provide lean transcriptions that allow for rich interpretations (Bloom, 1993).

Analysis of the transcribed interviews was undertaken in a collective manner (by the Swedish research group) employing qualitative content analysis. This approach is generally used to interpret meaning from the content of text-based data and thus adheres to the naturalistic paradigm (Hsieh & Shannon, 2005). Qualitative content analysis goes beyond merely counting words but rather examines language closely for the purpose of classifying large amounts of text into an efficient number of categories and themes that represent similar meanings. In addition, existing theory and previous research can help focus the research question (Hsieh & Shannon, 2005). In a similar way, the literature study provided fruitful input during the development of research themes and questions for the interview study. A guiding analytical question concerned what factors might enable a community approach in which the general public can take part in the management of societal crises. In addition, the analytical work was immersed and emphasized by three general aspects in the material, namely the organization, communication, and motivation underlying and supporting the possible existence of such an approach. Subsequently, parts of the transcribed interviews were translated from Swedish to English by the members of the research group. Seven major themes were elicited in the analytic process. These are presented in the Findings section.

Table 1. Overview of the In-Depth Interviews Regarding Community Approaches to Risk and Crisis Management in Sweden.

Informant Number	Date (day-month-year)	Role of interviewee	Sex	Region of Sweden	Interview Duration (in minutes)
01	21-02-13	Safety coordinator	Male	Middle	114
02	18-03-13	Safety coordinator	Female	South	66
03	18-03-13	Volunteer organization member	Male	South	59
04	19-03-13	Safety coordinator	Male	South	47
05	19-03-13	Volunteer organization member	Male	South	55
06	20-03-13	Safety coordinator	Male	South	40
07	21-03-13	Volunteer organization member	Female	South	54
08	22-03-13	Volunteer organization member	Male	South	68
09	08-04-13	Volunteer organization member	Female	North	40
10	10-04-13	Safety coordinator	Male	North	59
11	11-04-13	Safety coordinator	Male	North	49
12	29-04-13	Safety coordinator	Male	North	46
13	14-05-13	Volunteer organization member	Male	Middle	86
14	14-05-13	Safety coordinator	Male	Middle	50
15	15-05-13	Volunteer organization member	Male	Middle	60
16	16-05-13	Volunteer organization member	Female	Middle	45
17	16-05-13	Volunteer organization member	Female	Middle	72
18	17-05-13	Safety coordinator	Male	Middle	75
19	18-10-13	Nonorganized individual	Female	North	51
20	22-10-13	Semiorganized individual	Male	Middle	37
21	23-10-13	Nonorganized individual	Female	Middle	21
22	23-10-13	Nonorganized individual	Male	Middle	29
23	23-10-13	Nonorganized individual	Male	Middle	40
24	24-10-13	Semiorganized individual	Female	Middle	32
25	25-10-13	Nonorganized individual	Male	Middle	38
26	25-10-13	Semiorganized individual	Female	Middle	49
27	26-10-13	Semiorganized individual	Female	Middle	40
28	26-10-13	Semiorganized individual	Male	Middle	35
29	28-10-13	Semiorganized individual	Male	Middle	36
30	30-10-13	Semiorganized individual	Male	North	49
31	30-10-13	Semiorganized individual	Male	North	59

Note. *Safety coordinator* refers to individuals employed as local community or municipality representatives in issues of safety and security; *Volunteer organization member* refers to individuals engaged in organizations dealing with basic forms of societal crisis management; *Semiorganized individuals* refers to those performing specific tasks in the name of an organization without being members in a traditional sense; and *Nonorganized individual* refers to those with no organizational ties but with various human or material assets potentially needed during an emergency or crisis.

SUMMARIZING THE FINDINGS

The Literature Study

The literature study featured a wide spectrum of conditions for the empowerment of citizens participating in crisis and disaster management on the community level. In order to synthesize the extensive material, I have chosen to present the findings thematically. The themes were thus constructed by the author for the sake of clarity and do not adhere to any particular order. In what follows, the themes are explained briefly and then exemplified by key references.

A Culture of Collaboration

Although self-sufficiency and self-organization are crucial for building resilience, actions must not rely on only one group. Instead, it is important to promote joint projects involving both community members and emergency managers. Reliance on a single strategy might have negative consequences for resilience because this dependency constrains adaptive capacity (López-Marrero & Tschakert, 2011).

Community-Based Disaster Management

To identify key factors for successful community-based disaster management, Pandey and Okazaki (2005) conducted six case studies targeting three specific hazards: cyclones (in India and the Philippines), earthquakes (in Indonesia and Nepal), and floods (in Bangladesh and Cambodia). Crucial factors for sustainable community-based work were, among others, the participation of community citizens and groups in all stages of the process, shared motivation and sense of ownership among community and supporting agencies, educational and training inputs in accord with the objectives of the project and the needs of the community, and a specific focus on groups such as women, the elderly, children, and ethnic minorities.

Building Resilience Through Private–Public Collaboration

Recent major events, like the great East Japan earthquake of March 11, 2011 (see, e.g., United Nations Office for Disaster Risk Reduction, 2013) have highlighted the important role of the private sector in emergency response because many key elements of the critical infrastructure (i.e., electricity, telecommunications, and transportation) are owned or operated by private companies (National Research Council [USA], 2011). Traditionally, businesses as key stakeholders in emergencies often have been overlooked. Accordingly, businesses ought to be added to the list of stakeholders (along with the various civic and public organizations) that must resume quickly to normal operations during recovery (Phillips et al., 2012).

Multiagency Collaboration

The collaboration of agencies, institutions, and the public in situations of crisis and disaster often is achieved in an ad hoc manner, and thus it will be difficult, if not impossible, to get communities to participate in complex decision making in times of stress immediately

following a disastrous event. One possible strategy to alleviate this challenge is to ensure that communities are participating in similar collaborative decision-making processes prior to an event so that the process and structure is familiar to them during crises. Such a situation puts them in a more familiar and less stressful environment after a disaster (e.g., Johnston, Becker, & Paton, 2012; Scanlon, Helsloot, & Groenendaal, 2014).

Public Health Agencies and the Public

During critical events, crisis managers should be able to tap into the civic infrastructure (i.e., voluntary associations and social service organizations) to support public health agencies during response and recovery and to meet the diversity of needs in modern communities (Schoch-Spana, Franco, Nuzzo, & Usenza, 2007). In the management of routine emergency situations, such as traffic accidents and personal injuries, members of the public are encouraged to assume the role of first responder to relieve the burden on health agencies. For example, the UK first aid charity St. John Ambulance and the Swedish medical university Karolinska Institutet use a Web-based text message solution that enables unit leaders to contact volunteers trained in cardiopulmonary resuscitation (CPR). This solution alerts these certified volunteers (ordinary citizens) when someone nearby is suffering from a cardiac arrest, allowing for quick first-response, perhaps lifesaving, intervention while professional medical personnel are en route.

Social Capital as a Source of Resilience

Social capital, defined by Magis (2010, p. 407) as “the ability and willingness of community members to participate in actions directed to community objectives,” is a key source of resilience upon which partnerships and collaboration depend (National Research Council, 2011). Community resources and social capital represent infrastructures that can be tapped by authorities for a wide variety of everyday societal events and activities, but are valuable support measures for civic leaders particularly during crisis response situations.

Voluntarism and Convergence

An increasing number of studies stress the fact that emergency management agencies should encourage and utilize citizens’ active participation during crises and disasters. This could be done by the assimilation of citizens’ skills, knowledge, and experiences when planning for crises (Enander, 2011), by mobilizing and coordinating relevant social networks (Aguirre, 2006), and by paying serious attention to channeling volunteer potential (Trainor & Barsky, 2011). As noted in the Introduction, an extensive convergence of volunteers could complicate an emergency situation unless the crisis managers plan in advance how to harness the engagement of volunteers in productive ways and in support of emergency response goals.

Volunteer Organizations in Crisis Preparedness and Response

Volunteer organizations, such as faith-based, community-based, and civic organizations, play an important role in crisis and disaster management. Many of these organizations have

established their own specific sets of tasks for crisis and disaster response. That is, faith-based organizations might provide shelter and social and religious support; community-based organizations, such as associations for people with disabilities, might provide legal and administrative assistance for their specific interest groups; and civic organizations, such as civil defense, motor clubs, or working dog associations might serve as extending organizations when emergencies occur. As a result, they can decrease duplication of tasks and maximize resources (Phillips et al., 2012).

Perspectives on Disability in Crisis and Disaster Management

Improving resilience to disaster must include investments in the full participation and equality of people with disabilities (Hemingway & Priestly, 2006). Likewise, the National Council on Disability (2005) in the USA reports that the strengths and skills of community-based organizations serving people with disabilities are currently not well integrated into the emergency service plans and strategies of local governments. Emergency managers, therefore, need to strengthen their relationships with these organizations by recruiting, encouraging, and providing funding to community-based organizations so that they might participate fully in disaster preparedness and relief (National Council on Disability, 2005).

FEMA's Whole Community Approach

The Whole Community Approach, as advanced by FEMA (2011b), is built upon the recognition that advancements in transportation systems, changes in housing styles, shifting employment trends, and increased ethnic and linguistic diversity, in combination with new technologies, will alter the ways in which local residents conduct their lives. The challenge for those involved in emergency management is to understand how to work with the diversity of groups and organizations and the policies and practices that emerge from them in an effort to improve the ability of local residents to effectively prevent, respond to, and recover from any type of threat or hazard.

The Interview Study: Clarifying Words and Analytical Themes

A number of themes related to the research area were elicited during coding and analysis of the transcribed interviews. The aim was to explore the challenges and possibilities of community approaches for societal crisis management in which safety and security is enhanced as a collaborative effort among professional actors, organized volunteers, and the nonorganized general public. For the purpose of the interview study, the public was understood broadly as representing local residents within a specific geographical area as well as various forms of communities. The analytical work emphasized three general aspects in the assembled material, namely the motivation, communication, and organization underlying and supporting such approaches. Seven themes were elicited during the analysis of the transcribed interviews. The themes, presented below, are to be understood as equivalent in terms of significance and frequency as raised by the informants; hence, they are presented in no particular order. As mentioned above, the analytical work was done with Swedish transcriptions. Therefore, the

informant comments cited here have been translated into English by the members of the Swedish research group for the benefit of this report.

Formal and Informal Practices of Collaboration

The first theme described the degree of formalization in collaborative efforts between the voluntary public and municipal safety coordinators. Formal and informal ways of collaboration can be understood as endpoints on a scale, with most interaction between local authorities or the municipality and the voluntary public occurring somewhere in between. Formal collaboration, in this study, means that the tasks handed over to voluntary groups were predefined and that collaborative efforts between the municipality and the voluntary public were planned, regulated, and contractual. For example, one municipal safety coordinator states in the interview:

At present, they [a voluntary organization] have received two projects from us to work with. I attended one of their meetings where we brought up the example of water security. And then they got an assignment to get back to me, at the municipality, and tell me what [their contribution] could be in this area. (Informant 18)

Informal collaboration, on the other hand, meant that issues of insurance and economic compensation were not prearranged and that collaborative efforts were expected to arise ad hoc during a crisis.

Specific Competencies and General Abilities

Of significance are the dynamics between municipal safety coordinators' needs and the voluntary organizations' expectations regarding tasks and assignments that can be managed by persons other than the employees of the municipality. Voluntary organizations could adjust their activities to the predefined needs expressed by the safety coordinator and also could identify various other areas where they could serve as an important resource during times of societal strain. One member of a voluntary organization, for example, talked about the possibility of such groups to temporarily supplement professional actors in situations of a prolonged crisis:

What I talk about here is endurance, not just those rather limited situations, such as fires and the like, but also completely different situations, when there is a prolonged crisis. Imagine then if the municipality [effort] could be supplemented with people from the voluntary resource groups. Then you would increase endurance within the municipal management, or childcare, or elderly care. (Informant 7)

In addition to performing the limited and specific tasks requested by municipal safety coordinators, voluntary organizations and nonorganized individuals could be of use within a wider societal context. Thus, through activity in a wider spectrum of societal sectors, as referred to by the informant above, voluntary organizations could reduce the problem of inactivity between emergencies and major critical events as well as engage with professionals in ongoing social tasks that struggle with understaffing.

The Dynamics Between Collective Efforts and Individual Self-help

Different perspectives will occur regarding what might be the most appropriate and efficient task for the voluntary public to fulfill in times of crisis. Collective efforts and individual self-help can be understood as endpoints of a scale on which most tasks exercised by voluntary groups occur somewhere in between. That is, during a crisis, people tend to engage in individual self-help in order not to strain professional crisis managers, but also tend to join in collective efforts to facilitate the work of professional actors (e.g., Clarke, 2002; Quarantelli, 1993). For example, one representative of a voluntary organization says the following regarding the dynamics between individual self-help and collective efforts:

Primarily you have to make sure to manage yourself and act in a way that doesn't restrain those responsible for managing the crisis or emergency or whatever it might be. Then there are always those who, in addition to managing themselves, have the capacity to help others, primarily your close family of course, but often also significantly wider circuits than that. (Informant 15)

Accordingly, moving from individual self-help to collective efforts means directing ones resources to help not just the people in one's immediate circles but also strangers. Collective efforts are performed through various organizational forums, from traditional civil defense organizations to contemporary network organizations. Education in how to manage oneself in times of crisis is usually provided within such organizations. One safety coordinator said the following on the importance of civil preparedness education:

I believe that if a major event were to occur and put a lot of strain on the municipality, well, if you have citizens with civil preparedness, who are educated, then it will be much easier for the municipality to handle the masses flagging down help. (Informant 18)

Aspects of Education and Empowerment

Some ongoing initiatives by voluntary organizations emerged to elevate the voluntary public to the level of professional actors through education and training. One member of a voluntary organization mentioned peoples' overall low level of awareness of their individual responsibility, to know what to do and how to act in times of crisis.

Citizens need to become aware of the fact that they have a responsibility, and they also need help with the right tools to become responsible citizens; that is, it must be as easy as possible to do the right thing. (Informant 15)

Traditional Communication Versus Digital Media

An additional theme reflected the expanding means of communication: the de-emphasis of traditional communication channels and ways of contact into the new mobile and bidirectional information landscape of interaction characterized by a multitude of digital communication platforms, such as mobile phones, Internet Web sites, and social media. One member of a traditional civil defense organization acknowledged that they have not kept up sufficiently with the ongoing technological developments.

We had our Excel sheets with people's phone numbers and we were calling everybody... It feels rather outdated now, really, so we should revise our ways of working... And we don't have a Web site to speak of either. So we're really behind. There is much to be done. (Informant 16)

Individual Motivation and Involvement

The sixth theme described peoples' perception of why they have chosen to commit themselves to voluntary work in the area of societal crisis management. Interviewees described themselves as prepared and interested in contributing. Some people spoke about the will to do good, as in the following quotation: *"It's that you are helping that makes a difference for the person who is exposed"* (Informant 27). However, at the same time, informants emphasized the difficulties of getting formally involved in traditional organizations dealing with voluntary crisis management. One obstacle to getting involved, as mentioned by several informants, was the use of formal contracts. That is, in order to assure that volunteers are insured during a mission, municipal representatives or safety coordinators might require a contract to be established between the municipality and the voluntary individual. One informant, committed to an organization for voluntary crisis management, viewed contracts as a problem when it comes to involving people: *"I think that you might feel things are demanded of you when reading this contract... These [include] demands that you have to fulfill and that you should get approval from your employer, for example"* (Informant 9).

Aspects of Generation and Age

Discussions emerged about one specific individual characteristic, namely age. When the interviewees—regardless of whether they were municipal safety coordinators, organized volunteers, or nonorganized individuals—talked about age, their choice of words often highlighted age from a functionalist perspective. Young people were emphasized as capable and strong, whereas older people were described as a generation no longer in possession of power or influence. On the other hand, young people were described as difficult to reach and to involve as volunteers because they were perceived as busy with family or work. However, some successful examples were also represented. One safety coordinator emphasized that volunteer organizations do a better job when they include people of different ages: *"Despite various professions, there is variation when it comes to age, and that's great too. We have, I think, the youngest is about 20 and the oldest one is a bit over 70, and that is great!"* (Informant 18).

Within this section, I presented seven themes that were elicited during the interview analysis process. Next, through the presentation of results that account for the three categories of interviewees, some present initiatives and emerging approaches within the Swedish crisis management context are discussed. Thereafter, the focus will be on the sociotechnical means for enhancing community resilience that were mentioned by the informants in the interview study.

The Interview Study: Interview Categories Reflecting Present Initiatives and Emerging Approaches

In this section, I present some examples of initiatives and approaches regarding citizen response during societal crisis. The presentation of initiatives and approaches will follow the logic of the interviewee categories described in the Methods section above. However, the category of municipal safety coordinators is not considered here because it falls outside the scope of this paper, which is focused on the individual and voluntary groups.

Organized Volunteers

The focus of this paper rests on individuals with the potential of being active specifically in crisis situations: those affiliated with voluntary organizations (i.e., organized volunteers), those performing specific tasks commissioned by an organization (i.e., semiorganized individuals), and those without any organizational affiliation (i.e., nonorganized individuals). Regarding organized volunteers and semiorganized individuals, the form and degree of formalized membership and organizational structure varies between the categories. In this paper the concept of organized volunteers is to be understood as implying formal members of voluntary civic organizations dealing with basic forms of societal crisis management. Members are insured during activities related to the voluntary organization and sometimes also are paid during the commissions. Being active as an organized volunteer often requires some basic administrative or practical work in order to maintain the functionality of the organization. Hence, formal members are expected to participate in organizational activities not only during extraordinary events but also under normal conditions. Examples of organized volunteers are members of traditional civil defense organizations such as the Swedish Civil Defence League⁶ and the Women's Voluntary Defence Organization.⁷ An information booklet about the Swedish Civil Defence League states,

Although there are no military threats against Sweden, the society is at increased risk. We are growing more dependent on services such as electricity, IT [Information Technology] and other conveniences. But what happens when what is taken for granted suddenly shuts down? The lack of knowledge is great. That is why The Civil Defence League wants to supply the best knowledge of how to cope in vulnerable situations. (Swedish Civil Defence League, 2004, p. 3)

The Swedish Civil Defence League provides basic and advanced courses in societal security and survival skills. Course titles include Home Preparedness, Open Air Security, Home Security, and Our Vulnerable Society (Swedish Civil Defence League, 2004, p. 8). In addition, the organization provides child security education aimed at those working with preschool children, that is, adults who in turn teach the children.

Semiorganized Individuals

The concept of semiorganized individuals refers to individuals performing specific tasks in the name of an organization without being members in a traditional sense. The organizational structure is loosely network-like, as compared to the bureaucratic structure of traditional civil

defense organizations. Membership is less formalized, and no activities are required between missions. Internal and external communication, as well as recruitment of participants, occurs to a great extent through the use of mobile phone technology and social media. Two examples of semiorganized individuals are members of Voluntary Resource Groups⁸ and the Missing People⁹ network. Each Voluntary Resource Group functions as a local and regional community resource commissioned by the local municipality and consists of ordinary citizens who want to make an effort to support their local community. Hence, participants are summoned during times of crisis and emergencies to perform specific tasks. These tasks include, for example, managing the convergence of spontaneous volunteers; securing access to food, water, and shelter; and assisting professionals with various low-skill tasks. Education and training is financed by the Swedish Civil Contingencies Agency,¹⁰ and practical activities are conducted by the local municipality and the Swedish Civil Defence League. An information booklet about voluntary resource groups states,

A voluntary resource group is called in at the request of the municipality's executive when an extraordinary event occurs, for example to help with evacuation, information, administration and other practical tasks (Women's Voluntary Defence Organization, Sweden, 2013, p. 2).

The organizational model of the Voluntary Resource Group network shares some basic similarities with the Community Emergency Response Team (CERT¹¹) program operated by FEMA. The CERT program educates and trains people in basic disaster response skills, such as fire safety, low-level search and rescue, team organization, and disaster medical operations. Participants are encouraged to support emergency response agencies by taking an active role in emergency preparedness in their community. A participant manual developed for the CERT program states,

With training and information, individuals and community groups can be prepared to serve as a crucial resource capable of performing many of the emergency functions needed in the immediate post-disaster period. The CERT Program is designed to train individuals to be assets to help communities prepare for effective disaster response (FEMA, 2011a, p. 3).

Each CERT unit is tasked with identifying a specific location or staging area to be used in the event of a disaster. This location is where the CERT members will meet with the fire department and other services when needed. Having a centralized contact point makes it possible to communicate damage assessments and allocate volunteer resources more effectively: "This is true for all CERTs, whether active in a neighborhood, workplace, school, college/university campus, or other venue" (FEMA, 2011a, p. 5). After digressing into the comparison between the US and Swedish versions of voluntary resource groups, the remaining section will focus on the Swedish context.

The majority of municipalities represented in the interview study consider the network organization Missing People an ideal model for collaboration with the voluntary public. Missing People is an autonomous, self-organizing, self-financing voluntary organization focusing on one specific task: locating missing people. Because of its network-like structure and with primary communication channels such as Facebook and texting, the organization is capable of quickly mobilizing a great number of people. One member of the organization describes the ease of getting involved:

You sign up on the homepage as a volunteer and fill in your cell phone number, and then you get a message when something happens in your area. You chose if you can come and, if not, you don't have to report or cancel or anything. To make it work, it must be as simple as possible. (Informant 27)

This model, with its low threshold for involving the public and its minimal burden on the municipal side, seemed attractive to several safety coordinators represented in the interview study. Members are not involved in any organizational activities between occurrences. Members become active only when something that requires mobilization happens. The organization is no end in itself but, as expressed by one member, means to an end: *“Obviously, the association is just a tool”* (Informant 25). Some other types of organizations constituted by semiorganized individuals include, for example, the Voluntary Mountain Rescuers,¹² the Swedish Sea Rescue Society,¹³ the Land Rescue,¹⁴ and SMS Lifesavers.¹⁵ The last example is an ongoing experimental project managed by the medical university Karolinska Institutet in Stockholm. In this project, a Web-based text message solution is employed that enables unit leaders to contact volunteers quickly so that the nearest individual trained in cardiopulmonary resuscitation is contacted when someone suffers a cardiac arrest. A similar project called Community First Responders¹⁶ is managed by the UK's first aid charity St. John's Ambulance. The Web site of the St. John's Ambulance Community First Responders project states,

Our Community First Responder volunteers are trained to attend [to] emergency calls received by the ambulance service and provide care until the ambulance arrives. Community First Responder volunteers arrive at an emergency in a matter of minutes, as they are sent to calls in their local area. (St. John Ambulance, 2014)

Projects of this kind encourage the public to assume the role of first responder in order to relieve the burden on public health agencies. Another pilot project in Sweden employing the same technology as SMS Lifesavers and Community First Responders is Land Rescue. This project is intended to function as an extension of the traditional voluntary rescue associations mentioned above, namely the Voluntary Mountain Rescuers and the Swedish Sea Rescue Society. Land Rescue thus aims to provide voluntary resources in emergency situations deemed not serious enough for calling the emergency services. Potential users and volunteers download a mobile phone application that enables them to either request help or to respond to a request for help in their immediate vicinity. According to the vision statement provided on the project's Web site,

Our vision of the Land Rescue is that of a future popular movement with the aim that anyone, irrespective of age, family and ability, will feel safe and have an active life outside one's home. Through the channeling of engagement and humanity, our goal is to create an alarm and support function so manageable and attractive that everyone might give a helping hand to those in need. (Land Rescue, 2014)

Projects such as SMS Lifesaver and Land Rescue can be seen as the refined integration of new collectivism, as discussed in the Introduction. These organizations function primarily through the utilization of emerging mobile phone technologies.

Nonorganized Individuals

As stated by Fernandez, Barbera, & van Dorp (2006), the definition of a volunteer typically involves the provision of a service through one's own free will and provision of a service without promise, expectation, or receipt of compensation. Fernandez et al. categorize three types of volunteers by how and whether they were requested to respond. The first category, volunteers on an assigned resource, has a specific assignment within the incident command system. This would equal the organized volunteers described above. The second category, recruited volunteers, are those with skills applicable to the unique needs of the disaster response and are personally requested to assist by the incident command system. This would equal the category of semiorganized individuals described above. The third category, spontaneous volunteers, refers to those who are not with an assigned resource and have not been specifically recruited (Fernandez et al., 2006, p. 57). The continuation of the present discussion will elaborate on the third category and how it relates to what is referred to in this paper as nonorganized individuals.

The concept of nonorganized individuals refers to individuals without any organizational ties. However, as mentioned previously, expectations that the general public is to engage in societal crisis preparedness and response are becoming increasingly explicit. As was expressed by one nonorganized individual during the interview, "*Over the last eight years or so, I think a change has taken place in which much [activity pertaining to crisis management] has been kind of outsourced to civil society in order to save money*" (Informant 23). This trend, as was demonstrated in the Introduction, is discernible, for example, in governmental policy on community resilience.

Therefore, there are good reasons for clarifying some differences between the traditional view of unaffiliated volunteers and what is referred to here as nonorganized individuals. According to the traditional view, unaffiliated volunteers and emergent groups differ from organized volunteers and semiorganized individuals in that they undertake activities that were previously foreign to them and develop a social structure that lacks formalization, tradition, and endurance (Dynes, 1970; Landgren, 2011; McEntire, 2007; Stallings & Quarantelli, 1985). In short, unaffiliated volunteers and emergent groups are, according to the above definition, assumed to lack the relevant education and training for the activity performed during an emergency. In addition, the activities performed are assumed to concern the emergency per se. That is, unaffiliated volunteers and emergent groups move from a state of not being associated with any organization or process to a state of specific organizational structure. In contrast, spontaneous volunteers and nonorganized individuals are not part of any assigned resource and have not been recruited from the need of any particular competences, but might participate because of the material or human resources they possess as individuals. According to Fernandez et al. (2006, p. 58), this might be illustrated by an owner of a local restaurant who wishes to help by feeding rescuers. Other examples, such as spontaneous lodging in a youth hostel during a severe snow storm, are provided by Landgren (2011). In the empirical material of this study, this kind of action is represented by one nonorganized informant who expressed what he could do in case of a severe snowstorm: "*In such situations, one could pick up people, if you go by car and it works and the busses are not operating*" (Informant 22). Spontaneous volunteers and nonorganized individuals might very well be familiar with emergency management skills; however, these persons would not be part of an organizational structure.

Hence, spontaneous volunteers and nonorganized individuals do not necessarily move from a state of nonorganizational commitment to a state of certain organizational structure but rather self-mobilize to fill a perceived immediate and crucial need. The following section will refer to and discuss the sociotechnical means involved in various processes related volunteer notification and response mentioned by the informants. Empirical examples will be related to the body of previous research mentioned in the Introduction.

The Interview Study: Sociotechnical Means for Enhancing Community Resilience

In the section above, some present initiatives and approaches regarding citizen response and community resilience were mentioned. The initiatives and approaches were structured into the three categories of potential voluntary engagement (namely organized volunteers, semiorganized individuals, and nonorganized individuals). In this section, I present the sociotechnical means for enhancing community resilience that were mentioned by the informants.

A general observation on the basis of the interview study is that semiorganized and nonorganized individuals, unlike most members of traditional voluntary organizations, are not constrained by old communication patterns and technologies. On the contrary, just as new technology and social media have paved the way for a new collectivism and a culture of sharing, so too have these fundamentally human aspects made possible new forms of network-like organizing in the complex realm of societal crisis management. As was mentioned by one member of the Missing People network during the interview, Facebook has made enlisting a very simple task: The volunteer receives a message when something has happened in his/her geographic region, and then decides whether or not to participate in the operation (see quote by Informant 27 under the subheading *Semiorganized Individuals*, above). The same principle applies for members of the Voluntary Resource Group network. However, the latter does not use Facebook as a primary communication platform but instead relies on text messaging and e-mail.

Accordingly, internal and external communication, as well as recruitment of participants, occurs to a great extent through the use of social media, as compared to traditional civil defense organizations. Members of Missing People emphasize how text messaging, Facebook, and other social media facilitate quick mobilization of large numbers of people; members of Voluntary Resource Groups stress the difficulties in recruiting and mobilizing enough members. Although Missing People utilizes social media such as Facebook to a great extent, neither of the two aforementioned organizations use communication platforms specifically developed for crisis and disaster events.

In a recent publication, Rafter (2013) reported on a successful case of using a smart phone application specifically developed for disastrous events. During the 2012 Brisbane (Australia) floods, the Queensland Police Service used Facebook, Twitter, and YouTube in order to reach out and disseminate accurate information. Major flooding and intense cyclones meant that the police force had no time to seek the relevant permissions through their regular channels (Stewart-Weeks, 2013). In addition to these social media platforms, a smart phone application was developed amid the crisis, allowing the Queensland Police Service to transmit up-to-date information to the public about which areas to avoid, where evacuations were required, and other important messages (Rafter, 2013, p. 191). The application was developed by the group Volunteering Queensland and researchers from the University of

Queensland, with funding from the Australian state and federal governments (ABC News [Australia], 2012). Judging from the following quote by Anna Bligh, Queensland Premier during this crisis, as reported in the ABC News report, the application does appear similar to that used in the Land Rescue project described earlier: “If we saw a storm water drain burst in a local suburb then Volunteering Queensland [a volunteer organization] could let anybody who had the app in that neighborhood know that someone needs help in a couple of streets away.” The basic principle for the Land Rescue application is that anyone, once they have installed the app on their mobile phone, can send and receive alarms and thus get requests for help from people nearby.

The difference between the Volunteering Queensland or the Land Rescue applications and the applications required to participate in SMS Lifesaver or Community First Responder efforts is that the former are intended to function without any emergency services having to be dispatched, whereas the latter require some sort of professional emergency response in addition to the voluntary effort. Both types, however, might be considered sociotechnical means for enhancing community resilience and citizen response in crisis. In addition, the former fosters a culture of “first, first responders” (National Science Foundation [USA], 2012). The term denotes an ordinary citizen without any specific training in emergency response skills and who often is already at the incident site stepping in to assist. First responders, on the other hand, are the persons with emergency training who arrive at the scene as quickly as possible.

Previous research on sociotechnical means for enhancing community resilience has focused mainly on actions and measures taken in the midst of, and after, disastrous events. Many scholars have investigated the use of Twitter during mass emergencies, the production and utilization of geographic information and crisis maps, blogs, online forums, and other participatory forms of involvement during an event (e.g., Liu & Iacucci, 2010; Ortiz & Ostertag, 2014; Palen, 2008). However, the informants in the present study (i.e., primarily the semiorganized individuals) referred to smart phone applications and social media platforms as the primary means for receiving information and maintaining communication in a pre-event context. In other words, whereas previous literature (primarily situated in the US and Australian contexts) has emphasized the collective eliciting, production, and spreading of information in the response phase, the present study (situated in a Swedish context) emphasizes the individual consumption of information that allows voluntary efforts to be carried out.

CONCLUSIONS AND FUTURE RESEARCH

In her article, Rafter (2013) asked whether future opportunities existed for social media to be used to mobilize volunteers. Her own answer is that it most certainly does. The benefits of social media are obvious, she continued,

It is free and available 24/7; it offers instant access to information; it uses collaboration or “crowd sourcing” to ensure the information is up-to-date (taking into account the inaccuracy of some information) and it is regarded as a legitimate source of information. It can be accessed without power (most of Queensland didn’t have power for a significant period of time during the floods) and it can build community support for people willing to receive and respond to messages (Rafter, 2013, p. 192).

The modest attempt in this paper to compare some present Swedish initiatives and approaches with some successful cases assembled from an international outlook proves that Rafter (2013) may very well be right. A general conclusion of this comparison is that the overall trends are similar. Whether in Sweden, Australia, or the USA, multichannel communication devices such as social media and smart phone applications are increasingly utilized within the area of societal crisis management. However, in the Swedish case, traditional forms of voluntary organizations tend to rely on traditional forms of communication. An additional difference is that even though the Swedish case might provide several interesting and progressive approaches, such as the Land Rescue application, such initiatives are seldom put to the test due to the lack of extreme situations.

This paper has served several purposes: The underlying research questions asked first how, in a contemporary Swedish context, individual and collective grassroots initiatives organize in order to connect with the wider crisis management system and, second, what emerging sociotechnical approaches can be discerned within these initiatives? To answer the first question, a typology that was developed within the research project Public Empowerment Policies for Crisis Management was utilized. The typology consists of organized volunteers, semiorganized individuals, and nonorganized individuals. These organizational forms of voluntary effort were contextualized theoretically and by international comparisons. Specific emphasis was put on the concepts of semiorganized and nonorganized individuals as potential resources for enhancing community resilience. Some distinctions were made between unaffiliated volunteers and emergent groups on the one hand, and spontaneous volunteers and nonorganized individuals on the other. However this understanding also leaves some room for further exploration regarding community approaches and nonorganized individuals as potential agents of the coproduction of effective emergency response in societal crisis management.

As part of constructing the typology, there also was reason to present the process and outcomes of the PEP project. Though the project focused on various actors in local community emergency management and on how to involve the public in this task, the informants of this study also often touched upon various sociotechnical means associated with their participation in voluntary societal crisis management. Accordingly, in order to answer the second question, I turned to the empirical material to ask how ICTs and social media were utilized within the three typical forms of voluntary engagement. A general conclusion is that hierarchic voluntary organizations, such as the traditional civil defense organizations, employ ICTs and social media to a lesser degree, whereas semiorganized and nonorganized individuals are more likely to utilize these novel sociotechnical means. However, when compared to international examples and research literature, it became obvious that the use of sociotechnical means among the Swedish informants are primarily focused on consuming information in a pre-event context rather than gathering and producing information collectively in the response phase.

In a Swedish context, much empirical research still needs to be done. Two relevant questions are to be addressed based on the present findings. First, how would voluntary efforts to produce information during a crisis (i.e., crisis mapping; crowdsourcing; distribution of information, people, and materials; etc.) play out? And, second, how can the knowledge and expertise of the third category of crisis responders (i.e., nonorganized individuals) best be harnessed? However, because this type of volunteer does not become active until the crisis is a reality, research pertaining to this category must be conducted, for obvious reasons, only during or in the aftermath of an event.

ENDNOTES

1. See www.projectPEP.eu for detailed information on the research project.
2. Occupy Wall Street is a social protest movement that began on September 17, 2011 in Liberty Square in Manhattan's financial district. The aim of the movement is to protest against the corrosive power of major banks and multinational corporations and the role of Wall Street (a metonym representing the large financial institutions and decision makers in the USA), in creating an economic collapse that caused the greatest recession in generations. See <http://occupywallst.org/about/> for more details.
3. The Swedish research team included, in addition to the author, Anna Olofsson, Susanna Öhman, Erika Wall, Catrin Johansson, and Johanna Ekroth, all associated with Mid Sweden University.
4. See www.msb.se/en/About-MSB/Legislative-areas/ for brief descriptions of the Swedish legislative acts in English.
5. See <http://libguides.utoledo.edu/content.php?pid=285708&sid=2351630> for a brief description of various types of literature reviews.
6. See www.civil.se for information in Swedish on the Swedish Civil Defence League.
7. See www.svenskalottakaren.se for the Swedish Women's Voluntary Defence Organization. An English-language page is available at <http://www.svenskalottakaren.se/start/english/about>
8. See www.civil.se/frg/ for information on the Voluntary Resource Group network.
9. See www.missingpeople.se for the main Web site, with information in Swedish.
10. See www.msb.se for information in Swedish on the Swedish Civil Contingencies Agency. An English-language page is available at <https://www.msb.se/en/>
11. See www.fema.gov/community-emergency-response-teams for information on Community Emergency Response Teams (CERT).
12. See www.fjallraddningen.se for information in Swedish on the Voluntary Mountain Rescuers.
13. See www.sjoraddning.se for information on the Swedish Sea Rescue Society.
14. See www.landraddningen.se for information in Swedish on the Land Rescue pilot project.
15. See www.smslivraddare.se for information in Swedish on the SMS-Lifesavers pilot project. An English-language page is available at <http://www.smslivraddare.se/english>
16. See www.sja.org.uk/sja/volunteer/the-role-for-you/first-aid-delivery/community-first-responders.aspx for information on the St. John Ambulance Community First Responders project.

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