A COMPREHENSIVE ANALYSIS AND ACTION PLAN ON A SOCIAL MEDIA STRATEGY FOR DISASTER RESPONSE: RISK MITIGATION

Prepared by summer 2017 Masters students at the University of Southern California's Sol Price School of Public Policy for Italy's *Dipartimento Protezione Civile*.



Acknowledgments

This report was written and compiled by Wenjing Dong, Maria de la Luz Garcia, Kalisi Kupu, Leyao Li, Hilary Olson, Xuepan Zeng, and Giovanni Zuniga. We want to thank Dr. Eric Heikkila, Ph.D., for his insight and supervision during this process.

We would also like to thank Professors Veronica Vecchi and Raffaella Saporito from the SDA Bocconi School of Management for their coordination efforts and use of their facilities, as well as providing us with educational enrichment and guidance while in Milan, Italy.

A final thanks to the *Dipartimento Protezione Civile* for being available to us and for answering all of our many questions. The *Dipartimento Protezione Civile's* support and feedback were greatly appreciated and instrumental in the creation of this report.

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I. INTRODUCTION AND MOTIVATIONS

Italy's Department of Civil Protection (*Dipartimento della Protezione Civile*, or DPC) leads the disaster management system in Italy. DPC's approach to disaster response uses an innovative network design. In moving away from a hierarchical process, DPC and its partners can mobilize more quickly and more efficiently. This strategy of utilizing the competencies of select government, nonprofit, private, and volunteer actors is not yet reflected in its social media strategy. A more robust, official social media presence would better mirror its existing network and facilitate more connectedness between crucial disaster response stakeholders.

The objective of this report is:

- 1. To highlight the benefits of a person-centric approach to disaster response, specifically through the use of social media;
- 2. To analyze DPC's current use of social media in relation to national and global trends;
- 3. To provide insightful case studies that indicate useful implementation strategies; and
- 4. To detail an action plan for DPC with recommendations on improving their social media footprint.

At the end of this report, it should be clear that while there are liabilities associated with social media use in disaster response situations, there are also opportunities to mitigate these risks. Our report recommends that DPC modernize its social media practices according to our action plan to better utilize the broad network of actors involved in Italy's disaster management protocols.

CONSIDERATION 1. A PERSON-CENTRIC APPROACH

Disaster management encompasses large-scale operational planning and action. Some necessary logistics include infrastructure retrofitting, budgeting, government legislation, and operational services. Unfortunately, when planning for catastrophes, an integral factor of emergency occurrences is often lost: the individual. We propose a person-centric approach to disaster management, which emphasizes an individual's needs during emergency incidents. One way to enhance this approach is through the use of social media.

The focal point of disaster management is to avoid the loss of life. Focusing on civilian needs during a disaster can save lives. When considering an individual, it is critical to recognize the unique assistance that each person may require as well as understand each person's perspective during an emergency. Although individuals can be victims of disasters, they are also active agents and can be a vital source of information to relief team and organizers.

A person-centric approach can be very advantageous for disaster management organizations. To begin with, when we understand what the specific needs are for affected individuals, we can make significant improvements in service delivery processes. A person-centric approach gives individuals a larger role and greater capacity to contribute, allowing agencies to co-produce solutions with their clients. By enhancing citizen involvement and giving citizens a more powerful voice, agencies can gain more trust from their communities. Finally, due to these collective benefits, agencies can improve their reputations, allowing them to reach a wider audience.

CONSIDERATION 2. VULNERABLE SUBGROUPS

When focusing on the individual, it is important to identify the needs of the most vulnerable populations within a society. In the aftermath of Hurricane Katrina, in the United States, George Mason University and the University of New Orleans compiled a Hurricane Digital Memory Bank.¹ The digital memory bank includes the perspectives and experiences of individuals before, during and after the hurricane. An assessment of needs for those in the most vulnerable populations during disasters was determined based on the narratives and experiences of those impacted.

Through our research, we found that the subgroups which are the most susceptible to disasters are children, the elderly, the disabled, and households in remote regions. The specific needs of each group are detailed below. Once we understand the needs of these individuals most at risk, first responders can more efficiently and effectively target their relief efforts.

Children

Children have considerable needs during a disaster, as they are reliant on caregivers for physical and emotional support.² They depend on adults for preparing safety plans, finding shelter, and reuniting with others. Children are limited on their own, and they rely on caregivers in terms of mobility, nutrition, and security.³

Elderly

The elderly often suffer from depleting strength and cognitive functionality. They are also typically prone to poor health, mobility issues, and decreased hearing and eyesight. Due to these factors, they are often the highest proportion of casualties during disasters. For example, during Hurricane Katrina in 2005, 75% of individuals who died were 60 years of age or older. Similarly, 56% of individuals who died in the 2011 Japanese tsunami were 65 years or older.⁴

Disabled

The disabled also need caregivers during disasters to varying degrees according to their respective capabilities. According to a 2016 study by the United Nations Development Program, merely 20% of the disabled community would be able to easily evacuate during a disaster without major complications. Moreover, only 31% of the disabled community have a caregiver readily available to assist them during a disaster, while 13% lack the assistance of a caregiver altogether.⁵

Remote Households

- ² Save the Children. "Protecting Children in Disaster" Save the Children. 2015.
- http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-
- df91d2eba74a%7D/061215_PARKS&REC_GUIDE_FINALB%20LOW%20RES.PDF

¹ Hurricane Digital Memory Bank. "An Oral History with Sarah Hamilton." Hurricane Digital Memory Bank. June 2007. http://hurricanearchive.org/items/show/45702

³ Ibid

⁴ Help Age International. "Disaster Resilience in an Ageing World infographic" Help Age International. 2015.

http://www.helpage.org/what-we-do/climate-change/disaster-risk-and-age-index-infographic/

⁵ Lord, Austin. Sijapati, Bandita. Baniya, Jeevan. Chand, Obindra. Ghale, Tracy. "Disaster, Disability, & Difference A Study of the Challenges Faced by a Persons with Disabilities in Post-Earthquake Nepal." UNDP. May 2016. http://www.un.org/disabilities/documents/2016/Disaster-Disability-and-Difference May2016 For-Accessible-PDF

Homes in isolated or hard-to-reach areas pose additional complications for emergency responders. It can be difficult to travel to such remote locations, as well as transport necessary disaster response supplies. Often times, it also requires more time and money to restore internet connectivity, which can severely limit the flow of information.

CONSIDERATION 3. DATA NEEDS

While these vulnerable groups require specialized emergency response tactics, it can be difficult to access the data needed to assist them. Useful data includes someone's real-time location, medical records, and contact information. Disaster responders could conduct more efficient rescue operations if they had the capability to track the exact locations of individuals. It would also be helpful for responders to have access to medical records to know if an individual requires specific medication or has a serious preexisting condition. Additionally, the contact information of caregivers would be useful in connecting children, the elderly, and the disabled to their family members.

Data Gathering

In order to obtain this necessary data, responders can turn to a few key sources. For instance, responders can use basic tracking devices or applications on phones to find and communicate with individuals during a catastrophe. Parents or guardians of children can give their consent to organizations to track the locations of their dependents. Social media is also increasingly becoming a major tool use to collect data during disasters. In particular, it can provide real time information in an efficient and timely manner

II. MOVING BEYOND THE STATUS QUO

In conducting our analysis of the status quo, we look at disaster responses in the Italian and global contexts.

Within the Italian context, we highlight that:

- Italy is a disaster-prone country; and
- DPC has a great opportunity to enhance its social media use.

Within the global framework, we observe that:

- Social media use is on the rise, including in disaster management; and
- Social media is vulnerable to misuse, but there are ways to mitigate the risk of fake news.

In evaluating the status quo, we can better understand the potential benefits and challenges related to DPC's move towards a social media strategy.

CONTEXT 1. STATUS QUO IN ITALY

Italy is a Disaster-Prone Country

Italy is a disaster-prone country, experiencing a high frequency and variety of disasters. **Figure 1** shows the frequency of the different types of disasters that occurred from 1994 to 2014. As seen in the figure, earthquakes are one of the most frequent and intense disasters in Italy, accounting for 15.5% of all disasters. One recent example of a devastating earthquake was the earthquake in L'Aquila in 2009, which caused 302 fatalities and an overall loss of at least 2 billion Euro.⁶





Although volcanic eruptions are less frequent than earthquakes, they are still devastating and pose a high risk for Italy.⁸ With the high seismicity of its territory and the presence of numerous volcanoes and earthquakes, Italy is also at risk for tsunamis as well as avalanches. Floods and landslides are also a recurrent and abundant phenomenon in Italy, accounting for 45% of all disasters. An illustration of the risks posed by floods can be seen by the crisis that was faced in early October of 2009 in Sicily. Some 250 millimeters of rain fell in the span of a few hours. As a consequence, flash floods and mudflows hit the southern town of Messina, leaving at least 35 people dead and 10 missing.⁹

Population growth and rapid economic development in vulnerable areas contribute to an increase in casualties and economic loss. **Figure 2** exhibits the average annual loss from 1994 to 2014 associated with each hazard. As shown, earthquakes caused the highest economic loss, at approximately \$10 billion annually.

Figure 2. Italy Disaster Profile (1994-2014) – Average Annual Loss by Hazard (in Millions)

 ⁶ Wehrli, A., Herkendell, J., & Jol, A. (2010). *Mapping the impacts of natural hazards and technological accidents in Europe* (p. 144). EEA Technical report 13/2010, European Environment Agency, Copenhagen, Denmark.
⁷ The OFDA/CRED - International Disaster Database

⁸ Gatti, M. (2015). IDRL in Italy: A Study on Strengthening Legal Preparedness for International Disaster Response.

⁹ Wehrli, A., Herkendell, J., & Jol, A. (2010). *Mapping the impacts of natural hazards and technological accidents in Europe* (p. 144). EEA Technical report 13/2010, European Environment Agency, Copenhagen, Denmark.



Comparison of Natural Disasters in Europe

According to the 2015 World Risk Report, compiled by the United Nations University for Environment and Human Security (UNU-EHS), Italy is among the countries in Europe where a natural disaster is most likely to strike.¹⁰ **Figure 3** and **Figure 4** show the top 10 natural disasters that occurred from 1980 to 2008, with the number of people killed and economic damages reported. Italy appears twice on the list among the top 10 disasters involving the largest number of deaths. It also appears four times among the top 10 disasters with the largest amount of economic damages. In fact, Italy's earthquake in 1980 ranks first as the disaster with the largest economic loss at \$20 billion.

| Country | Disaster | Date | Killed |
|--------------|--------------|------|--------|
| Soviet Union | Earthquake | 1998 | 25,000 |
| Italy | Extreme temp | 2003 | 20,089 |
| France | Extreme temp | 2003 | 19,490 |
| Spain | Extreme temp | 2003 | 15,090 |
| Germany | Extreme temp | 2003 | 9,355 |
| Italy | Earthquake | 1980 | 4,689 |
| Portugal | Extreme temp | 2003 | 2,696 |
| Russia | Earthquake | 1995 | 1,989 |
| France | Extreme temp | 2006 | 1,388 |
| Belgium | Extreme temp | 2003 | 1,175 |

Figure 3. Top 10 Natural Disasters Reported in Europe in Term of People Killed¹¹

¹⁰ Hilft, B. E. (2015). United Nations University—Institute for Environment and Human Security (UNU-EHS). *World Risk Report.*

¹¹ PreventionWeb. (2014). Basic country statistics and Indicators (2014). Retrieved from http://www.preventionweb.net/countries/ita/data/

| Country | Disaster | Date | Cost (US\$ *1000) |
|----------------|------------|------|-------------------|
| Italy | Earthquake | 1980 | 20,000,000 |
| Soviet Union | Earthquake | 1988 | 14,000,000 |
| Germany | Flood | 2002 | 11,600,000 |
| Italy | Flood | 1994 | 9,300,000 |
| France | Storm | 1999 | 8,000,000 |
| Italy | Flood | 2000 | 8,000,000 |
| United Kingdom | Flood | 2000 | 5,900,000 |
| Germany | Storm | 1990 | 5,500,000 |
| Italy | Earthquake | 1997 | 4,524,900 |
| Spain | Drought | 1990 | 4,500,000 |

Figure 4. Top 10 Natural Disaster Reported in Europe of Economic Damages¹²

Italian Social Media Users

Italy has one of Europe's largest telecommunications markets and mobile phone markets with high penetration rates. As seen in Figure 5, internet users have increased rapidly from 13.2 million in 2000 to 39.2 million in 2016. Additionally, the percentage of internet users within the general population increased from 23.1% to 65.6%, while the population stayed constant.



Figure 5. Internet Users and Percentage of Population in Italy from 2000 to 2016¹³¹⁴

Growth in internet users also prompted the growth in social media users. According to the 2017 Digital Yearbook, active social media users in Italy reached 31 million. This indicates that more

¹² Ibid

¹³ Internet Live Stats. Elaboration of data by International Telecommunication Union (ITU), World Bank, and

United Nations Population Division. Retrieved from http://www.internetlivestats.com/internet-users

¹⁴ Note: Internet Users are individuals who can access the Internet at home, via any device type and connection

than half of the total population are actively using social media. The mobile subscriptions are 76.74 million, which exceeds the total population by 28 percent. An increasing use of smartphones is enabling greater access to data services. Active mobile users contribute over 90% of the total active social media users across Italy.

Opportunity for Department to Enhance its Social Media Use

DPC currently utilizes a combination of profiles on social media, and does not have one consistent, official account. DPC communicates on Facebook¹⁵, YouTube¹⁶, and Instagram¹⁷ through an account linked to its magazine. Conversely, it communicates on Twitter¹⁸ through an account linked to its "*Io Non Rischio*" campaign. Without one unified and verified profile across all social media platforms, the public is less likely to find and access information provided by DPC online.

It should be noted that DPC has done a good job at creating and utilizing guidelines for its social media use. For example, the "*Io Non Rischio*" Twitter account currently links to a good civil practices document, which clearly lays out DPC's social media policy for this account.¹⁹ Such guidelines demonstrate the authority of the agency and explain its expectations for user interaction. Additionally, the #socialProCiv movement has developed a manifesto which also helps DPC and the public communicate in a more structured way.²⁰ We will discuss how these sorts of policies can be expanded in our proposed Action Plan for the Department.

Example of DPC's Social Media Response: Central Italy Earthquake

To better understand DPC's current social media utilization, let us look at a recent example. During the Central Italy earthquake on August 24, 2016, DPC posted on its magazine's Facebook page after its website went down due to an overwhelming number of simultaneous users.²¹ The post alerted the public that a major earthquake had hit and that DPC had convened the Operational Committee. Within the first 48 hours of the event, DPC had published 30 posts on Facebook, 15 tweets on Twitter, and 9 videos on YouTube. Facebook also activated a safety check for the region, which was a helpful resource for those affected. However, these messages came from a combination of social media accounts linked to DPC's magazine and the "*Io Non Rischio*" campaign.

CONTEXT 2. STATUS QUO FROM A GLOBAL PERSPECTIVE

Rising Social Media Use

Retrieved May 28, 2017, from http://iononrischio.protezionecivile.it/wp-content/uploads/2016/03/Social-media-Policy-Io-non-rischio.pdf

¹⁵ "Protezione Civile" - Magazine del Dipartimento della Protezione Civile. (n.d.). Retrieved May 28, 2017, from https://www.facebook.com/protezione.civile.magazine/

¹⁶ Magazine Protezione Civile. (n.d.). Retrieved May 28, 2017, from

 $https://www.youtube.com/channel/UCji_xRaXChqx9BqLjpoFPYw$

¹⁷ Magazine Protezione Civile. (n.d.). Retrieved May 28, 2017, from

https://www.instagram.com/magazineprotezionecivile/

¹⁸ Io non rischio. (n.d.). Retrieved May 28, 2017, from https://twitter.com/iononrischio?lang=en

¹⁹ Social Media Policy dell'account "Io non rischio – buone pratiche di protezione civile". (2015, March 15).

²⁰ #socialProCiv: la rete social di protezione civile. (n.d.). Retrieved May 28, 2017, from

http://www.protezionecivile.gov.it/jcms/it/view_dossier.wp;jsessionid=E9896A83606AD7FCFEFC7A2918E8CBA F.worker2?contentId=DOS52447

²¹ "Protezione Civile" - Magazine del Dipartimento della Protezione Civile. (n.d.). Retrieved May 28, 2017, from https://www.facebook.com/protezione.civile.magazine/

In recent years, the prevalence of social media has grown significantly. As can be seen in **Figure 6**, social media use doubled in just five years, from 970 million users in 2010 to 1.96 billion users in 2015.²² As such, social media has become an integral mode of communication and this trend is expected to continue.



Figure 6. Worldwide Social Media User Growth (in Billions) from 2010 to 2015²³

Utilizing Social Media in Disaster Response

Social media offers a useful opportunity for organizations that are involved in disaster management. Not only is social media use increasing, but it is becoming a major source of information for citizens during emergencies. According to a 2012 study conducted by the Red Cross, social media is the fourth most popular source of information during emergencies.²⁴

People turn to social media during disasters for a variety of reasons. For instance, social media platforms allow people to warn others of imminent threats or to provide information on what is happening on the ground as events unfold. These networks also allow individuals to inform others that they are safe as well as to inquire into the safety of friends and family. Additionally, social media provides a user-friendly means of donating money to individuals or organizations. It can also be used to solicit other types of goods and services.²⁵

In addition to the benefits of social media to the public during emergencies, social media can also be beneficially used by organizations involved in disaster response. Social media can be utilized through a wireless connection, which can be useful when phone lines are down or call centers are overloaded. Therefore, social media can help maintain a channel of communication between emergency responders and those affected in times of emergency. Agencies can also obtain

 ²² Libo-on, A. (2016, February 09). The Continued Growth of Social Media. Retrieved May 28, 2017, from https://www.searchenginejournal.com/growth-social-media-v-3-0-infographic/155115/
²³ Ibid

²⁴ More Americans Using Mobile Apps in Emergencies. (2012, August 31). Retrieved May 28, 2017, from http://www.redcross.org/news/press-release/More-Americans-Using-Mobile-Apps-in-Emergencies

²⁵ Lindsay, B. R. (2011, September 6). Social Media and Disasters: Current Uses, Future Options, and Policy Considerations. Retrieved May 28, 2017, from https://ofti.org/wp-content/uploads/2012/07/42245_gri-04-11-2011.pdf

localized and up-to-date information directly from citizens more quickly and easily than with traditional media. 26

Example of Social Media Use During Disasters: Manchester Attack

Another, more recent, example of the use of social media during a crisis was seen following the bombing at the Manchester Arena on May 22, 2017. Immediately after the attack, Twitter users began creating hashtags to show solidarity, offer help, and ask for assistance. One example was the hashtag #roomformanchester. Users posted contact information and details regarding any available space they had for victims in need of shelter.

Similarly, the #missinginmanchester hashtag went viral as a means for friends and family to seek the public's help in finding individuals lost after the attack. One particularly successful social media effort was in the search of a young girl named Heather. Heather and her friend Vicky were separated from each other during the chaos of the Manchester Arena evacuation. Vicky could not get in touch with Heather, so she tweeted a photo of Heather and asked for help in locating her. Within one hour of the tweet, a boy named Nathan responded that Heather was safe at a local hotel.²⁷ Such a fast flow of information would not have been possible using traditional media. This demonstrates how social media is easing the burden on agencies during disasters, as it now allows people to crowdsource assistance.

Social Media Liabilities

There are still several liabilities associated with using social media during disasters. During an emergency, it can be difficult for agencies to monitor and respond to the high volume of social media postings. One complication is the difficulty in correctly identify useful information. Social media posts are typically short in length and frequently do not include all relevant details for emergency responders. This is particularly true for Twitter, which limits tweets to 140 characters.

Agencies may also be weary of using social media during a crisis as they risk sharing inaccurate information. Due to the intrinsically fast nature of social media, it is easy to share incorrect information that has not yet been verified. In instances of reports of immediate danger, agencies can face a tradeoff between speed and accuracy. It is not always apparent which method is in the better interest of the general public.

Another risk of using social media is that this mode of communication is highly susceptible to malicious use.²⁸ For instance, people may attempt to take advantage during emergencies and profit from the generosity of others. Some individuals even create and circulate fake donation pages that solely benefit themselves. Additionally, the world currently faces a crisis of fake news, which is often spread on social media. With people circulating misinformation, organizations and individuals run the risk of sharing fake news with their social networks.

²⁶ Ibid

²⁷ Pelletiere, N. (2017, May 23). Teen Girl Found Safe After Twitter Scrambles to Find Her in Manchester. Retrieved May 28, 2017, from http://abcnews.go.com/International/teen-girl-found-safe-twitter-scrambles-find-manchester/story?id=47579504

²⁸ Lindsay, B. R. (2011, September 6). Social Media and Disasters: Current Uses, Future Options, and Policy Considerations. Retrieved May 28, 2017, from https://ofti.org/wp-content/uploads/2012/07/42245_gri-04-11-2011.pdf

Example of Fake News on Social Media: Manchester Attack

For two examples of the risks of fake news, we return to the Manchester attack. After news of the attack spread, a rumor was started that an active gunman was on the loose near a local hospital. Police were dispatched to the hospital to investigate. After searching the scene, police reported on Twitter that the rumors were not true and that there was no need for concern.²⁹

Another example was in the unauthorized use of people's images in fake missing persons reports. In one instance, a mother woke up from a surgery to a barrage of questions from friends and family about the safety of her daughter. A Twitter user had stolen a photo of the woman's daughter, stating that she was a missing friend lost after the explosion. The mother confronted the Twitter user and refuted the false information on all of her social media channels.³⁰

Social Networks Mitigating Fake News Risks

While fake news on social media persists, there are existing methods of mitigating the risks of spreading inaccurate reports. First, social media networks themselves are developing tools to combat fake news. As one example, Facebook has employed third-party, non-partisan fact-checkers, to evaluate the accuracy of contested news stories. Facebook users can flag a story that they believe to be false and these fact-checkers will then determine if the information is accurate or not. If the fact-checkers find the story to be inaccurate, Facebook will automatically alert readers that the story's validity has been disputed before they share it with their networks.³¹

Thus, social networks rely heavily on citizen involvement. Organizations and individuals therefore have a responsibility in combating fake news. While fake news will likely continue to spread, it will be much more quickly exposed as false as the number of actors monitoring social media increases.

Citizens Mitigating Fake News Risks

Utilizing citizens and social media users as a means of moderating content is not a new idea. In fact, many successful websites and applications heavily rely on user moderation. For instance, Wikipedia, an online encyclopedia, features user-generated content that anyone can edit.³² If false information is added, other users can quickly and easily remove it. Similarly, Waze, a traffic mapping application, relies on users to report on traffic flows and road hazards.³³ When a user reads such alerts, they can either confirm these messages or update them with more accurate information. Therefore, the role of citizens in combating fake news, including during emergencies, should not be understated.

III. INTERNATIONAL CASE STUDIES

To demonstrate how organizations can effectively and successfully use social media to provide

https://en.wikipedia.org/wiki/Wikipedia:About

²⁹ Scott, K., & Stein, L. (2017, May 24). Missing Kids and Other 'Cruel' Fake News Circulates after Manchester Attack. Retrieved May 28, 2017, from http://www.abc.net.au/news/2017-05-24/manchester-attack-fake-social-media-news-missing-kids/8553452

³⁰ Ibid

 ³¹ Chowdhry, A. (2017, March 05). Facebook Launches a New Tool That Combats Fake News. Retrieved May 28, 2017, from https://www.forbes.com/sites/amitchowdhry/2017/03/05/facebook-fake-news-tool/#5ba15a0f7ec1
³² Wikipedia: About. (2017, April 11). Retrieved May 28, 2017, from

³³ About Us. (n.d.). Retrieved May 28, 2017, from https://www.waze.com/about

better services, we include three international case studies. These cases are from the Federal Emergency Management Agency in the United States, the United Nations, and Beijing's City Government. Our evaluations of how these groups utilize social media was instrumental in designing our Action Plan, outlined in the following section.

CASE 1. FEDERAL EMERGENCY MANAGEMENT AGENCY

The Federal Emergency Management Agency (FEMA) has been involved in the expansion of Web 2.0 infrastructure by utilizing a social media platform to increase its communication. Through its social media platform, FEMA aims to accomplish the following objectives³⁴:

- Provide accurate and timely information on disaster response, recovery and preparation activities;
- Humanize the agency to the general public to facilitate greater trust;
- Ensure transparency on agency operations to the public; and
- Participate in conversations and initiatives for listening to both external and internal stakeholders.

FEMA opened a YouTube account (www.youtube.com/user/FEMA) in 2008 to share videos which educate the public on its efforts.³⁵ Through this platform, FEMA documents and records stories regarding disaster recovery and response efforts to publicize its mission globally. Its videos also offer educational information on disaster recovery, preparation, and response activities, as well as explain how the agency mitigates disasters using federal aid initiatives. FEMA's YouTube strategy is to use videos to capture the voice and perspectives of the communities involved in disaster management. Overall, FEMA has had great success with its YouTube account. The channel continues to gain new subscribers every day, and over 3.1 million people have viewed the videos FEMA has posted on the platform.³⁶

An example of a video posted on FEMA's YouTube page is a video titled "Working Dog Searches for Missing in Bolivar Debris." This video details one rescue team's efforts to search for victims following a major fire in Texas.³⁷ The video was produced in response to the media's criticism that the organization was too slow in its response to the disaster. This post helped explain to the public that there were inherent obstacles in removing debris, which made finding victims a highly complicated procedure involving various steps and actors. It emphasized the teamwork displayed between the local and state officials, and clearly demonstrated the complex process of removing debris. More than 879 people have watched the video. As such, the video helped demonstrate FEMA's commitment to assist those affected by the disaster.

FEMA also utilizes Twitter (@fema) and Facebook (www.facebook.com/fema) as a part of its

³⁴ Use of social media tools at FEMA. (2009). Lanham: Federal Information & News Dispatch, Inc. Retrieved from http://libproxy.usc.edu/login?url=http://search.proquest.com.libproxy1.usc.edu/docview/192393870?accountid=147 49

³⁵ FEMA. (Oct 2016). FEMA. Retrieved from https://twitter.com/fema

³⁶ Ibid

³⁷ FEMA. (Dec 2008). FEMA. Retrieved from https://www.fema.gov/zh-hans/media-library/assets/videos/74333

social media strategy to provide fast responses in times of disasters.³⁸ Through Twitter, FEMA collaborates with local and state response teams by sharing, or retweeting, posts from its partners. It also uses Twitter to engage the general public in conversations regarding response, preparation, mitigation, and recovery procedures. Through its Facebook page, FEMA provides disaster response and preparation information, while simultaneously inviting the general public to participate.³⁹

CASE 2. THE UNITED NATIONS

The United Nations (UN) is involved in social media platforms in order to provide and receive information on the trends occurring around the UN system. On average, the UN shares approximately 10 to 15 tweets daily, along with numerous posts on Instagram and Facebook.⁴⁰ Its tweets are comprised of campaigns and messages emanating from their organization, as well as from other organizations with similar missions.

According to Nancy Groves, the UN Social Media Team Leader, in 2015 various member states were involved in negotiations on sustainable growth and development goals for the next 15 years. The UN played a guiding role in creating a uniform platform for various departments and organizations to share their content and messages. Further, content was posted using the UN banner for consistency. The UN also created the #Action2015 hashtag to engage the public in discussions regarding climate change, the environment, education, health, jobs, and more.

Similarly, in September of 2015, the UN summit for refugees and migrants utilized the Twitter hashtag #UN4refugeesMigrants. This hashtag was created in order to raise the UN's social media footprint on a global level and to share important facts regarding the issue. The UN also created and shared infographics which featured current data on the refugee and migrant issue⁴¹.

CASE 3. BEIJING CITY GOVERNMENT

The advancement of smartphones and communication technology enables social media users to post information quickly and efficiently. More importantly, during emergencies, those affected by a catastrophe can easily share their concerns and needs faster than with traditional media. The power of social media to offer assistance to citizens during emergencies is well demonstrated by the Beijing city government's techniques – particularly its use of Sina-Weibo.

Sina-Weibo has become the most popular social media platform in China. It is similar to Twitter in that it limits the length of messages to 140 characters. It allows users to post emoji's and

³⁸ FEMA. (2016, March 4). Preparing for an Emergency: It's Scary Simple| FEMA. Retrieved from https://www.youtube.com/user/FEMA

³⁹ Use of social media tools at FEMA. (2009). Lanham: Federal Information & News Dispatch, Inc. Retrieved from http://libproxy.usc.edu/login?url=http://search.proquest.com.libproxy1.usc.edu/docview/192393870?accountid=147 49

⁴⁰Vale, A. (May 6, 2015). How the UN Uses Twitter to Bring the World Together One Tweet at A Time. Audiense. Retrieved from https://audiense.com/interview-case-study-how-the-un-united-nations-uses-twitter-social-media-to-bring-the-world-together-one-tweet-at-at-time/

⁴¹ Groves, N. (Dec 27, 2016). The United Nations and social media in 2016. United Nations. Retrieved from https://medium.com/we-the-peoples/the-united-nations-and-social-media-in-2016-40e2d26dcb4b

emoticons as a way of expressing emotions. In addition, Sina-Weibo encourages its users to include information on their location when sharing updates about different events. These characteristics allow data from the platform to be easily analyzed.

On June 21, 2012, Beijing faced one of its biggest rainstorms in history, which led to extensive flooding. Data from the Beijing Government indicated that 79 people died, approximately 1.6 million people's lives were disrupted, and around 10,660 homes and properties were destroyed. The economic loss at the time was approximately 11.6 billion Yuan (1.51 billion Euro)⁴². In total, 79,723 messages were posted on Sina-Weibo with the words "Beijing rainstorm." The Beijing government collected these messages to construct a list of related topics. Every message on Sina-Weibo was pre-processed, and each user's message was analyzed. Superfluous text was removed, and emoticons were also used to segment data.⁴³

Through this process, five main topics were identified, including "weather," "disaster information," "rescue information," "traffic," and "influence". To display the Sina-Weibo messages according to subject and Global Positioning System (GPS) data, a prototype system was implemented that categorized and positioned the messages in real-time.



Figure 7: A Prototype System for Topic Classification of Beijing Rainstorms⁴⁴

⁴² News Sina. (2016). Sina. Retrieved from http://news.sina.com.cn/z/bjrainstorm/

⁴³ Wang, Y., Wang, T., Ye, X., Zhu, J., & Lee, J. (2016). Using social media for emergency response and urban sustainability: A case study of the 2012 Beijing rainstorm. *Sustainability*, 8(1), 25. Retrieved from http://libproxy.usc.edu/login?url=http://search.proquest.com.libproxy2.usc.edu/docview/1764191808?accountid=14 749

⁴⁴ Ibid

As demonstrated in **Figure 7**, this program integrated a spatial analysis tool to aid in distributing resources according to individual needs when responding to emergencies.⁴⁵ This prototype helped demonstrate the considerable potential of using automated programs to analyze and actionize useful data.

IV. ACTION PLAN

Since 2013, DPC and its partner emergency response agencies and organizations has debated the risks and benefits of having an official online social media presence. As a product of this dialogue, key documents have been created outlining DPC's social media policies, including the #socialProCiv Manifesto, Policies and Guidelines for Using and Managing Accounts⁴⁶. In addition, DPC has a limited social media presence through its "*Io Non Rischio*" (I do not take risks) campaign on Twitter and their magazine, *Magazine del Dipartimento della Protezione Civile*, which has active profiles on Facebook, YouTube and Instagram. Despite this progress, DPC has not been able to establish a strong social media footprint online. Concerns such as legal liability, privacy and security, fake news, and misinformation have stifled the organization's ability to move forward with a comprehensive social media initiative.

Consequently, DPC's limited social media presence has had minimal impact. According to SocialMention, a social media search and analysis platform, DPC's social media "reach" is just 2%⁴⁷. SocialMention defines "reach" as the number of unique authors referencing the brand (i.e., DPC) divided by the total number of brand mentions. Put into context, DPC's four social media sites have not had great success obtaining followers. Since its inception in 2013, the Magazine's YouTube channel has obtained a cumulative 52,130 views of its various content. Meanwhile, the Magazine's Facebook page, established in 2010, has obtained 15,940 likes and 16,037 followers. The "*Io Non Rischio*" Twitter feed, created in 2013, has attracted a total of 5,058 followers, and its Instagram account by the same name has obtained a mere 364 followers.

These numbers are only a fraction of the 31 million social media users in Italy today.⁴⁸ Yet, the public's use of social media continues to rise. According to the 2017 Digital Yearbook, the total number of social media users increased 11% from the previous year.⁴⁹ The number of active mobile social media user was 17 %.⁵⁰ Thus, there is a chasm between DPC and the public caused by DPC's non-optimal presence on social media combined with the pervasive use of social media by citizens.

To align DPC with its online population, this report recommends a two-pronged approach which

⁴⁵ Ibid

⁴⁶ Dipartimento della Protezione Civile. (n.d.). #socialProCiv: the social network of civil protection. Retrieved from http://www.protezionecivile.gov.it/jcms/it/view_dossier.wp?contentId=DOS52445

⁴⁷ SocialMention. (n.d.). SocialMention* real time social media search and analysis. Retrieved from

http://www.socialmention.com/search?t=all&q=dipartimento+di+protezione+civile&btnG=Searchwithered and the search and the sea

⁴⁸ We Are Social and Hootsuite, (2017) "Digital in 2017: Southern Europe. A Study of Internet, Social Media, and Mobile Use Throughout the Region." Slide 73. https://www.slideshare.net/wearesocialsg/digital-in-2017-southern-europe

⁴⁹ Ibid

⁵⁰ Ibid

includes: (1) establishing a viable identity online, and (2) investing in organizational infrastructure. Through this approach, DPC will reduce its social media liabilities and mitigate its risks, gain online credibility, increase its social media footprint, and strengthen DPC's online identity.

STRATEGY 1. ESTABLISHING A VIABLE IDENTITY ONLINE

Building DPC's Credibility on Social Media

Thus far, DPC has done an excellent job of creating key governing documents such as the #socialProCiv Policies and Guidelines for Using and Managing Accounts. To reduce liability and mitigate risks, DPC should add these same documents to all of its social media pages. For example, the "*Io Non Rischio*" Twitter feed includes a link to its policies and guidelines via a link on its page, as shown in **Figure 8**.



Figure 8. A Link to the "Io Non Rischio" Privacy Policy is included on its Twitter

Secondly, the DCP should consider using the blue verified badge on all of its social media accounts. The blue verified badge, seen in **Figure 9**, is a blue checkmark next to the account handle (or name) that shows people that the account is authentic. Users that see the blue verified badge will understand that a specific social media page is the official site for DPC.

Figure 9: Blue Verified Badge Authenticates Account



Strengthening DPC Brand on Social Media

Currently, DPC's social media presence is inconsistent and does not represent one unified brand. The existence of both campaign social media sites, such as the "*Io Non Rischio*" accounts, and pseudo-official sites, like DPC Magazine accounts, dilutes the brand and the potential to garner a dedicated digital audience. Rather than having accounts that promote different campaigns and thus have different looks, DPC should consider establishing one official DPC social media brand across all its platforms. Creating one consistent DPC identity will strengthen the brand.

Essentially, DPC's brand should easily communicate with the audience the organization's identity and authority. DPC should establish standards for the application of the master brand, iconography, typology, logo, minimum sizes and margin guide, and correct use of the logo. If DPC already has a style guide, then it should use it as a basis for designing or redesigning the cover art on its social media applications. This includes the current social media accounts it has on Twitter, Facebook, YouTube, and Instagram.

An organization that has had great success in building its brand and establishing a strong social media presence is the UN (**Figure 10**), as discussed in the International Case Studies section.



Figure 10: United Nations Cover Art on Social Media Platforms

The UN uses a wide variety of social media applications from Facebook to Flickr, and each of its accounts uses the same iconography and cover art. DPC can use this social media strategy as a model to build its social media presence.

Once DPC has established its social media presence, it should commit to having a continuous presence online. This commitment includes creating or sharing content on a regular basis. Content can focus on DPC's four main competencies including disaster prevention, response, recovery, and mitigation.

Investing in Outreach and Education

DPC should develop outreach material for print, web, tele- and digital communications. It should then partner with relevant agencies to distribute this helpful information. For instance, in February 2017, FEMA partnered with the Ad Council to release ten, "It's Scary Simple," public service announcements educating the public on simple ways they can prepare for emergencies.⁵¹ The videos were then disseminated across all of FEMA's social media platforms and promoted on social media by their partners.

STRATEGY 2. ORGANIZATIONAL CONSIDERATIONS

Financing Your Effort

While it does not cost anything to start a social media page, it does take a considerable amount of resources to maintain it. Social media site managers should create and disseminate content, monitor the social media universe for trends, identify potential threats like fake news, and

⁵¹ FEMA. (2017, February 16). Collection: scary simple preparedness videos. Retrieved from https://www.fema.gov/media-library/multimedia/collections/560

ultimately decide when and how to join broader conversations. With that in mind, Kelly Cohen's article "The reason the U.S. government is investing huge money in social media", discusses how numerous U.S. Federal government agencies are spending significant funds on social media-related services.⁵² These various U.S. Federal government agencies have dedicated a portion of their annual budget to conduct research and extensive analysis regarding the use of social media networks and its relationship or lack thereof to their agency.

Cohen's article highlights that as the number of social media users significantly increases, U.S. Federal government agencies have responded (**Figure 11**). In 2012, FEMA spent \$260,000 in analytics costs in order to understand the organization's social media footprint and to learn how to improve it. In 2014, the General Services Administration spent \$27,000 in order to create social media content and overall maintain its social media applications.

| Federal Departments | Amount in U.S. Dollars | Description |
|---|---------------------------|--|
| FEMA (2012) | \$ 260,000 | Analyze social media footprint |
| Transportation (2012) | \$ 42,000 | Design, develop, implement and evaluate the Railroad Administration's Social Media pages |
| General Services Administration (2014) | \$ 27,000 | Create content and perform maintenance |
| State Department (2012) | \$ 11,000 | Analysis of U.S. Embassy's Twitter and FB accounts |

Figure 11. U.S. Government Spending on Social Media⁵³

As other government agencies have acknowledged the need to understand and enhance their agency's social media footprints, this report recommends that DPC create a budget that funds the establishment and maintenance of its social media presence across all platforms. Given that DPC is an organization that can tap into multiple networks and partnerships with public, private, and nonprofit organizations, it is in a unique position to significantly reduce costs by leveraging these partnerships. Once example is to utilize its volunteers in carrying out its social media strategy, which is further discussed in the next section.

Utilizing Existing Resources

⁵² Cohen, K. (2014, June 25). "The reason the U.S. government is investing huge money in social media". Examiner. Retrieved from http://www.washingtonexaminer.com/the-reason-the-us-government-is-investing-huge-money-in-social-media/article/2550132

⁵³ Ibid

DPC can take advantage of its unique network structure by mobilizing its volunteers to track and report messages on its social media sites. An example of how volunteers can be used to manage social media during disasters was seen during Hurricane Sandy in October 2012. The American Red Cross assigned 23 employees to monitor social media sites to identify postings related to Sandy. After reading through 4.5 million postings, these employees flagged 4,500 messages which required follow-up by the Red Cross.⁵⁴ As such, by examining the information provided by people online, officials were able to target their outreach to specific at-need individuals.

Similar to the Red Cross' response after Hurricane Sandy, DPC can utilize its volunteers to identify hashtag trends and identify messages that need follow-up. Volunteers can also disseminate verified basic information such as Frequently Asked Questions (FAQ), emergency contact lists, and information on emergency services.

Investing in Social Media Management Software

To create a larger social media presence on various online platforms, it is important to invest in social media management software. Social media management software is an integrated software tool that allows users to manage their numerous social media applications from a central location. This software also has an analytics component that measures an organization's social media footprint. It is a tool that enhances an organization's efforts to grow a consistent social media presence across all online platforms. This software is critical for complex organizations attempting to methodically streamline their online presence and understand the impact of their efforts.

DPC can utilize Hootsuite,⁵⁵ or applications like it, which offers free or paid social media management software tools. Organizations that use tools like Hootsuite are better able to manage their numerous social media applications from a single dashboard, thereby increasing efficiency and continuity of operations – especially critical during major incidents.

Some of the features that social media management tools offer are:

- Enables users to schedule messages in advance
- Uploads content to all social media applications from a single dashboard
- Allows users to track hashtag trends
- Strengthens social networks
- Measures the organization's social media presence
- Visualizes impact through data analytics

For instance, DPC can design a prevention campaign like "*Io Non Rischio*" months in advance by scheduling to send out messages, upload videos or photos, and even re-tweet and disseminate content. If an emergency arises, DPC can disable these regularly scheduled messages, and instead focus on disseminating information pertinent to the emergency at hand. Once the emergency is over, the agency can resume its campaign messages through the click of a button, or use the software tools to refocus its campaign on recovery, mitigation and prevention.

Further, as Italy's response to emergency incidents involve multiple stakeholders, social media management tools allow users to collaborate with each other, increasing system communication.

⁵⁴ Ibid

⁵⁵ Hootsuite Media Inc. (2017). Hootsuite. Retrieved from https://hootsuite.com/

For instance, DPC can create a team with members from multiple agencies, grant them permission to use the software, and then authorize them to create draft social media messages that can be reviewed and approved by DPC. Alternatively, DPC can use social media management software to track and quickly respond to messages, mentions, and comments across all social media applications with a single click on the dashboard. With such tools, DPC can distribute contact information, re-tweet another agency's tweet, or respond directly to a personal message from someone in need. Across all of these examples, DPC can create value for itself and other stakeholders by joining conversations that are already happening on social media networks.

Additionally, the analytics tool included in most social media management software allows organizations to analyze the performance of their social media content across all applications. Organizations can track trending messages and hashtags, see how many visitors have viewed or followed their page, or liked or shared their posts, and obtain basic information about their users. This software provides DPC an opportunity to easily analyze the organization's social media footprint from a centralized location.

Other analytics software options have expanded social media analytics tools – either for free or for a fee. For instance, SocialMention⁵⁶, a free analytics platform, combines all user-generated content from over 100 social media websites into a single stream of information. SocialMention then tracks and measures user reactions on social media in real time. Using this software, DPC can learn what its digital "reach" is. Ultimately, analytics software provides DPC with another opportunity to track and measure its social media footprint, which can then inform its social media strategy.

The United Nations International Children's Emergency Fund (UNICEF) provides a great example of how the use of social media and management tools can be used during emergencies. In their report, "Social Media in Emergencies: Guideline for Communication and Public Advocacy," UNICEF provides organizations within their system direction on how to best utilize social media during emergencies.⁵⁷ UNICEF's guideline for communication stresses the importance of focusing on social media field impressions in the hours immediately following an emergency incident, and responding to citizen needs accordingly.

For DPC, this strategy might entail obtaining field impressions from its volunteers, other agencies on the ground, and individuals in the affected area who are on social media. DPC can do this efficiently and effectively through social media management software tools. Using a personcentric approach, the organization can tailor messages to respond to the needs its constituents. DPC can therefore gain credibility, engender trust, and strengthen its position as the authoritative figure in providing accurate and relevant information.

Additionally, social media management tools can help DPC disseminate basic facts about emergency incidents, provide pertinent contact information, and FAQs in the first few hours of an event. Some management software tools such as Hootsuite even have a geolocation function,

⁵⁶ Social Mention, (Unknown). Social mention. Retrieved from http://www.socialmention.com/

⁵⁷ UNICEF. (2012). Social Media in Emergencies: UNICEF guidelines for communication and public advocacy. Retrieved on 23 May 2017 from

http://www.unicefinemergencies.com/downloads/eresource/docs/3.1%20 Media%20 and%20 Communications/social mediainemergencies-communications guidelines-120518144234-phpapp02.pdf

which allows organizations to view the locations of posts. Identifying these trends can assist DPC in categorizing and providing the proper assistance during its emergency response.

Social media management software tools, and social media more broadly, can ultimately strengthen systems as they provide a space where information can be shared, analyzed, measured, and visualized. However, social media is not the only way organizations should communicate with their stakeholders. Other communications strategies will need to be employed to respond to the needs of its diverse stakeholders.

Investing in Auxiliary Technology

To reach large groups of individuals rapidly, it is best to invest in auxiliary technology. DPC must stay up-to-date with the new technologies and features that social media employs. Supplemental technology will help circulate relevant information to the public. For optimal outreach, content must be readily available – not just on a computer screen, but on phones, tablets, and other smart-enabled gadgets – to reach as many individuals as possible. Large corporations such as Google, Facebook, and Twitter are continuously modifying their services; these organizations provide a solid model and exemplify the trends within social media.

Smartphone Application

Twitter, Facebook and Instagram have become very useful during disasters. Some functions of these popular applications have been specifically designed for disaster settings – such as Facebook's Safety Check. These tools should be implemented into the DCP's model to tailor to individuals and their specific needs.

The concept for a disaster-oriented application should encompass consistent updates, shelter locations, injury reports, and so forth. Moreover, an application should be a one-stop source for information that users will utilize as a guide before, during, and after a disaster. DPC should be the official source of information on disaster management in Italy. Individuals should be motivated to look to DPC's application for the majority of inquiries on catastrophes.

FEMA Application as a Model

Users must trust DPC when using their application. Information should be readily available, and users should be confident that this information is accurate. As an example, FEMA's application presents four major categories: weather alerts, preparation, disaster resources, and sharing disaster photos. The application also updates individuals and notifies users of hazard levels within a region.⁵⁸

The application's preparedness section offers advice on the proper action to take in a given disaster. The section covers earthquakes, floods, severe weather, volcanoes, and chemical threats. The application even has information on what to do during a cyber-attack.⁵⁹ The disaster resource section highlights shelters that are near the individual and directs the person to speak to a FEMA representative during an incident. An individual could also send inquires or notify FEMA of their status directly online.⁶⁰ Victims or volunteers can also submit photos of the conditions in their area

⁵⁸ FEMA. "Mobile APP" FEMA Feb 2017. https://www.fema.gov/mobile-app

⁵⁹ Ibid

⁶⁰ Ibid

or of an injury as well.

Other major functions of the application include direct weather alerts and reminders. The application automatically sends out severe weather warnings, as well as reminders to prepare for disasters. There are also automatic notifications to alert users when an application update is available for download. These notifications, however, are optional.

Before a person voluntarily enables these options, they must give their consent and acknowledge that they have read the required legal disclaimers. One example is that users can consent to use the weather feed generated by the National Weather Service.⁶¹ A well-groomed user-friendly application would be a major asset for DPC in reaching individuals during a catastrophe. Nevertheless, some issues on content and legality remain.

Mass Notification System

During a disaster, it is crucial to have an authority transmit important information to the public. A mass notification system could reach a large audience quickly. Providing timely updates to all individuals in at-risk areas could save lives in the event of an imminent disaster. The United States provides two examples of this mass notification approach.

In early 2013, the Amber Alert system was established to automatically send notifications to individuals' cell phones through a system known as the Wireless Emergency Alerts program.⁶² If a phone is enabled to receive Wireless Emergency Alerts, mandatory alarms and updates are sent out to cellphones in the region of an incident.⁶³ Officials must follow the procedures to establish a child abduction case, and then send out the required information to state broadcasters. This information is then broadcast through an Amber Alert, via radios, televisions, highway alerts signs, and cellphones.⁶⁴ Sometimes interstate coordination is required. If a child and/or the abductor cross state lines, coordination between officials from both states is needed. Amber Alerts are then broadcast in both locations.⁶⁵

Moreover, if a cellphone is enabled to receive Wireless Emergency Alerts, additional notifications on "Imminent Threats", and "President" alerts are authorized.⁶⁶ If not enabled, Amber Alerts and Imminent Threats are not authorized. President alerts, however, are always authorized and cannot be disabled.⁶⁷ This mandatory President alert system was utilized for the first time following the 2009 explosion in Manhattan, New York. Officials sent out a mass notification describing the suspect of the attack. Most residents in New York, and even individuals in some parts of New Jersey, received this message.⁶⁸

⁶¹ Ibid

⁶² U.S. Department of Justice. "Amber Alert America's Missing: Broadcast Emergency Response" Department of Justice. 2017. https://www.amberalert.gov/

⁶³ Ibid

⁶⁴ Ibid

⁶⁵ Ibid

⁶⁶ Ibid

⁶⁷ Ibid

⁶⁸ Gelles, David. Goodman, David. "Cellphone Alerts Used in New York to Search for Bombing Suspect' New York Times. Sept. 19, 2016. https://www.nytimes.com/2016/09/20/nyregion/cellphone-alerts-used-in-search-of-manhattan-bombing-suspect.html?_r=0

Another system in the United States that provides an opt-in system, where notifications must be authorized to be received, is the Alert Long Beach program. The alert system is utilized by the city of Long Beach, California, that notifies all stakeholders during emergencies.⁶⁹ Voice messages, texts, and emails are used to disseminate information. Individuals who wish to receive these notifications must sign up through the city website or mail in a registration form.

This system works similarly to the Amber Alert – citizens are notified if there is a crime or a potential disaster (**Figure 12**). However, since individuals must willingly opt-in to receive notifications, such mass notifications systems have limits. With the exception of the mandatory President alert, many of these programs require consent to be contacted. A mass notification system could be a major asset in delivering crucial information to large groups of vulnerable individuals during a disaster. For this reason, it is essential to invest in the appropriate technology to ensure the circulation of information.





Investing in Infrastructure

When investing in social media for disaster management, it is also prudent to invest in hightechnology servers and infrastructure. Internet traffic caused by social media use can disrupt or temporarily disable a server. During emergencies, individuals are likely to send out information via social media. Thus, it is essential DPC invest in premium infrastructure.

The city of Los Angeles decided to invest in sophisticated infrastructure after witnessing the devastating 2008 earthquake in China. The decision was also influence by a smaller 5.5 earthquake in Chino Hills, California in 2008 that disrupted mobile connections and internet usage due to a high volume of users. Phone calls increased by 800% during the incident.⁷⁰ After observing the

⁶⁹ City of Long Beach. "Alert Long Beach" Long Beach. http://www.longbeach.gov/disasterpreparedness/alert-long-beach/

⁷⁰ Lin II, Gong, Rong. Xia, Rosanna. "Los Angeles becomes first U.S. city to enact quake safety standards for new cellphone towers" Los Angeles Times. May 8, 2015. http://www.latimes.com/local/lanow/la-me-ln-quake-cellphone-20150508-story.html

consequences insufficient infrastructure, the city of Los Angeles made a commitment to build disaster-ready infrastructure. In 2015, Los Angeles became the first city in the United States to install seismic resistant cell phone towers, which are designed to physically withstand powerful seismic activity to allow internet service to continue during and after an earthquake.

Servers and backup generators are essential needs in disaster as well. AT&T has produced a Network Disaster Recovery network (NDR) designed to operate during disasters. NDR is utilized specifically in disaster-prone regions in the United States and can endure environmental catastrophes. High capacity battery backups are also stationed in the region to keep servers' power running during a natural disaster. Such resources allow individuals to remain connected during times of crisis.⁷¹

Restoring Internet Connectivity

As previously noted, it is common to experience power and internet outages during a disaster. A large magnitude earthquake could easily damage cell phone towers. Heavy rain could short circuit electrical lines. When first responders arrive on the scene, they could be faced with limited or no internet connectivity. Victims and individuals could also be hampered by the lack of internet access. Accessing social media, sending out emails, or phone calls for help could become problematic or even impossible.

For this reason, is it essential to invest not only in infrastructure but also in other innovative technologies. The telecommunications company EE has constructed blimps that provide phone and internet coverage to remote areas in the United Kingdom.⁷² This service is not only useful for households living in remote regions, but it is also useful during disasters. The company has also developed drones with the same capability. During times of high internet traffic, such as following a catastrophe, the drones could alleviate some of the overload of traditional networks in affected regions, and prevent these networks from crashing.

Verizon is continually testing out similar technology to assist disaster management teams.⁷³ AT&T has created portable cell towers that are dispatched in regions when needed. These towers are typically utilized during concerts or sporting events when the area experiences a high volume of cell phone and internet usage.⁷⁴ This type of technology would be invaluable for social media coverage in a natural disaster.

V. CONCLUSION

DPC has had a long history of providing excellent disaster assistance to citizens throughout Italy. From persistent natural disasters to man-made disasters, such as the Costa Concordia incident,

 ⁷¹ AT&T. 2016. http://about.att.com/content/csr/home/issue-brief-builder/people/disaster-response.html
⁷² Sweeney, Mark. "EE balloons and drones to help fix mobile blackspots." Feb 21, 2017.

https://www.theguardian.com/business/2017/feb/21/ee-balloons-drones-blackspots-helikites-coverage ⁷³ Pressman, Aaron. "Verizon Is Testing Drones for Providing Emergency Call Service" Fortune. Oct. 16, 2016. http://fortune.com/2016/10/06/verizon-drones-emergency/

⁷⁴ Lin II, Gong, Rong. Xia, Rosanna. "Los Angeles becomes first U.S. city to enact quake safety standards for new cellphone towers" Los Angeles Times. May 8, 2015. http://www.latimes.com/local/lanow/la-me-ln-quake-cellphone-20150508-story.html

DPC has responded to events in a timely and effective fashion. The purpose of this report is to formulate a social media approach to enhance DPC's capabilities in responding to emergencies.

As illustrated in examples throughout this report, social media has been utilized in a wide range of disaster settings and has great potential to assist officials and responders during catastrophes. In particular, a more person-centric approach is essential to better cater to individuals during their time of crisis. Social media can be an asset in obtaining crucial information from individuals as well as in relaying notifications.

This report outlines legitimate concerns and liabilities related to social media use. The credibility of DPC and innocent lives can be threatened by fake news and inaccurate information. However, mitigating factors, such as third-party verification teams, disclaimers, and citizen moderation, can be used to combat some of these concerns.

International case studies have shown the positive impact of social media applications. DPC has can learn from organizations such as FEMA and the UN, which use social media to reach individuals when threats emerge. In evaluating these examples, it is clear that agencies can responsibly and effectively create official social media accounts to monitor and respond to emergencies.

As technology advances and more individuals are connected through social media, it behooves DPC to make major strides in their social media campaign. DPC's outstanding credibility should translate into reaching a large audience and its broad network of partners. Both social media management tools and mass notification systems could be utilized to deliver appropriate messages tailored to individuals.

When considering a more robust social media strategy, there are inherent advantages and disadvantages. However, with an increasingly inter-connected world and the ever-growing capabilities of social media, it is not a matter of if, but rather how, this technology should be utilized. As such, DPC should capitalize on the opportunity to modernize its social media approach to ensure that it plays a more active role in online emergency management.