

# Disaster 2.0

## Case Studies

Using Web 2.0 applications and Semantic Technologies to strengthen public resilience to disasters





Authors: Dr Roser Beneito-Montagut (Aston University), Prof Duncan Shaw (The University of Warwick) and Dr Christopher Brewster (Aston University).

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Aston University  
Aston Triangle  
Birmingham  
B4 7ET

[www1.aston.ac.uk](http://www1.aston.ac.uk)

For further information about this report please contact Dr Christopher Brewster ([c.a.brewster@aston.ac.uk](mailto:c.a.brewster@aston.ac.uk)).

Front Cover Image:

Rescue Efforts Continue Across Earthquake Region Of Abruzzo

Created 2009-04-07

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# Glossary

**App - Application (app):** Application software is computer software specifically developed to help the user perform a particular task. Such programs are also called software applications, applications or apps. Mobile application (or mobile app) is a software application designed to run on smartphones, tablet computers and other mobile devices.

**Blog (blogging):** is the contraction of the term “web log”. It is a kind of website, generally kept and actualized by a person. This person post (or publish) regular entries around a specific topic or other material such as graphics or video. It could be different types of blog regarding its content: for example, photoblog or videoblog. These entries are usually visualized in reverse-chronological order (the newer first) and they also allow commentaries of the readers. “Blog” can also be used as a verb, meaning to maintain or add content to a blog, so blogging is the activity of maintaining a blog.

**Crowdsourcing:** is the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers.

**Facebook:** is a popular, free-access social networking website. Users can join networks organized by city, workplace, school, region, interest, etc., to connect and interact with other people. People can also add friends and send them private messages or chat, share information, or affiliate themselves to groups of interest. It is structured around posting something that gives response to the question “what’s in your mind?”. <http://www.facebook.com>

**Flickr:** is an image and video hosting website, web services suite, and online community. It is very popular because it allows for users to share and embed personal photographs, for example the service is widely used by users and bloggers to host images they embed in blogs and other social media. It also allows tagging the content. <http://www.flickr.com>

**FreeRumble:** is an audio recording sharing website [www.freerumble.com](http://www.freerumble.com)

**Google Docs:** is a freeware web-based office suite offered by Google within its Google Drive service. It also was a storage service but has since been replaced by Drive. It allows users to create and edit documents online while collaborating with other users live. Google Docs combines the features of Writely and Spreadsheets with a presentation program incorporating technology designed by Tonic Systems.

**Google Maps:** is a web mapping service application and technology provided by Google, that powers many map-based services, including the Google Maps website, Google Ride Finder, Google Transit, and maps embedded on third-party websites via the Google Maps. It offers street maps, a route planner for traveling by foot, car, bike (beta), or with public transportation and a locator for urban businesses in numerous countries around the world. Google Maps satellite images are not updated in real time, but rather they are

several months or years old. <https://maps.google.co.uk/>

**LinkedIn:** is a social networking website for people in professional occupations. <http://www.linkedin.com/>

**RSS (Rich Site Summary or Really Simple Syndication):** uses a family of standard web feed formats to publish frequently updated information: blog entries, news headlines, audio, video. An RSS document (called “feed”, “web feed” or “channel”) includes full or summarized text, and metadata, like publishing date and author’s name.

**Semantic Technology:** encodes meanings separately from data and content files, and separately from application code.

**Tag/Tagging:** is a keyword or term assigned to a piece of information (such as an internet bookmark, digital image, a video, an audio file, etc.) in online services and applications. This kind of data (called metadata) sometimes describes an item and allows it to be found again or re-used, as well as to organize your own information in a relational way. Tags are generally chosen personally by the information creator or by its viewers/users. Then, tagging is the action of assigning a tag to a piece of information. It was popularized by websites associated with Web 2.0.

**Twitter:** is a free social networking and micro-blogging service that allows its users to send and read other users’ updates (otherwise known as tweets), which are text-based posts of up to 140 characters in length. <http://www.twitter.com>

**Ushahidi, Inc:** is a non-profit software company that develops free and open-source software (LGPL) for information collection, visualisation, and interactive mapping. Ushahidi (Swahili for “testimony” or “witness”) created a website (<http://legacy.ushahidi.com>) in the aftermath of Kenya’s disputed 2007 presidential election that collected eyewitness reports of violence reported by email and text message and placed them on a Google Maps map. <http://www.ushahidi.com/>

**Web 2.0 (or social web):** web applications promote interactive information sharing, interoperability, user-centered design and collaboration on the World Wide Web. This term is used to cover several ideas, technologies and, overall, a way of thinking about the Internet.

**Yammer:** is used for private communication within organizations and is an example of enterprise social software. <https://www.yammer.com/>

**YouTube:** is a video-sharing website. <http://www.youtube.com/>



# D2 Case Studies

## Introduction

The following case studies were collected in the course of undertaking the project entitled “Disaster 2.0: Using Web 2.0 applications and Semantic Technologies to strengthen public resilience to disasters.” This project was funded by the European Commission DG Home Affairs as a CIPS project under grant number HOME/2010/CIPS/AG/002.

The research project focussed on two aspects of disaster response. First, we investigated the current use (or lack thereof) of social media in all its forms i.e. Facebook, Twitter, Youtube etc. by emergency management agencies. Secondly, the project considered the role of Semantic Web technologies and how they could contribute to future emergency management information systems. The case studies presented below concern exclusively the first of these two subjects.

The research was conducted in the period between September 2011 and August 2013. The research team undertook a series of interviews with emergency management agencies in five European countries, viz. Italy, Greece, Germany, Poland and Belgium. Each country was found to be very different in the structure and organisations of emergency management operations so it was difficult to make direct comparisons. For example, in some countries extensive use is made of volunteers and voluntary organisations which tend to be more agile in adapting to new technologies, while other countries are more structured around state provision of all emergency response. The variety of initiatives and the range of methods with which social media were being used is emblematic of the creativity that many people have when faced with the opportunities offered by new technology. Of great importance in the examples shown below is the issue of responsibility. The more responsibility for communication using social media is devolved down to officers and agents on the ground the more effective, responsive and useful it is for society.

Overall we believe these case studies provide an important snapshot of how social media technologies are being used today and provide useful lessons for current and future practitioners. While some agencies have clearly embraced these technologies effectively, we also know from our research that there are still considerable challenges in engaging with these technologies. We hope that the case studies presented here will provide useful examples for others to follow, learn from and adapt to the needs of their own situation.

We are very grateful to our partners across Europe (Italy, Poland, Greece, Belgium and Germany) for having made their personnel and facilities available for us to undertake the research and give their precious time so that interviews could be conducted which has fed into the material presented in the following pages.

Christopher Brewster  
Duncan Shaw

Birmingham, December 2013

# Social Media for multi-agency working

<b>Organisation name/s</b>	<b>City of Antwerp and Fire Brigade of Antwerp</b>
<b>Country</b>	<b>Belgium</b>
<b>Nature of good practice</b>	<b>Working together: from Emergency Managers' personal Social Media profiles to official governmental accounts.</b>

## Organisation

Belgium follows the same emergency structure as many other European countries. Crisis management is organised on three levels of government according to the magnitude of the incident: municipal level, where responsibility lies with the mayor of a city or region; provincial level, with the provincial governor; and federal level, in which the responsibility is on the Minister of Home Affairs. On the emergency response side, Fire Brigades come under the control of municipal authorities whereas civil protection services are a federal service. The Antwerp Fire Brigade is under the authority of the City of Antwerp. This study will focus on how each of these organisations uses Social Media (SM).

The City of Antwerp has a dedicated emergency manager (EM), who is in charge of emergency management, crisis communication, risk identification and analysis, emergency planning and exercises, public safety and event-related safety. One of their main duties is informing the mayor of a crisis. Responses at a municipal level are coordinated by the mayor and public information is disseminated by the city authorities.

Potential threats facing the city of Antwerp include floods, storms, and petro-chemical accidents due to its industry. Each emergency is handled by specific services. Their tasks are divided into five disciplines:

medical services, police, fire brigade, logistical support and information. During an emergency these agencies work together closely in order to respond effectively.



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# Platforms

The city and its emergency services are currently in an exploratory phase in the use of SM. Twitter is the most used means of emergency communication and there are official accounts for both the City of Antwerp and the city's Fire Brigade. In addition, there are two significant personal accounts – belonging to the city's Emergency Manager and the Fire Service's Emergency Manager.

<b>Twitter</b>	City of Antwerp	@Stad_Antwerpen	Followers: 12,216
	Fire Brigade	@BWAntwerpen	Followers: 1,538
	Emergency Manager - City of Antwerp personal profile	@EM_antw	Followers: 335
	Fire Service EM personal profile	@BertBrugghe-mans	Followers: 1,337
	Police Service	@LPAntwerpen	Followers: 2,464
<b>Yammer</b>	Intra-organisational use only.		
<b>YouTube</b>	<a href="http://www.youtube.com/user/visitantwerpen?feature=watch">http://www.youtube.com/user/visitantwerpen?feature=watch</a>		Not risk and crisis communication related.
<b>Facebook</b>	City of Antwerp: =fun page	<a href="http://www.facebook.com/zotvana?fref=ts">www.facebook.com/zotvana?fref=ts</a> = fun page	16.000 likes and 975 people talking about this
	City of Antwerp: =serious page	<a href="http://www.facebook.com/stad.antwerpen?fref=ts">www.facebook.com/stad.antwerpen?fref=ts</a>	7,857 likes and 1,569 people talking about this
	Fire Service	<a href="http://www.facebook.com/pages/Brandweer-Antwerpen/158879447541461?fref=ts">www.facebook.com/pages/Brandweer-Antwerpen/158879447541461?fref=ts</a>	1,541 likes, 239 people talking about this

DATA COLLECTED 20th August 2013

## Background

Authorities in Antwerp are aware of the power of SM to spread information rapidly and efficiently. They also recognise that the general public's use of SM has drastically altered the level of control the emergency services have over disseminating information to the media.

Two recent incidents have highlighted the impact of SM on crisis and risk communication in Belgium.

First, in 2010, a train accident occurred near Brussels. Only three minutes after the first emergency, tweets and pictures began to appear on SM – nearly two hours before the first official press release. Emergency managers observed that traditional media were sourcing eye-witness photos from Twitter users. Also, the telephone hotline number for victims' families was first published on Twitter rather than by official channels. The emergency services also observed how other organisations were using SM to respond to the incident (e.g. the

Red Cross using Facebook to publish requests for blood donations).

The following year, Pukkelpop, an annual music festival which takes place near the city of Hasselt, was affected by a severe thunderstorm on its opening day. This incident revealed significant increases in Twitter activity as events unfolded - in this case peaking at 576 tweets per minute (Terpstra et al., 2012). While this event highlighted the need for the authorities to use SM in emergencies, it also showed how quickly information can spread among the population via Twitter and Facebook updates, without official intervention.

From the organisational point of view, after these two events there was an increase in government agencies using Twitter and EMs realised the need to carefully monitor information that the public is sharing over SM.

## Purpose

To implement an adequate strategy to strengthen the use of SM. To improve the monitoring of SM in order to improve situational awareness and engage in a two-way conversation with the citizens.

## Funding

The City of Antwerp hired a community manager to run the city's Twitter account.

# Implementation

## Strategy & Actions

The EMs of Antwerp started to use SM over two years ago in order to explore and expand its use in their roles. The City of Antwerp does not have a specific SM profile for risk and crisis communication. They use the general Twitter profile for the City of Antwerp for all communications. In addition, the senior EM uses a personal Twitter account that is focused on his professional activity. He is aware of the importance of SM.

The City's general emergency strategy includes two separate approaches: event planning and incident management.

The City of Antwerp has a Facebook page and a Twitter profile. Despite the emergency managers recognising that Belgium "is a Facebook country", they implemented and currently use personal Twitter and Facebook profiles. The official institutional profiles are Twitter and Facebook accounts. The profiles used to communicate non-emergency, more general or everyday information, are the same ones used in the event of an emergency.

In order to effectively communicate emergency and crisis information via SM, the city authorities and emergency services use integrated re-tweeting tactics to reach as many people as possible. The City of Antwerp profile, which has the most followers, re-tweets messages from the EM and the Police and Fire Services. Short messages are used to direct citizens to websites or other means of communication in order to access all the available information. All the agencies recognise that this inter-organisational approach is still at a very early stage of development and is currently more experimental than strategic.

The scheme also aims to better monitor SM and provide the communication department with reports. Achieving a better way of monitoring the

SM streams is the core of their strategy for the future.

### Situational awareness

The Fire Brigade is also conducting its own SM monitoring projects. They feel that the information received from eye-witnesses at the scenes of incidents can be very valuable. They are aware of the importance of monitoring for situational awareness as pictures or videos of an incident are online minutes after the incident happens and this gives them valuable information about the impact of the event and the damage caused. Not only are they interested in receiving factual information from witnesses, but are concerned about their feelings and emotional responses of the public. They do not currently have an effective monitoring tool but are working in this direction, testing several systems and learning from best practices in other institutions and organisations.

### Community engagement

A vital part of the city's strategy is to maximise the number of followers each SM profile has during "peace times" to ensure that emergency messages reach as many people as possible. As one interviewee stated: "We don't believe in a special account for crisis because people don't follow it" (interviewee, July 2012). They are building a community based on non-emergency information around the @Stad\_Antwerpen Twitter account. However, the Fire Brigade's EM reported that they still need to build a bigger community to spread messages during emergencies.

Furthermore, they also made agreements with influential Twitter users of the city to get the message out when needed.

## Two-way communication

All the interviewees highlighted the relevance of monitoring information on SM. It was considered the first step to engage in a two-way communication with citizens. They recognised that SM is about conversations but they still have not found an adequate way to monitor SM information generated by the public. According to one interviewee's point of view: "as long as you don't have a clear monitoring system it is very difficult to use it in a two-way communication" (interviewee, July 2012). They tried to search hashtags, requiring people to use them during an event in order to facilitate its monitoring but, they are still researching the best tools and strategies to monitor SM.

## Impact on CI

Damage reporting.

## Benefits

- Accurate situational awareness through monitoring.
- To enhance message outreach.

## Adoption

### Key enablers

Two incidents in Belgium acted as key enablers for SM adoption. The Pukkelpop Music Festival storm and the Brussels' train accident. These incidents made interviewees realise that although mobile phone lines were down, Twitter was still working and allowing people to communicate. They also observed how people offered assistance via Twitter.

In the wake of these incidents, the Belgian government recognised that SM had a vital role to play in emergency management. A multidisciplinary group of 43 experts was formed to address the issue. It was tasked with formulating policy proposals to foster effective use of SM in risk and crisis communication (Kortom, 2011). The guidelines it produced advised not only authorities and emergency services but also event planners about how they should use SM before, during and after an event. This reported included, as part of its recommendations, the creation of an 'online crisis communication centre' (Kortom, 2011: 18).

The group also recognised that EM are also key to the effective use of SM. Their accounts bridge the gap between personal and professional profiles. While the policies cited recommend the use of an official account, they also encourage the personal-professional usage of EMs: "These people may activate a lot of people very quickly when necessary and enjoy a high level of credibility. The disadvantage is however that the information they disseminate is not official. The use of these accounts is a good choice in a short crisis or a crisis in which a high level of citizen participation is required. They can support the official account from the authority and help spread official messages." (Kortom, 2011: 5).

## Difficulties

### Key barriers

**Organisational structure.** In Belgium, the emergency response structure slows SM communication as messages need approval by the authority in charge before their release. Understandably, EMs in Belgium feel that they need to be sure about the reliability of the information before publishing it. EMs are also concerned about the rapid and uncontrolled spread of witness accounts via SM, which means that unofficial information can spread further and faster than verified, official responses.

**Access.** Access to the internet is not a barrier anymore as they have incorporated the internet in the crisis room, even when mobile. They also have invested in a system that allows intra-organisational communication through the internet and even communication to the public. However a lack of equipment (such as smartphones) is considered by some to be a barrier.

**Skills.** Another barrier is the lack staff trained to work with SM.

**Impact on other agencies.** Positive impact as they work together in a collaborative way. No disagreements among agencies have been observed.

# Impact and Future Plans

## Lessons / Transferability

- Guidelines development and its impact.
- Choose the SM account with more followers.
- The relevance of monitoring the information published by the citizens on SM.
- Inter-organisational coordination and re-tweet strategy.
- Engagement with influential SM users.

## Similar projects

West Midland Police (using influential SM users in the area). Further information: <http://www.disaster20.eu/masterclass1/>

UK EMAs (developing SM guidelines after an incident: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/62361/Social\\_Media\\_Guidance.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62361/Social_Media_Guidance.pdf))

## Future plans

- Develop and implement further strategies for the use of SM.
- To use effective monitoring as a dialogue. This will provide more detailed information that will enable more informed decisions.
- Expanding the use of SM to other platforms.

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# A two-way communication with citizens

<b>Organisation name/s</b>	<b>Hellenic Police</b>
<b>Country</b>	<b>Greece</b>
<b>Nature of good practice</b>	<b>A two-way communication with the citizens: humanization of a public sector agency.</b>

## Organisation

The Hellenic Police is a national police force. Its mission is two-fold: (1) ensure peace and order as well as citizens' unhindered social development, a mission that includes general policing duties and traffic safety, (2) prevent and prohibit crime as well as protect the state and the democratic form of government within the framework of constitutional order, a mission that also includes the implementation of public and state security

policy. As with other European police forces it has a relevant role during crises and emergencies given that its main goal is to serve and protect citizens.

The major natural threats affecting Greece are forest fires, earthquakes and meteorological events (such as flash floods and heat waves). Civil unrest has also become a serious concern in recent years.



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# Platforms

They are quite sophisticated social media (SM) users. They currently use Twitter and YouTube.

Twitter	@hellenicpolice	Followers: 33,559
	@PoliceSpokesman	Followers: 2,284
YouTube	<a href="https://www.youtube.com/user/EllinikiAstynomia">https://www.youtube.com/user/EllinikiAstynomia</a>	Subscribers: 1,405 Views: 1,354,099

DATA COLLECTED 20th July 2013

## Background

Civil disturbances caused by recent economic uncertainties in Greece have resulted in an awareness of the utility of Twitter and other SM for communication amongst the public. Moreover, the Head of Ministry/Hellenic Police Press Office and the Police Spokesman have become acutely aware of the power of SM and believed that they needed to have a SM presence as well.

## Purpose

The adoption of Twitter was driven by a need to humanise the police and other public sector organizations in Greece, and also to reach out to the public in a new way. Hellenic Police uses SM to claim a SM presence as part of its engagement with the wider community they serve, to communicate directly with the public, to engage in a two-way active conversation between the Agency and the public, to achieve its goal of communicating with a more socially connected community, to develop an online community of followers before an emergency situation occurs.

## Funding

No specific funding is allocated for the use of social media.

# Implementation

## Strategy & Actions

Although the people of Greece use Facebook (FB) more intensively than other SM, the Hellenic Police decided to launch their SM presence using Twitter. The Twitter account, @hellenicpolice, is managed by the Press Office. The use of @PoliceSpokesman is at the discretion of each spokesman. Later, they also introduced a YouTube channel and have future plans to implement a Facebook profile. The institutional engagement with SM was sustained by creating a SM section within the Press Office.

The Press Office uses Twitter for both publishing messages addressed to the citizens and to collect information.

The SM section acts on information received through Twitter, passing it on to the correct operational department, as well as using it to understand the public's view of their own organisation. The information collected also helps them to prepare the official institutional answers to the questions received from the public. The replies to the public's Twitter queries are not published in a personal form (i.e. one to one), but rather a general official form (i.e. broadcasting to many).

The YouTube channel is used as a public education service, and provides general videos about police service activities. Hellenic Police also uses the

YouTube channel for uploading and sharing videos of press conference presentations and of various police units. The viewer has the ability to view a comprehensive and short video, on issues related to training staff and special services activities, as well as Police Spokesman's presentations (press conferences) and moreover regional Press Offices' presentations. The service also collects videos submitted by the public which document alleged incidents of police malpractice or possible criminal offences. The department passes these videos to the relevant Police Branch, Division or Department (e.g. Security branch or Human Resources division) for further investigation. YouTube and Twitter are being used as interconnected parts of a single communication strategy, applied by the Ministry/Hellenic Police Press Office.

The SM section has the necessary technological equipment to disseminate content. The Press Office is fully equipped with computers, TV monitors, radio-TV stations, etc. They also have access to software for generating, editing and monitoring SM. The Press Office not only monitors SM 24 hours 7 days per week, but also the traditional media. For example, they have a member of staff monitoring Twitter, collecting and clustering information before reporting it to the Head of the Press Office.

## **Situational awareness**

The police use Twitter to monitor the public response to their activities. Tweets are copied from Twitter and categorised according to whether they were positive/negative/neutral. These activities are carried out manually (without any software) and formed the basis of a report that is submitted daily to the PR spokesman in order to better understand public reactions and perceptions to police activity. The police also collected general information from the public including reports of damaged infrastructure and other incidents. These were passed on to the relevant services, branches, divisions, agencies, etc. for action, but no information was available about the reliability of these reports. All reports are submitted daily to both the Head of the Ministry/Hellenic Police Press Office and the Police Spokesman. This ability to monitor 'live' information from the public makes SM a powerful tool in providing situational awareness.

## **Community engagement**

Engaging with the public is a principal driver for this organisation. As stated above the Head of the Press Office has driven the adoption of SM and commented that; "It is important to engage with society and society is now online". He believes his role is to be immersed in the media, so if the people are now on SM, that is where he should be. Consequently, he manages an individual profile as the spokesman of the whole organisation, bridging the gap and blurring the lines between official and personal. His main motivation is the belief that SM humanises and personalises the institution. Although he only provides official information he wants to convey a more personal feeling, in his own words "the spokesman speaks to you" (meaning to the public). This helps to promote a direct relationship with the public without using traditional media that he considers adds a bias.

Staff in the Press Office agree with this point of view. The advantages of SM usage are two-fold: to create and share useful content for the population, and to receive information from the public. In promoting two-way communication with the public, the value of building a community has proved crucial. Building up large numbers of followers in times of peace is crucial for the rapid spread of emergency information in times of crisis. The Press Office believes that this community of followers could help them to avoid rumour spreading. During the recent demonstrations they monitored SM in order to detect and combat rumours. It was proved that the institutional Twitter account helped to establish the correct information but needed a strong community of followers to help share the correct information. In other words, engagement is essential to build and maintain trust.

## **Two-way communication**

The police did not simply broadcast information to the public, a behaviour seen with other organizations. Often they would carry on conversations with groups of the public about particular concerns or reports and acted on the information received. In this sense they used Twitter to its true potential as a service. The time and labour-intensive nature of these activities was a limiting factor.

# Impact on CI

The adoption of SM has had an indirect influence on critical infrastructure protection. During a series of riots and demonstrations, several fires broke out in Athens. The activities of demonstrators hampered efforts by the Fire Service to intervene in these incidents. Police used Twitter to communicate the problem to the public, and subsequently the Fire Service was able to access the fires. Twitter was also used to collect information about damaged infrastructure, such as traffic lights, which were in need of repair. These reports were passed on to other departments or agencies, which then undertook repair work.

This method of inter-agency reporting is not limited to disasters or civil disturbances; it is carried out on a daily basis. As a consequence, the public began to report infrastructure damage more often. These reports, usually mundane, tended to be accurate. No precise information was available on the number of false reports.

## Benefits

- Presents a more human, accessible image of the Police to the general public.
- Promotes institutional resilience.
- Assists in the spread of reliable information (safety messages and incident reports) providing accuracy and reassurance.
- Fosters interactive relationships and trust between citizens and emergency services.

## Adoption

### Key enablers

The Hellenic Police began to use Twitter and YouTube in 2010. The Spokesman Twitter account was first used in 2011. The adoption of SM in this institution began with the arrival of a new Chief of the Press Office. The proximity of the Chief Press Officer to other senior officials within the HQ facilitated discussions about adopting new technologies and smoothed progress, ensuring robust support from the highest levels of the organisation. This level of support, combined with a deep understanding of the technology allowed

the staff to use all of the potential offered by SM to respond to challenging situations.

However, after the data collection, a new senior Press Officer was appointed. This slowed the rate of SM adoption, clearly illustrating the need for a “SM evangelist” to ensure broad adoption.

## Difficulties

### Key barriers

As the leadership gave complete support to the scheme, there were few institutional barriers to the success of its SM strategy. The biggest challenge seemed to be one of manpower, as the sheer weight of data generated by SM and the number of responses required was overwhelming at times. Given the large number of social media platforms of equal utility, the police service has chosen to use Twitter because of the fact that many Greek journalists use it. Moreover, many national key opinion leaders (bloggers and other influential users) use Twitter and are considered to be very influential, when it comes to information distribution, judging by their re-tweets.

The Police would like to be better at keeping up with technological changes and SM trends. The SM section works closely with the computing and cybercrime departments in order to avoid security issues, such as attacks to their servers. They did not report any concerns regarding privacy issues.

**Access.** They had permanent Internet connection, and some authorities use mobile phones to access and publish content on the Internet.

**Impact on other agencies.** They did not report any negative impact on other agencies.

# Impact and Future Plans

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## Lessons / Transferability

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- An awareness of the importance of SM has an influence in the adoption of SM by the EMAs.
- Power of monitoring SM in risk and crisis communication.
- The key function of an influential individual as a driver of adoption.

## Similar projects

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LaMMA, Italy.

The Italian meteorological service had plans that were on a similar level with Greece, although these were yet to be fully implemented. For further information on this organisation please visit: <http://www.disaster20.eu/masterclasses/masterclass-2>

## Future plans

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To use Facebook in addition to Twitter.

# Communicating uncertainty on Social Media

<b>Organisation name/s</b>	<b>Istituto Nazionale Geofisica e Vulcanologia, INGV (National Institute of Geophysics &amp; Volcanology)</b>
<b>Country</b>	<b>Italy</b>
<b>Nature of good practice</b>	<b>Communicating uncertainty on Social Media / Citizens as sensors / Researchers managing the Social Media profiles.</b>

## Organisation

INGV’s main responsibilities within the Italian civil protection system are the maintenance and monitoring of seismic and volcanic phenomena at a national level, together with outreach and educational activities for the Italian population. The institute employs around 1000 people with centres in Rome, Milan, Bologna, Pisa, Naples, Catania and Palermo. INGV operates in close coordination with the Ministry of Education, University and Research centres and with Civil Protection authorities, both at national and local levels. This organisation needs to constantly communicate with Civil Protection regarding seismic activity in the country. They publicly report measurements every time there is an earthquake in Italy with a magnitude greater than or equal to 2.0 on the Richter scale.

The INGV Department in Pisa - Sezione di Pisa - has two main research objectives: 1) to quantify the dynamics of geological processes with the aim of understanding what triggers them and the mechanisms that regulate them, and 2) to estimate the risks associated with these processes in order to help mitigate natural hazards (<http://www.pi.ingv.it/indexEV.html>).



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# Platforms

The INGV use Twitter and YouTube at national level.

<b>Twitter</b>	@INGVterremoti	Followers: 91,130
<b>YouTube</b>	<a href="http://www.youtube.com/user/INGVterremoti">http://www.youtube.com/user/INGVterremoti</a>	Subscribers: 4,061 Views: 1,348,560
<b>Facebook</b>	<a href="https://www.facebook.com/pages/INGVterremoti/436853586390357">https://www.facebook.com/pages/INGVterremoti/436853586390357</a>	11,555 likes 1,238 talking about this
<b>RSS</b>	<a href="http://ingvterremoti.wordpress.com/feed">http://ingvterremoti.wordpress.com/feed</a>	8,883,979 hits
<b>Flickr</b>	<a href="http://www.flickr.com/photos/ingv/">http://www.flickr.com/photos/ingv/</a> <a href="http://www.flickr.com/photos/emergeo_ingv/">http://www.flickr.com/photos/emergeo_ingv/</a>	2 contacts
<b>Mobile App</b>	<a href="https://itunes.apple.com/it/app/ingvterremoti/id424180958?mt=8">https://itunes.apple.com/it/app/ingvterremoti/id424180958?mt=8</a> <a href="http://www.haisentitoilterremoto.it">www.haisentitoilterremoto.it</a>	
<b>FreeRumble</b>	<a href="http://www.freerumble.com/canali.php?userId=6">http://www.freerumble.com/canali.php?userId=6</a>	

**DATA COLLECTED** 21st August 2013, except for RSS & Flickr data from 16th of May 2013

## Background

In 2009 the Abruzzo region in central Italy was hit by an earthquake measuring 5.8 on the Richter scale. The city of L'Aquila, which gave name to the earthquake, was devastated. Recently, a court in the Italian city of L'Aquila, handed down verdicts to six scientists and one government official who were found guilty of manslaughter for failing to give sufficient warning of the fatal earthquake that hit in 2009. The seven defendants were tried, found guilty and jailed for six years.

L'Aquila has been called the first Web 2.0 earthquake in Italy, because citizens rapidly shared and spread information on Social Media (SM). The emergency management community did not take part in SM communication after the earthquake.

These two facts, (1) the population questioning the reliability of their forecasting, and (2) the power of SM spreading information, fostered SM adoption for this organisation.

They perceived the need to control the flow of information, educate the public about earthquake safety and provide up-to-date information about seismic events.

## Purpose

The project aimed to provide accurate information about seismology before, during and after earthquakes. It also aimed to control the information that individuals spread on SM.

The agency also wanted to educate and provide basic knowledge about earthquakes.

The population can feel an earthquake of approximately magnitude 3.0, consequently when then happens, agencies face thousands of people trying to reach them or trying to access their website. The website is often overwhelmed by the sheer number of people trying to access it. This is a strong motivation for using SM to disseminate information. SM provides a channel for a quick broadcast of information, and is also useful during quiet periods.

## Funding

No funding, SM adoption is mainly based on volunteer work.

# Implementation

## Strategy & Actions

Quoting INGV, SM offers “tools that allow you [the public] to share and exchange information, pictures and videos, creating active participation of users on the same subject, through various channels and communication tools” (Disaster 2.0 interviewee, May 2012).

As illustrated above, the INGV is currently using several SM tools to communicate risk and crisis information and to educate the public. Staff of the Institute – both researchers and volunteers – form the team managing the SM accounts. The team comprises two full-time staff members and eight part-time volunteers. The SM team works without any external or internal support and the profiles are not managed by press-officers or public relations specialists.

Twitter is the most successful SM profile with over 40,000 followers. The account was created in 2010. The communication strategy on Twitter is to push information after an earthquake happens, providing essential data such as the magnitude, date, time and location of the event. The data is always published in the same format and structure.

The tweets contain only this raw data, without advice, recommendations or interpretation. This use of Twitter allows the INGV to keep the public informed when they feel a tremor without overloading the webpage, phone lines and other communication channels.

The organisation does not attempt to communicate earthquake forecasts via SM, due to the difficulty of accurately forecasting seismic activity.

Facebook is used to publish the same information as the Twitter account plus additional general information such as new legislations, regulations or rules, as well as links to the INGV blog or webpage.

The agency is also doing intensive work to educate the public about earthquake safety and SM provides a broad array of tools to achieve this. In the words of one interviewee: “we want to spread some common knowledge about this” (Disaster 2.0 interviewee, May 2012). The most active channel used by INGV to educate the public is YouTube. They prepare videos about particular events, such as the Japanese earthquake of 2011, and post occasional videos about what is going on in the scientific world in ways that the general public can understand. They also prepare videos on what is happening in Italy as they have many earthquakes.

FreeRumble is a more specialised social network for researchers. It is a podcast repository of interviews on scientific issues, only available in Italian.

### Situational awareness

The INGV has created a mobile app, which works together with the INGV webpage “www.haisentitoilterremoto.it” (“I have felt an earthquake”). They ask members of the public who have felt a tremor, to report their experiences via the web page or through the app. With this information the Institute builds a map using “citizens as sensors” (Goodchild, 2007).

**Tweets**



**INGVterremoti** @INGVterremoti 8h  
 #terremoto MI:2.0 2013-05-16 05:29:50 UTC Lat=40.71 Lon=15.44  
 Prof=10.0Km Prov=SALERNO,POTENZA  
 from Muro Lucano, Potenza



**INGVterremoti** @INGVterremoti 22h  
 #terremoto MI:3.8 2013-05-15 15:02:41 UTC Lat=41.39 Lon=19.42  
 Prof=5.0Km Prov=Albania  
 from Greece



**INGVterremoti** @INGVterremoti 22h  
 #terremoto MI:3.6 2013-05-15 14:54:54 UTC Lat=41.43 Lon=19.57  
 Prof=2.0Km Prov=Albania  
 from Greece



**INGVterremoti** @INGVterremoti 15 May  
 #terremoto MI:2.2 2013-05-15 04:17:10 UTC Lat=44.90 Lon=10.80  
 Prof=10.0Km Prov=MANTOVA,REGGIO EMILIA,MODENA  
 from Reggiolo, Reggio nell'Emilia



**INGVterremoti** @INGVterremoti 14 May  
 #terremoto MI:2.7 2013-05-14 15:43:23 UTC Lat=37.19 Lon=16.00  
 Prof=28.2Km Prov=Ionian Sea  
 from Italy



The app allows users to access information that the INGV receives through its website and to know, in real time, the intensity with which the earthquake was perceived by the affected population. The public can contribute by filling in a questionnaire describing the effects of the earthquake. The details of an earthquake can be searched, defining the time interval and the minimum magnitude. The list of earthquakes is continuously updated by the INGV when a seismic event is analysed, including records of location and magnitude (normally available 15 - 30 minutes after the occurrence).

This information adds a measurement of 'perceived intensity' that complements the scientific (Richter scale) measurement - both being very valuable for situational awareness.

### Community engagement

The INGV has not actively employed a strategy to encourage the public to engage with its SM. The successful attraction of followers and participation in their "hai sentito il terremoto" site is due to the concern that the public in Italy has about earthquakes.

### Two-way communication

INGV does not engage in a two-way communication with the public. They do not reply directly to Facebook comments or Tweets. However, the website and mobile app includes an option for users to sign up for local earthquake and tremor alerts.

## Impact on CI

The impact of the scheme on protection of critical infrastructure is low as there is no communication strategy that could prevent or mitigate damage.

## Benefits

- Provides accurate scientific information to the general public over SM.
- YouTube channel has become an important part of educational strategies in off-line environments, such as schools.
- Offers research institutions involved in emergency response the chance to communicate with the public.
- Tapping into the public, using "citizens as sensors" through web 2.0 tools.

## Difficulties

### Key barriers

The general public can often misinterpret specialist data due to their lack of knowledge. For instance, some time ago the INGV decided to publish visualisations of activity registered by their network of seismographs, but people misunderstood noise as tremors, with the potential risk of causing fear.

Another difficulty reported by interviewees was that members of the public have created fake SM profiles under the name of the INGV. However, it was ultimately not deemed a problem as the users were just copying the information INGV provided rather than using the profiles for mischief or misinformation.

Problems have been highlighted regarding the validity and reliability of SM data.

After the L'Aquila earthquake, researchers considered new ways of disseminating information and interacting with the public. However, these ideas were put on hold. They, as scientists lacked the skills to communicate with the general public en masse; and were not prepared to communicate uncertainties. Without training in SM or in communication strategy, it was challenging to engage the public and communicate scientific knowledge at the same time.

**Access.** The most important barrier to further adoption of SM within the organisation is age. Members of staff are from older generations and consequently not familiar with SM, sometimes considering them as purely leisure tools. This phenomenon is reported by other institutions across Europe.

**Impact on other agencies.** INGV usually communicates with other stakeholders through telephone or fax. It has also established protected internet links to exchange documents.

An important barrier to successful SM integration is the critical and sensitive nature of the information

they are publishing as it can have significant and far-reaching consequences. For example, reports labelling an area as high risk for earthquakes could have a devastating impact on the real estate market.

## Impact and Future Plans

### Lessons / Transferability

- To use citizens as sensors.
- Scientific communication.
- Web 2.0 as an educational tool.
- Risk communication using Web 2.0 tools.

### Similar projects

Communicating weather forecasts and mapping citizens' perceptions in the Institute of Biometeorology, National Research Council, Firenze, Italy. (Crisi & Grasso, 2013).

### Future plans

- To develop a specific team managing SM accounts and working on scientific communication.
- To work on how to communicate to different social groups: citizens, other stakeholders and scientific community.
- To improve risk communication on SM, promoting citizens' awareness about the potential risk they live with.

## References

Crisi, A. and Grasso, V. (2013). Social media and severe weather events: mapping the impact footprint, In SMERST Conference proceedings, 59-64.

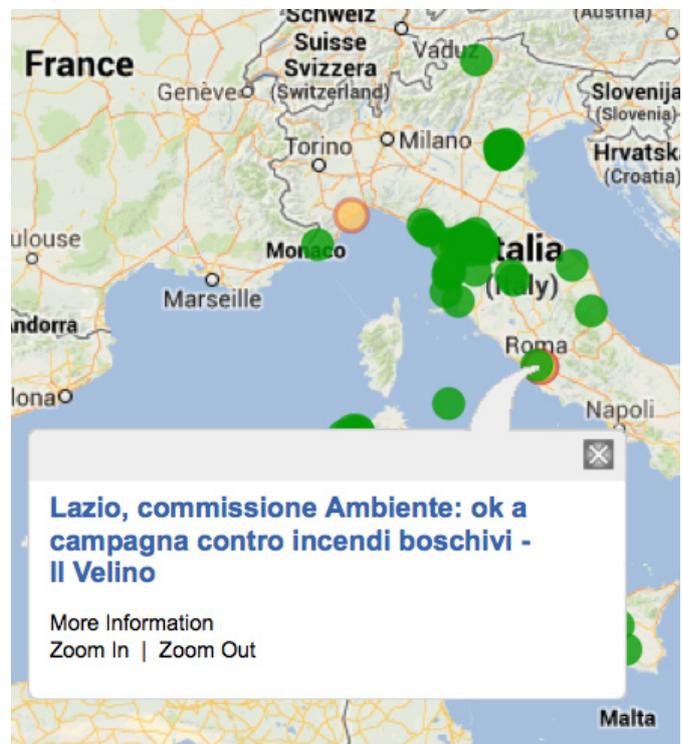
Goodchild, M. F. (2007). Citizens as sensors: the world of volunteered geography. *GeoJournal*, 69(4), 211-221.

# The power of Crowd-Sourcing Maps

<b>Organisation name/s</b>	<b>Centro Intercomunale di Protezione Civile Colline Marittime e Bassa Val di Ceccina</b>
<b>Country</b>	<b>Italy</b>
<b>Nature of good practice</b>	<b>The power of Crowd-Sourcing Maps / Operational Monitoring</b>

## Organisation

The Italian Law defines civil protection as complex system of governance for the safeguard of human lives, health, economic assets, cultural and architectural heritage, human settlements and environment from any kind of disaster either natural or man made. The activities of the emergency management agency are the prediction and prevention of disasters, the relief and any activities directed to prevent and overcome emergencies. According to The Italian Legal Framework - Law no. 225 of 24 February 1992 - the Civil Protection Authorities - Central Government, Regions, Provinces, Municipalities, Municipal Districts and Mountain Communities - contribute to civil protection activities using their procedures and regulations collaborate with central government, public agencies, institutes, scientific research groups and organisations. The Italian Civil Protection Coordination System adopt both Vertical and Horizontal Coordination. Horizontal coordination: implies to be able to work in a cooperative way, avoiding any jealousy or partisan behaviour, whether it is a Ministry or an agency. The aim is that each one does its best in order to accomplish what, where and when, is needed. Vertical coordination is based on



“subsidiarity”, supported by the European Union. Subsidiarity is the idea that the central authority should have a subsidiary function, performing only those tasks which cannot be performed effectively at local level. Municipalities, Provinces and Regions, thanks to their financial autonomy, are able to

finance the “primary” service of civil protection, and have the duty to manage administrative functions in civil protection.

The Dipartimento della Protezione Civile (Italian Civil Protection Department), is responsible at national level for forecasting, preventing, managing and overcoming disasters.

Volunteer organisations perform a crucial role in the overall system and are one of the back-bone of the Italian civil protection system.

At municipality level, the authority of Civil Protection is the mayor. In Italy there are 8104 municipalities,

with high percentage of small municipalities, that can associate to manage municipalities services such as civil protection.

In this framework has been set up the Centro Intercomunale di Protezione Civile Colline Marittime e Bassa Val di Cecina, (art. 30 del D.Lgs 267/2000) associating eleven municipalities, where the municipality of Riparbella is the body responsible for the Centro Intercomunale. The COI is also in charge for the drawing up of the Intermunicipality Civil Protection Plan.

## Platforms

This organisation has a web site (wordpress cms) to inform the population, and uses Twitter, YouTube, RSS , Google Maps, Google Docs and Ushahidi.

Twitter	@H24valdicecina	Followers: 184
	@COIValdicecina	Followers: 221
RSS	“Sala operative 2.0” <a href="http://valdicecina.salaoperativaprociv.org/">http://valdicecina.salaoperativaprociv.org/</a>	Subscribers: 1

DATA COLLECTED 20th July 2013

## Background

This organisation decided to set up an experimental project with the aim of establishing a guideline for using Web 2.0 tools for emergency management.

## Purpose

Driven by the actions of a local commander, this EMA has experimented with a range of different SM platforms ranging from Twitter to Ushahidi, and provided a virtual operation centre through a website. The aim of this exploratory activity was to develop new ways of communicating with the public and to improve the organisation’s command and control capacity. Specifically, the service wanted to raise awareness of the local risks to the population. They also wanted to phase out paper maps, which were cumbersome, replacing them with online maps. In addition, the commander wanted to explore new ways of collaborative working with other local organisations.

## Funding

No specific funding is allocated for the use of Social Media.

# Implementation

## Strategy & Actions

This organisation applies a really developed strategy to the use of SM, and they use Web 2.0 tools as operational tools.

Col val di Cecina has developed a "Sala operativa 2.0" (2.0 Operations Room). Their website, built on WordPress, works as a Web 2.0 operational centre, as a SM hub for the emergency management of the EMA.

Twitter is mainly used to communicate with the local communities about weather conditions, events and on-going hazards. The information published is restricted to facts (e.g. temperature, details of weather events, road situations) and they also re-tweet environmental information from other agencies such as LaMMa, Traffico Toscana, Meteo, etc. Links to their blog are also published. At the moment, there is no attempt to engage the public in a dialogue. The service's main function is to provide additional and timely information that would not usually be shared over other media.

The blog provides educational information for the local citizens and other stakeholders.

The other tools, Google docs and maps, and Ushahidi are used as management tools within the organisation and between organisations.

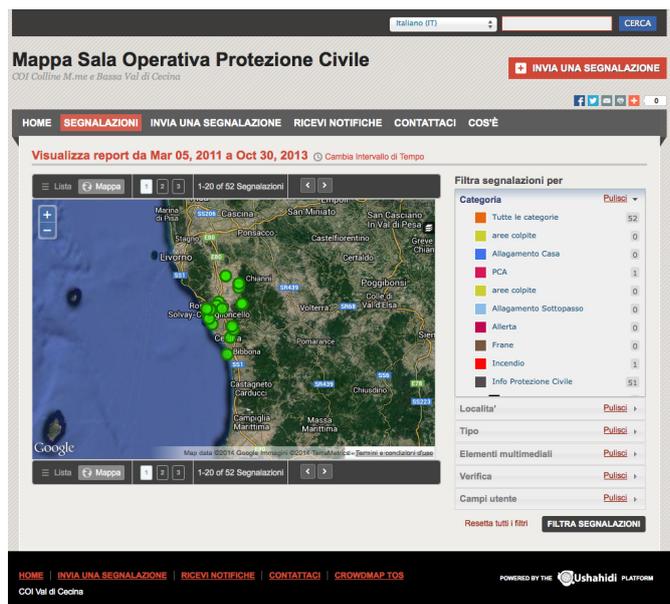
Geocommons has been used to publish hazard maps of the intermunicipality area.

Google Maps was used to create emergency event maps for the area, but these were not shared with the general public. The system was also used to record information about flood gates that needed to be closed during heavy rain. These maps could be updated during an incident so that the command centre knew which gates had been shut. This represented an advance on the previous system which relied only on radio and mobile phone to communicate to operating room.

Google Docs (now Google Drive) was used to coordinate the organisation's activities during an incident. A shared document was created to act as an incident log. The log also increased coordination within the organisation as the command centre could now understand in much more detail the activities of units in field operations. Additional

information was shared through the Google Chat client. Previously the agency relied only on a paper log which could not be shared within the organisation. Google Latitude allowed responders in the field to provide real-time geolocated information to the command centre that was not usually communicated over the radio.

The Ushahidi system was used to crowdsource information. Although public engagement with the system was low, it granted a new approach of transparency and access to information for the public to monitor and share the service's activities. However the COI web 2.0 project allowed to increase awareness on web 2.0 tools at local level. One of the result has been the adoption of these tools from the local volunteer organisations.



## Impact on CI

The Centro Intercomunale main priority is the prevention of hydrogeological risk, however in the area hazards are seismic, extreme weather, and chemical.

This agency's use of web 2.0, including Google Tools and ushahidi allowed a greater capacity to inform and record so to follow events in real-time.

Maps were used to identify elements of critical infrastructure at risk from hydrogeological hazards

and to inform on responses to incidents.

The adoption of new technologies gave them greater flexibility in tracking the progress of events, collaborating with other services and controlling their own units.

## Benefits

- Google maps and Ushahidi provide real-time sharing of geographical information.
- Sets up a collaborative paradigm within EMAs.
- Enables improved communication between agencies involved in an emergency.
- Flexible hazard mapping capabilities, allowing the organisation to share information with ease and quickly.
- Use of multimedia data allows more effective monitoring of situations.

## Adoption

### Key enablers

In this case the local commanders with little help of external stakeholders or line managers, started experimenting with web 2.0 tools including twitter. Success within the organisation seemed to rely on the local commander's attitude and willingness to experiment.

Unfortunately this meant that the developments were confined to one unit in one particular area. The involvement of neighbouring units is still an ongoing process that has to take into account decisions and guide lines at regional levels.

However this case illustrates the important role an entrepreneur plays in the initial use and experimentation with SM that can lead to adoption.

## Difficulties

### Key barriers

The main barrier to using the technology seemed to lie in the public's attitude rather than organisational reluctance to try something new. The Centro Intercomunale found it hard to encourage members of the public to engage with them through Ushahidi or Twitter. The reasons for the lack of public engagement were not clear, but were attributed to socio-demographic factors, particularly the age of the local population. However, there was no deep understanding of why people were reluctant to engage with these platforms.

The risk of false reporting did not seem to concern officials at the time when the first release of the project was implemented. But they are aware that validity and validation are one of the main concerns. Moreover the adoption of a strong crowdsourcing and participatory approach would require a specific team to be managed properly.

**Access.** They did not report any access to the internet or equipment as a problem.

**Impact on other agencies.** Other local organisations such as volunteers adopted the tools experimented by COI. Others were reluctant to use such a broad range of platforms. The reasons for this were partly due to a different technical and emergency management culture (low sharing approach and technical constraints). Consequently, the success of the pilot was limited, although known and appreciated.

# Impact and Future Plans

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## Lessons / Transferability

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- Usefulness of crowd-sourced maps.
- Importance of public involvement / engagement.
- Need to develop strategies to foster community building and SM usage.
- SM adoption can be driven by a single committed advocate.
- A blog as a Web 2.0 operational centre and SM hub.

## Future plans

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- To extend the use of new technologies to other Civil Protection Organisations.
- To extend the use of SM among local people.
- To foster Web 2.0 collaboration way.

## Similar projects

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Consorzio LaMMA (<http://www.lamma.rete.toscana.it/en/meteo>)

# A key channel for communication

<b>Organisation name/s</b>	<b>Catalonian Civil Protection</b>
<b>Country</b>	<b>Spain</b>
<b>Nature of good practice</b>	<b>Twitter as a key channel for risk and crisis communication</b>

## Organisation

The Civil Protection Service of the Government of Catalonia (Generalitat Catalana), at regional level, falls under the Department of Internal Affairs, which also manages Mossos d'Esquadra (Catalonian Police), the Fire Brigades, the Catalan Traffic Service and the Police, Fire Brigade and Civil Protection Academy. Civil Protection has full responsibilities for emergency management in Catalonia, except in the case of a nuclear emergency. It manages the Operational Emergency Centre of Catalonia (CECAT), coordinating emergency telephone lines and coordinating all the stakeholders involved in emergency response – medical services, fire fighters, forest agents, police and other stakeholders such as electric or telephone companies, water suppliers. One task of the Catalonian Civil Protection agency is to disseminate risk and crisis information and alerts to the public. It is also in charge of risk preparedness and community safety.

The main threats to Catalonia arise from the natural hydrological cycle, such as floods and droughts. One important risk derived from the droughts is forest fires. Other natural risks are earthquakes and landslides. In the south of Catalonia there is a concentration of companies working in the chemical industry, which carries its own risks. To access more detailed information about risks and

threats in Catalonia, refer to this interactive map created by Civil Protection: <http://taure.icc.cat/pcivil/map.jsp#tabs-info-risc>.



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# Platforms

The organisation has focused all its social media (SM) efforts on a Twitter account, although they have recently created a Facebook account.

<b>Facebook</b>	<a href="https://www.facebook.com/emergenciescat">https://www.facebook.com/emergenciescat</a> (created the 1st of March of 2013)	Likes: 785
<b>Twitter</b>	@emergenciescat @112	Followers: 41,254 Followers: 11,740
<b>Mobile App</b>	<a href="http://gencat.mobi/pcivil">http://gencat.mobi/pcivil</a>	

DATA COLLECTED 20th August 2013.

## Background

The Press Office manages the organisation's SM profiles. The region's emergency services started using Twitter during a heavy snow fall in 2010. However, they later decided to discontinue use of the Twitter account, as members of the Press Office did not know how to use it, having more familiarity with Facebook. Later, after training in its use, the Twitter account became the main SM face of the organisation.

The idea of using SM came from Atenció Ciutadana (Citizens Advice) Department which decided that SM needed to be broadly used in all the Catalanian Government services.

The move towards using SM to engage with the public was part of a general strategy employed by the Catalanian Government to engage with the public through web 2.0 technologies.

## Purpose

The main goals for the Twitter account are expressed clearly for this organisation: inform, prevent and react. There is an overarching law stating that the people have the right to be informed of risks in their area.

The organisation also wanted to amass a large number of followers and to be able to reach different communities, such as journalists, emergency managers, local authorities and citizens.

## Funding

No extra funding specific to this department. Staffing levels in the Press Office have not increased since they started using SM. However, strategies have been changed in order to promote and intensify the use of SM.

# Implementation

## Strategy & Actions

As noted above, the scheme, which mainly focuses on Twitter, experienced something of a false start. After the short attempt to use Twitter during the 2010 snow falls, formal training took place and new support networks were established in order to use Twitter for risk and crisis communication. The strategy was defined by its experimental use and in the beginning took a trial and error approach.

Through Twitter the organisation provides real-time information, not only about incidents, but also about weather forecasts, traffic situations, important blackouts, etc.

It soon became clear that their messages were interesting for several communities or stakeholders:

1. traditional media - journalists rapidly followed the Twitter account as a means to receive timely information,
2. local authorities that needed to take informed decisions during an emergency,
3. citizens, the biggest communities.

As part of the strategy the @emergenciescat Twitter account prepares different messages for its different audiences. This ability to differentiate between users became more critical during the Summer 2012 forest fires that affected a tourist area in the north of Catalonia. This case provides evidence of the successful use of SM. The emergency services needed help to spread crisis messages, sometimes in several different languages, in order to reach affected citizens and tourists. SM helped to facilitate this spread of information. Moreover, the incident highlighted that Twitter can substitute other means of communication (such as the telephone) in times of crisis when Press Office staff are very busy. They decided to tell to journalists to follow the Twitter account, where any information would be submitted instead of explaining news by phone calls.

One outcome of this decision was that traditional media, such as Catalan TV, channels, inserted the Press Office's Twitter feed on their webpage.

Twitter activity increased significantly during the forest fires.



Facebook is also used to provide institutional information to the public, such as details of educational courses that they offer, or news articles about recent emergencies.

The organisation has a mobile app that is mainly used for alerts that require an action from the citizens, such as evacuating an area, recommending traffic diversions or providing information about damage to critical infrastructure. It forms part of a general mobile app that sends personalised emergency information to the citizens' smartphones according to their location (GENCAT, 2013).

Recently, the effectiveness of the mobile application was shown during a simulation of an emergency in the chemical area of southern Catalonia. A personalised message was sent to smartphones of people located in one of the 37 Catalan municipalities. The number of phone calls to the emergency telephone number (112) decreased substantially compared with previous simulations. During the 2013 simulation they received 281 telephone calls versus the 406 they received in 2012. (iRescate, 2013).

Another interesting strategy emerging in this case is that the Press Office of the Civil Protection organisation regularly receives reports of Twitter

activity. In this way they can monitor the impact their messages are having on the public. There are plans to begin this kind of regular reporting on Facebook activity.

## Situational awareness

The Civil Protection Service does not use any technical support to monitor its Twitter feeds. However the Press Office runs 24/7 and has now moved its main activity to Twitter. They are always manually monitoring the feed with Tweet Deck. When they receive any important information it is passed on to the appropriate department. The constant reading of the Twitter activity allows the organisation to react and quickly stop the spread of rumours or false reports.

The organisation did not report using SM for situational awareness in terms of gathering public perceptions of the environment.

## Community engagement

Community engagement was an important goal from the beginning of the Twitter account. The organisation looks for ways to increase public engagement such as re-tweets. The head of the Press Office discussed the use of “non-orthodox” practices in order to gain new followers and reach the potentially affected population. As an illustration of this, the hashtag #JustinBieber was used to reach people attending a Justin Bieber concert in order to provide them with safety tips in case an incident occurred.

The 2012 forest fires provided evidence of just how useful it is to have a huge community of followers assisting in spreading messages. The Twitter account during this incident was “bursting” with activity.



## Two-way communication

The strategy used is based on the general Generalitat guidelines (GENCAT, 2012). The organisation replies to any query through a direct message (private) unless they consider that the answer is of public interest.

The organisation is also engaged in a communication flow with other agencies. Local emergency services and other stakeholders (such as fire fighters, transit services and weather forecasters) use the @emergenciescat account as a hub of information. Thus, these other agencies often send their own messages to the Press Office in order to receive help in spreading the message (via re-posting or re-tweeting), as they are the most popular SM profile.

## Impact on CI

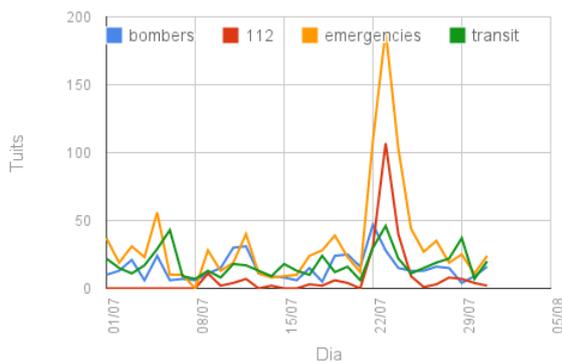
The account is monitored and the organisation communicates with other departments every time it receives information about critical infrastructure failure. During the 2012 forest fires a lot of critical infrastructure was damaged.

This organisation detects by monitoring the Twitter account information about damages or impacts in CI, such as traffic accidents blocking roads or damage in public services caused by thunderstorms. Thus, they report to the operational centre the damage and very often they are able to detect these incidents before the operational centre receives the information by other means. The operational part of Civil Protection, after receiving the information, checks it for reliability assurance. As the @emergenciescat is the reference account for emergencies the people send to it information about any incident.

The mobile app also has an impact as it aims to provide information to the citizens about damaged or closed roads, failures in electricity systems and other infrastructure issues.

# Benefits

- The potential of SM to publish messages targeted to different stakeholders and audiences.
- The capabilities of SM to publish emergency messages in different languages, directed to inter-cultural communities.
- Reducing telephone contact with traditional media during a crisis while keeping them informed in a timely manner.
- Reducing the number of emergency phone calls by providing information to the citizens through SM and mobile technologies.
- To benefit from citizens action on SM: "Citizens like to be part of the emergency management process", and evidence of this is the huge increase during the 2012 forest fires.



# Adoption

## Key enablers

The arrival of an SM evangelist as coordinator of Contents and Innovation in the department of Atencio Ciutadana (Citizens Advice) was key for the adoption of SM in all Catalan public services. They developed a guide on how to use SM. Catalan public services are currently working under the fifth version of these guidelines (GENCAT, 2012). The Citizens Advice department created a team that organises workshops and formal training for members of staff from any department. As an illustration of this, they invited staff from several departments so they can share their experiences of using SM. The outcomes of these workshops inform the Style Guide for the use of SM (GENCAT, 2012). Moreover, they provide specific support to all the Departments of the

Generalitat functioning as a help desk.

The emergency Twitter account was originally created by the Citizens Advice department and the Civil Protection spokesman received the task of implementing it for crisis and risk communication during the 2010 snow falls. After a shaky start, the Press Office received training and later began to use SM again. The Head of the Press Office explained that adoption was an experimental process based on trial and error until he found a strategy that worked.

The operational team of the Civil Protection department gradually realised the potential benefits of SM as the Press Office increased their engagement with the population and other stakeholders through Twitter.

# Difficulties

## Key barriers

The main barriers came from inside the organisation, particularly from some members of staff, who were sceptical about the use of SM. However, acceptance from within the organisation grew gradually as the benefits of SM became clear. The evident success of the Twitter use during the 2012 forest fires was a key fact that promoted a full acceptance of the SM profiles.

The problems that they had were easily overcome with training and support provided by the Citizens Advice department.

**Access.** They did not report any difficulty in access.

**Impact on other agencies.** They did not report any problems with other agencies or stakeholders. In fact, traditional media outlets congratulated them for the work done over Twitter and the @emergenciescat account has become an important hub, bringing together emergency information from various stakeholders.

# Impact and Future Plans

## Lessons / Transferability

- Guideline development and its impact.
- Different messages to different audiences.
- Including messages in several languages.
- Citizens like to be part of the emergency process.
- The importance of training in adoption.
- The benefits of targeted messages using mobile apps.
- Becoming a hub for risk and crisis information.

## Future plans

- To broaden the use of Facebook.
- Strengthen the network with other governmental agencies such as local authorities, voluntary organisations and foreign countries embassies and consulates.

## Similar projects

INGV, Italy (Mobile App development).

EMAs in UK, Belgium (Guidelines for SM use).

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# Spreading the message using Social Media

<b>Organisation name/s</b>	<b>London Fire Brigade</b>
<b>Country</b>	<b>United Kingdom</b>
<b>Nature of good practice</b>	<b>Spreading the message: community engagement and communication strategy</b>

## Organisation

Based in the City of London, this organisation is the UK's largest fire and rescue service. It deals with fires and other emergencies, including traffic collisions, flood rescues, hazardous material incidents, and people trapped in buildings. They also have an active role in preparedness and preventing fires from causing harm or damage. The Fire Brigade has a number of roles: (1) supporting community safety through home fire safety visits, working with

organisations at risk from fire, educating children and young people, advising on fire safety and carrying out inspections of buildings; (2) offering emergency response, (3) working on emergency planning, to ensure London is prepared for a major incident; (4) fostering resilience, being prepared to confront new threats and hazards; and (5) managing regulatory safety.



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# Platforms

This Fire Brigade is deeply involved in social media (SM). They have been using social media for the last two years. They use the following platforms:

<b>Facebook</b>	<a href="http://www.facebook.com/LondonFireBrigade">www.facebook.com/LondonFireBrigade</a>	26,990 likes
<b>Twitter</b>	@LondonFire	Followers: 53,152
<b>YouTube</b>	<a href="http://www.youtube.com/user/LFBChampions">www.youtube.com/user/LFBChampions</a>	Subscribers: 218 Video views: 98,645
	<a href="http://www.youtube.com/user/LFBWatch">www.youtube.com/user/LFBWatch</a>	Subscribers: 4 Video views: 2,869
<b>LinkedIn</b>	<a href="http://www.linkedin.com/company/london-fire-brigade">www.linkedin.com/company/london-fire-brigade</a>	Followers: 2,392
<b>RSS</b>	<a href="http://www.london-fire.gov.uk/NewsRSS.xml">http://www.london-fire.gov.uk/NewsRSS.xml</a>	Subscribers: 53
	<a href="http://www.london-fire.gov.uk/IncidentsRSS.xml">http://www.london-fire.gov.uk/IncidentsRSS.xml</a>	Subscribers: 79
	<a href="https://jobs.london-fire.gov.uk/default.aspx?module=jobs-rssjobs&amp;orgid=1">https://jobs.london-fire.gov.uk/default.aspx?module=jobs-rssjobs&amp;orgid=1</a>	Subscribers: 126

DATA COLLECTED 20th August 2013

## Background

In the UK, August 2011 was a turning point regarding the use of social media. During widespread rioting in London and other cities, offenders used social media and smartphones to organise looting and other disorder, inciting a debate within emergency organisations about the need for effective use and monitoring of SM. These reflections were included in a report that aimed to examine and understand why the riots took place. The report stated: 'the riots highlighted how far behind many public services are around the use of widely used modern methods of communication, such as social media' (Singh, 2012).

The Fire Brigade realised how useful it could be to analyse the information published online by the rioters but also the information published by the people who were observing disorders from their doorstep. Hence, the immediate answer was that emergency services 'cannot afford not to be there [on SM]' (interviewee, November 2012).

## Purpose

The Fire Brigade uses social media for four main reasons: accuracy, reassurance, awareness and influence.

## Funding

The main activities on SM are maintained by London Fire Brigade's department of Media and Internal Communications. There is no specific funding for the use of SM and they do not receive any extra funding to implement it.

# Implementation

## Strategy & Actions

The SM profiles are managed and updated by the Press Office.



The Twitter feed is used to provide real-time information for reporting incidents and is well trusted by the public. The Twitter profile also points followers to the Fire Brigade's website in order to get more detailed information. The Press Office tries to spread its messages virally and uses Twitter as a 24/7 communication tool. Even traditional media outlets (TV, radio and newspapers) follow the account and use it for getting updated and reliable information about incidents. Indeed, the number of telephone calls from the media has dropped substantially since the Fire Brigade began using Twitter.

The organisation's Facebook account focusses on community safety. Its aim is two-fold: to engage with the community and to instruct citizens on safety. For example, it has published pictures of a burnt out building and asked the community to identify what could have caused the fire. This campaign reached more people than other ones in traditional media.

YouTube usage is in an initial and exploratory phase. The Fire Brigade is still developing its strategy and until now has used it primarily as

an educational channel for safety. Thus, safety messages are updated both on Facebook and on YouTube. The organisation plans to use LinkedIn for recruitment, although this may take a couple of years to become a reality.

### Situational awareness

Information received via SM is used for situational awareness. For example, the head of Media and Internal Communications reported that during the Olympic Games (2012) they received images of a fire in a pub near "Kiwi House" where the New Zealand team was based. They were able to provide reassurance about the situation, informing the public that they were at the scene, that everything was under control and nobody was harmed.

### Community engagement

In order to reach the targeted community, which is essential to success in risk and crisis communication over SM, the Fire Brigade promoted activity over Twitter (Twitterthon) and Facebook during Guy Fawkes night 2011 to foster engagement with citizens. The night, which is associated with bonfires and fireworks, is an intense peak of activity for fire services in the UK. The Press Office tweeted incidents as they happened during the evening. The result was a rise of 2,362 followers in 24 hours and 25,000 views of a Facebook post. The organisation also saw an increase of 3,146 followers during the riots in Summer 2011. In this sense, the Head of the Media and Communications Department highlighted the importance of building a social network of influential SM users, working with them and getting their help in spreading the messages.

### Two-way communication

Although the interaction with the citizens is still limited, the Fire Brigade is considering allowing emergency request messages via SM (Brian, 2012).

Until now, the organisation has promoted campaigns with a specific aim. As an illustration of this, in order to raise awareness of the dangers of cooking whilst drunk during the Euro 2012

tournament, they asked followers to tweet using the hashtag #EatmyGoal (e.g. “@LondonFire Same old same old. On your way home from the pub and had one too many drinks. Don’t cook, get a takeaway. #Eatmygoal”) (Gibbon, 2012).

The best tweets won vouchers for takeaway meals.



As further illustration of this, their Facebook page promotes interactions with the public to provide safety recommendations. Recent posts asking followers to identify what caused a fire received around 30 shares and 50 comments on Facebook.

## Impact on CI

The adoption of SM has a direct impact on critical infrastructure protection as real-time information about what is happening ensures that the public and other agencies are made aware of damage to critical infrastructure. But the main impact on critical infrastructure protection is achieved indirectly with the recommendations and safety advice provided through Facebook and YouTube. This is not only provided to citizens but also to organisations and businesses helping them to reduce their vulnerability to risks.

## Benefits

- Reach more citizens and other stakeholders with risk and crisis communication both before and during emergencies,
- Provide live updated information about incidents,
- Spread reliable messages (safety messages and incident messages) providing accuracy and reassurance.
- To foster relationships and trust between the public and organisations.

## Adoption

### Key enablers

As stated above, for this organisation the key enabler was the London 2011 riots and the rioters’ use of SM. Consequently, the report made by the Riots Communities and Victims Panel (Singh, 2012) has been a powerful motivation for government organisations in the UK to adopt SM. In broader terms, awareness of the impact of SM in society was central in SM adoption.

## Difficulties

### Key barriers

**Access.** A key issue in using SM is getting staff involved at all levels. In the words of the Media and Communications Department: ‘You really cannot be running these policy campaigns and doing all this amazing work and not have your staff involved. It is actually an issue of trust, it is actually an issue of being quite patronising if you don’t allow your staff to see what you’re doing.’ Thus, one of the big challenges that they needed to overcome was providing equipment and access across the entire organisation.

**Impact on other agencies.** In working with SM for risk and crisis communication, the Fire Brigade faced some difficulties with other governmental agencies involved in responding to incidents. Emergency response involved cooperation between organisations, and the communication strategies do not always complement each other. Other agencies may not be confident with providing real-time information and may prefer to work in a more traditional way (waiting to obtain all the information about the incident before informing the public). However, the Fire Brigade advocates providing immediate information about what is happening, to stem the spread of unreliable information and rumours. This approach provoked some disagreements with other agencies.

# Impact and Future Plans

## Lessons / Transferability

- Guidelines development and its impact.
- A well-developed and carefully planned communication strategy including SM.
- Engage with influential users in order to receive their help in spreading the information.
- Promote specific activities on SM profiles to foster community engagement.

## Future plans

- Education and training within the organisation at all levels.
- Collaborating with other agencies.
- To promote a relaxed atmosphere about using SM within the organisation, which they recognised is a hard task for a command and control organisation.
- London Fire Brigade are studying the possibility of using Twitter as an emergency reporting tool, as a complement to the 999 telephone line. Accordingly, Twitter monitoring is set to be included in the fifth version of the London Safety Plan (LSP5), developed by the London Fire and Emergency Planning Authority. The plan was opened for public comment in January 2013 (LSP5, 2013).

## Similar projects

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Aston Business School  
Aston University  
Birmingham  
B4 7ET  
United Kingdom

Tel: +44 (0) 121 204 3000