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Lesson 2: Guidelines for Effective Crisis Communication

Photo by Jem Stone

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Executive Summary

This lesson is primarily based on the CascEff report “A strategy for communication between key agencies and members of the public during crisis situations” (Reilly and Atanasova 2016 [D3.3]). It reorganises the content of that document for individual users, instructors, educators, and educational institutions that wish to engage in a learning session about a strategy for effective crisis communication. It helps learners understand and shape their approaches to communication dynamics and information flows during crises, in order to influence the behaviour of disaster-affected populations and improve disaster management in general.

Therefore, the general aim of the second lesson is to help learners consider and understand the variety of actors, roles and dynamics, intervening in shaping communication during disasters, and to develop successful strategies of communication management during crises. Specifically, this lesson provides a structured platform for developing knowledge towards a communication mix implementable at all stages of an incident. By the end of the course, students should be able to:

1) explain the role of both social and news media in information flows that emerge at different stages of cascading disasters;
2) explain how both social and traditional media can be deployed to influence the behaviour of citizens during each stage of a cascading disaster;
3) identify strategic approaches to mediated communication that include all key stakeholders, based on a collaborative model of decision-making and increased situational awareness;
4) assess the ethical implications of using information crowdsourced via social media during such incidents.

In order to achieve these aims, this lesson reviews elements of crisis management and strategy for communication, and it illustrates guidelines for managing communication related to crisis situations. For the first main topic, this lesson unpacks and examines the elements of strategies for communication related to disasters, in particular objects (what needs to be managed), subjects (with whom to manage, and what kind of media), functions, and stages of communication management (before, during, after a crisis), and factors affecting this communication, also proposing an insight into practices that brought those elements together in successful ways. Through the second main topic, this lesson brings together knowledge about successful communication management, to provide a set of guidelines for effective strategies of communication during disasters.

1 Introduction

1.1 Introducing the topic

Disasters invariably involve some form of **communication failure** that contributes to the disruption of other essential services in the affected area. For this reason, the UN Sendai Framework for Disaster Risk Reduction (UNISDR) called for national governments to continue to develop "people-centred" disaster risk and emergency management mechanisms in order to make communities more resilient to such incidents (UNISDR 2015).

This lesson focuses on how human behaviour is influenced by the communication strategies adopted by emergency managers during crises. Specifically, it explores:

a) how key decisions are communicated by relevant stakeholders to members of the public and
b) how members of the public are likely to respond* to* and* act upon these crisis messages.

1.2 Why guidelines for effective crisis communication?

What affects negatively the ability of emergency managers to contain the extent and impact of disasters is the disruption of information relations. This is particularly salient in the case of disasters with **cascading effects**. CascEff researchers defined **cascading effects** as the *impacts* of an initiating event where:

1) system dependencies lead to impacts **propagating to other systems**, and
2) the **combined impacts** of the propagated events are of greater consequences than the root impacts; and
3) **multiple stakeholders** and/or responders are involved (Lönnermark et al. 2016 [D1.6]: 7).

The most common triggers of cascading effects during man-made and natural disasters are the **congestion of telecommunication networks** or the **misinterpretations** of crisis messages by members of the public (Hagen et al., 2015; Nowell and Steelman, 2015; Pescaroli and Alexander, 2014). **Similarly, the interruption of information flow between functionally interdependent actors has been identified as one of the most common triggers of cascading events during large-scale disasters**, such as the 2011 Tōhoku earthquake and tsunami in Japan and the 2005 London bombings (known as 7/7) (Hagen et al., 2015).

Coordination and information-sharing between emergency managers and key stakeholders in such incidents are often subject to delays, due to telecommunication networks becoming congested in the wake of these crises (Zaisa et al., 2015).

This type of vulnerability in the **socio-technical system** is an inevitable consequence of the **pervasiveness of communication infrastructures** and their increasingly important role in the management of other critical infrastructures in contemporary societies (Zimmerman et al., 2009).

Information relations no longer solely refer to the linkages between the blue light organisations that respond to man-made and natural disasters. The traditional **top-down** approach to emergency management (known as **'command and control'**) has gradually been replaced by a multi-stakeholder approach with greater emphasis on information exchange with members of the public. Previously considered unreliable conduits of crisis information, citizens now play a key role in the collection and sharing of data that help crisis responders to develop situational awareness. However, this **'shared responsibility'** does not mean that all citizen involvement in the information flows about 'cascading disasters' will help minimise further disruption of interdependent systems. Rumours, misinformation and disinformation spread by **citizens** on social media, or misinterpretations of official crisis messages by members of the public, may increase public anxiety, as have seen, for example, in the case of the English riots in August 2011 (Procter et al., 2013).

In this new context, the **reduction of uncertainty** amongst disaster-affected populations **and the prevention of disruption** to components of socio-technical systems, remain fundamental objectives throughout the stages of an incident for emergency managers. Therefore, it is imperative that **all key stakeholders** are aware of the importance of message consistency and accuracy to positively influence citizen behaviour during large-scale emergencies. Studies have shown that the rapid dissemination of clear, unambiguous information increases the quality of decision-making during crises (Veil et al., 2008).

Consequently, identifying effective and timely **communication tactics** is necessary for the improvement of incident management during cascading disasters. The guidelines provided in this session demonstrate these tactics. The implementation of these guidelines helps identify **potential vulnerabilities** in the communication plans adopted by organisations that need to manage the stages of disasters. Lastly, the description of public response to crisis messages highlighted in this lesson aims at helping emergency managers, institutions, and organisations develop a communication strategy that is **adaptable** to different circumstances.

1.3 Approach and background

The communication strategies and guidelines proposed in this report are based on results of the CascEff project, and in particular on information gathered from four primary sources, namely:

1) academic research into best practices in crisis and risk communication;
2) the results of other EU funded projects in emergency management;
3) the exploration of three case studies in which communication played a key role in the mitigation of cascading effects; and
4) analysis of 41 semi-structured interviews conducted with emergency managers and other key stakeholders;
   (see *Reilly and Atanasova 2016 [D3.3])* for details).

One key **consideration for this lesson is that,** while it uses specific examples and evidence to discuss characteristics of effective communication practices, its aim is to identify broad themes and patterns in crisis and risk communication for learners. Examples and broad patterns should help to reflect upon and work with the strengths and weaknesses of available approaches to communication management during disasters. In this light, this lesson does not provide a fixed strategy that can be automatically applied to every national framework for crisis and risk communication. This is because communication strategies must be highly

contextualised and constantly adjusted to reflect the information needs and behaviours of the public. Disasters, and cascading disasters in particular, are by their very nature complex and unpredictable events that require flexible, people-centred decision-making and communication processes in order to prevent further disruption to other systems. Therefore, **effective communication is developed in context**, and this session help learners identify broad guidelines and tactics for effective communication that could be adopted by key stakeholders and applied to the context in which incidents occur.

2 Crisis management and strategies for communication

Crises (or disasters) are events that are usually **unexpected**, affect individuals or organisations, have the potential to **inflict financial or reputational damage upon key stakeholders**, and **require urgent action to prevent their escalation** (Coombs, 2015; Herman, 1963; Ulmer et al., 2007). Therefore, **the purpose of crisis communication strategies should be to improve this situation and to 'limit and contain harm' to those individuals and organisations affected by the disaster (Seeger, 2006:234).**

It is perhaps no surprise therefore that it first emerged in the United States (US) as a sub-field of public relations (PR) practice in the early twentieth century. An overarching theme in the early crisis communication literature was that there was a need **to provide "timely, accurate information and communicate strategically to minimise reputational damage**" to individuals and organisations (Holladay, 2009:215). One of the earliest examples of crisis communication followed an accident on the Pennsylvania railroad in 1906. Ivy Lee, credited as one of the founders of PR, convinced the railroad company to disclose information about the accident in what was widely considered to be the very first press release.[1]

While the communication strategies of corporations towards repairing their reputation may not appear directly relevant to this lesson, incidents such as the BP oil spill in the Gulf of Mexico (April 2010) show how such organisations may seek to use the media to avoid responsibility for man-made disasters (de Wolf and Mejri, 2013). This also illustrates how crisis communication may have **a variety of conflicting objectives**; for example, governments are likely to prioritise the restoration of public order while their citizens focus more on "being informed, protected and even reimbursed" (Seeger, 2006:34). **The more the actors involved, the more likely it is to have more conflicting objectives and dynamics**.

The need to improve disaster-related communication has been an ever-present motive for **Disaster Risk Reduction (DRR) initiatives** over the past two decades. The United **Nations International Strategy for Disaster Reduction (UNISDR) identified "dialogue, coordination and information exchange" between various stakeholders as one of its strategic priorities in the Hyogo Framework, which set out a series of DRR objectives to be achieved between 2005 and 2015. The Sendai Framework for Disaster Reduction (UNISDR 2015)** continues to emphasise the importance of information sharing and **communication between key stakeholders** as a corollary to building resilience within disaster-affected populations. Top-down approaches towards DRR have gradually been replaced in countries such as the UK by an emphasis on **'shared responsibility'**, whereby local communities are encouraged to play a more active role in preparing for and responding to disasters.

Crisis and risk communication practices have become an **increasingly critical component** of such initiatives in disaster-prone advanced industrialised states in the world. For example, organisations such as the American Federal Emergency Management Agency (FEMA) have used their official YouTube channel to provide US citizens with information on a variety of topics, such as how to prepare a disaster kit and take appropriate action during an emergency (Dufty, 2011). Relevant to this project, EU initiatives such as the national crisis coordination centres have been created to promote information sharing between member states in these areas.

This evolution calls for flexible but **shared systems and approaches,** for organisations and institutions to successfully respond to the challenges of disasters of the global era. However, **different approaches** towards crisis and risk communication **still persist** within the EU, as demonstrated by the patchwork of early warning systems in countries such as Sweden, Czech Republic and Spain (Nilsson et al., 2012). This stands in stark contrast to the resilient communications framework adopted by the UK, which includes an online private network for civil protection practitioners and a variety of mechanisms for issuing public emergency alerts including the use of both traditional and social media.[2] The cultural, linguistic and economic diversity within the EU has also been identified as posing particular challenges for risk communication aimed at preventing the spread of communicable diseases (Infanti et al., 2013). MacDonagh et al., (2016) argue that there are still **gaps in the communication practices** of EU member states, particularly in relation to the analysis of online information and how to benchmark and evaluate existing strategies. Emergency organisations and institutions can address these shortcomings, which however remain the object of long-term policies and socio-political developments.

In the short term, emergency organisations and institutions can already develop a successful strategy for communication in their own work by relying and expanding on the model of 'shared responsibility'. In order to do this, it is essential to know what exactly can and needs to be managed, when to manage it, and who are the actors intervening in the managing process.

2.1 Functions of communication management

Coombs (2015: 142) argues that there are two overarching strategies that should be employed by organisations responsible for crisis communication:

1) *managing** **information** through the collection and dissemination of crisis-related information;
2) *managing** **meaning** through initiatives to influence how people perceive the crisis and related organisations.

Both involve the sharing of information with a view to positively influencing the behaviour of the public during crisis situations, many of which have the potential for cascading effects. Researchers such as Sturges (1994) and Barton (2001) identify three categories of crisis response strategy available to emergency managers in order to achieve this objective:

1) **Instructive** information that helps stakeholders e.g. citizens to take **appropriate measures** to
    1) protect themselves from physical or financial harm during a crisis;
    2) adjusting information e.g. expressions of sympathy that are designed to help these stakeholders **cope with the psychological trauma** associated with the crisis situation;
    3) internalising information that sets out to **repair the reputation** of the organisation(s) affected by the crisis.

Situational Crisis Communication Theory (SCCT) is based on the assumption that crises are always negative events which stakeholders can only make sense of through the attribution of **responsibility**. A two-step process is presented that involves an evaluation of the type of crisis followed by that of factors that intensify attribution of responsibility (such as the reputation of the organisation or whether there is a history of similar crises, Coombs 2015: 144). Effective crisis response requires the organisational rhetoric to be appropriate for the "level of

reputational **threat** posed by the crisis" (Olsson, 2014: 115). Clearly SCCT may be better suited towards managing the reputational harm arising from organisational crises than preventing cascading effects during man-made or natural disasters. SCCT doesn't fully account for the diversity of opinions that may exist within the population about who is responsible for a crisis (Benoit, 2014). Yet, the two-stage process does appear to bear some relevance to emergency managers, particularly its insistence upon the assessment of the crisis type and the attribution of responsibility for the management of such incidents.

The most recent development in the crisis communication literature has seen the focus switch to **how people experience disasters, as well as how they respond to crisis information**. Citizens are not passive recipients of information, and the ways in which they experience and interpret information must be taken into consideration when shaping strategies to achieve the aims of crisis communication. In addition, today's digital media allow citizens to express themselves, engage in debates, and actively shape or reshape and interpret information, much more easily, widely, and autonomously than before. As a consequence, **the information and interpretations that the public shapes and shares** must be considered as fundamental elements in communication management.

Finally, emergency managers need to be aware that **emotions** might influence the response of citizens to their risk and crisis communications. The classic model of how people respond to crisis information tended to characterise this as a linear process; warning messages would be personalised, verified and, if credible, lead people to take some form of protection action (see Mileti and Sorensen, 1990 for an overview). Yet, the emotions associated with different crisis types play a crucial role in determining the behavioural tendencies of people affected by disasters. The **Integrated Crisis Mapping (ICM) model** identified the four most common negative emotions experienced by members of the public during crisis situations: **anger, anxiety, fright and sadness**, with a view to informing crisis communication strategies.

The rationale for ICM was that emergency managers would be able to select appropriate communication strategies (and provide the correct type of information) to members of the public if they were aware of these affective reactions to different disaster types (MacDonagh et al., 2016). However, there appears to be very little evidence thus far to suggest that this model is directly informing crisis communication practices in relation to man-made and natural disasters.

2.2 Activity 1

Select a disaster, which has happened in the past 10 years, and spend some time carrying out some desk research to identify how it was presented to the public. You can start by focusing on news media (by using tools such as Lexis Nexis to search for articles, and by looking at how it was represented in the websites and social media accounts of media organisations), and on social media (search Twitter using keywords), to familiarise yourself with the information flows linked to that disaster.

What are the themes and characteristics of the debate about that disaster emerging from your search?

Drawing on the information you gathered, select 3 articles (or video) by news media, as well as 30 tweets, which you think represent these themes and characteristics better than others; make sure they have received at least 5 comments by readers; you may want to consider those which have produced high engagement online (e.g. a high number of likes, comments, or re-tweets).

Paste all this content (or transcript) onto a word file, and underline in different colours the different themes and characteristics of this material.

Now look at your coded work, and try to answer the following questions:

- What kind of information can you identify? In other words, what potential functions can you identify, among the potential functions that information can perform during crises, described in the previous session?

- Is there a prevalence of one theme, characteristic, or function in your material? Are there any striking omissions (e.g. a relevant theme of that disaster not approached, a function not accomplished)?

- What can explain this prevalence or omission?

- What kind of emotions do transpire form your sample?

- How do these emotions contribute to the wider information flow about the disaster?

2.3 Communication before, during, and after disasters with multiple stakeholders

Crisis communication research has tended thus far to focus on organisational responses to crises rather than on how communication practices might be deployed at pre or post event periods in order to minimise harm in the disaster cycle (see MacDonagh et al., 2016 for an overview). Indeed, initiatives to educate and inform citizens about future disaster mitigation have frequently been categorised as **'risk communication'** rather than crisis communication (Seeger, 2006; Steelman and McCaffrey, 2013).

Reynolds and Seeger (2005) identified a number of distinctive characteristics of risk communication, for example messages are prepared in advance and especially focused on risk

as a potential threat, in comparison to the situation-driven and responsive nature of crisis communication focusing on crisis events. The debate over when crisis communication begins and ends has been further complicated by the addition of a third category, '**disaster communication**'. This concept has been proposed by Coombs (2010) to define **the post-event coordination of key stakeholders in the 'relief and restoration' phase.**

Recent research has tended to characterise crisis communication as a hybrid of these distinctive modes of communication; a continuous process that sits within the emergency management structure through each stage of a disaster from mitigation to recovery. One manifestation of this hybrid approach has been the **Crisis and Emergency Risk Communication (CERC) model**, which was originally developed for public health professionals and promoted through organisations such as the US Centre for Disease Control and Prevention. CERC brings together both risk and crisis communication in a framework that addresses the importance of **communication between stakeholders through every developmental stage of a crisis** (Reynolds and Seeger, 2005). It recommends **the rigorous evaluation of crisis messages and the development of local partnerships in order to increase disaster preparedness amongst the public**. These principles can be applied to improve crisis and risk communication practices during a range of man-made and natural disasters including terrorist attacks and earthquakes. CERC has been used to train Public Information Officers (PIOs) and tested on a number of crises during the past decade, such as the 2009 influenza pandemic (Infanti et al., 2013).

There are limits to this model too; for example, there is little evidence, thus far, as to how CERC has informed current crisis communication practices within Europe (MacDonagh et al., 2016). In addition, scholars (e.g. Quinn 2008) have acknowledged that **the model needs to be expanded to substantially incorporate and support the active engagement of different stakeholders,** to prevent potential damages such as those stemming from the lack of trust between minority communities and government, as it was the case during Hurricane Katrina in 2006.

Nevertheless, CERC involves two valuable components for emergency managers who respond to man-made and natural disasters. First, it shifts the focus from a top-down, expert-led risk and crisis communication strategy towards a dialogical approach that entails **partnership with local stakeholders, including members of the public**. In this way, it also avoids treating the public as passive participants, and thusly offers a fit for purpose model for the era of social media and big data. Second, this model emphasises how important it is for these stakeholders to communicate **before, during and after** the crisis situation in order to mitigate its effects. These two elements constitute the basis for effective crisis communication today.

2.4 Overview of best practices of effective crisis communication

A **flexible and fluid** approach towards **risk and crisis communication** is needed in order for the **collaborative model of decision-making** to positively **influence** the behaviour of disaster-affected populations throughout **each stage of a disaster**. This approach is based on **effective practices of communication management**.

While Seeger (2006) arguably provides the most comprehensive **list of (10) general standards in crisis communication**, much of the empirical research to date has tended to identify specific best practices in crisis communication through an exploration of practitioner's perspectives. For example, a study of 26 World Health Organisation (WHO) officers, the majority of whom

had disaster experience, suggested that **communications capacity should be built during the pre-incident phase in order to aid towards more effective crisis communication**. Proposals included the **maintenance of databases of trusted local information sources** and the **drafting of public service announcements that address Frequently Asked Questions** (Medford-Davis and Kapur, 2014). A synthesis of over 100 risk communication guidance documents from agencies based in Australia, Canada, UK, and the US also emphasised the importance of **openness and honesty between all relevant stakeholders throughout each stage** of a public health crisis (Jardine et al., 2003). The only additional element of best practice identified in this area was that there should be an acknowledgement of the "diverse levels of risk tolerance" amongst the general public (Steelman et al., 2013: 686).

Although the role of the news media is not the focus of this lesson, there are also several practices related to them that are particularly pertinent to a successful strategy of communication. Many of these are congruent with **the need to build partnerships with the public, understand the audience and their information-seeking behaviours, conduct rigorous risk assessments in the pre-event stage, and to incorporate communication into the decision-making processes**.

Finally, **best practices are elaborated in relation to the content** of crisis messages (Seeger 2006). These practices are:

1) *Honesty*, * candour* and* openness*: withholding information may contribute to panic and public agencies should be open about risks in order to encourage the public to share responsibility for their management;
2) Communicate with *compassion,* concern* and* empathy*: these characteristics will enhance the perceived credibility of the message and the sender;
3) Accept *uncertainty* and* ambiguity*: acknowledging the fluidity and uncertainty of the situation will help build trust with the public;
4) Messages of *self-sufficiency*: giving people advice on how to minimise harm will help them feel more in control during uncertain situations.

The overlap between risk and crisis communication is perhaps best reflected on the fact that many of these recommendations could be applied to communication in either the pre or post-incident phase. Overall, the key feature of best practices appears to be that **the timely provision of accurate, contextual information** is the most effective form of communication during a crisis or disaster.

2.5 Activity 2

Retrieve the material you generated for Activity 1, and look at the content.

Can you identify characteristics of the content that could be the outcome of best practices?

2.6 Other factors of effective communication

The adoption of these best practices in crisis communication might feasibly prevent the type of public panic that triggers further cascading effects during disasters. Yet, effective crisis communication is also assessed on the basis **of whether members of the public interpret the intended meaning of the message, accept it, and take action** to minimise harm to themselves, their families and friends. There are **two main caveats** (believing and acting) in relation to **crisis message acceptance**.

First, **source credibility, previous experience of disasters, and trust in the content** determine whether members of the public are likely to act upon such messages (Veil et al., 2011; Mersham, 2010). This might intuitively lead one to conclude that warning messages received from blue light organisations are the most likely to be acted upon. Conversely, Mileti (2000) argues that it is **only when information is received from a combination of public officials, experts, and blue light organisations** that it is likely to be both believed and acted upon. If a warning message is received from a **trusted family member or friend** then it is also more likely to be believed and acted upon compared to other sources (Gregg et al., 2007). In addition, people may turn to a variety of media in order to obtain crisis information. Word of mouth and traditional news media continue to be viewed as primary sources of information for people affected by flood disasters in Australia (Ryan, 2013). Social media plays an important role in the later stages of such incidents, not only through the provision of information to disaster-affected populations but also as an outlet for expressions of support and solidarity (Schultz et al., 2011; Spence et al., 2015). Therefore, for crisis messages to reach target audiences these are the necessary elements:

- **a multi-media/multi-channel approach, to reach all citizens,**
- **a variety of public actors involved (public officials, experts, and blue light organisations),**
- **public actors must have experience of disasters, be credible and trusted**
- **and they must use a range of credible and trusted content.**

Second, **there is no guarantee that people will take protective action even if they are made aware of the disaster risk**. Japan has been widely credited as having one of the most sophisticated early warning and disaster preparedness systems for natural disasters in the world. Yet, a study in the wake of the 2011 earthquake and tsunami found that household preparedness has remained relatively poor, particularly amongst single people who had recently moved to larger cities (Tomio et al., 2014). Similar trends have emerged from studies conducted in other countries with extensive risk communication strategies designed to enhance disaster preparedness. For example, the review of lessons learnt from the 2007 floods in the UK found that many of the local residents in affected areas were still did not know which organisation to contact to get information on the recovery operation (Pitt, 2008). In sum, it is unlikely that efforts to promote preparedness within disaster-affected communities will positively influence the behaviour of **all residents**. Emergency managers should adopt **multi-channel risk communication strategies** in order to maximise the impact of these messages and to aid disaster mitigation in these areas. Some media channels may be more appropriate than others depending upon the circumstances. For example, the use of sirens to issue tsunami warnings in rural areas might be considered best practice due to the ease with which they can be both heard and understood (Gregg et al., 2007). However, research indicates that **behavioural change of citizens during disasters will only be achieved if they are informed of these procedures *prior* to such incidents** (Goolsby, 2010).

This final point highlights again what should be the foundation of any crisis communication today: i.e. the need to spread effective practices, developed according to contexts and circumstances, across **the different stages of disasters**.

2.7 Activity 3

Use the material you have retrieved for Activity 1:

- Does this material report the messages and views of **a variety of public actors**?
- What could be the reasons for this?

- Do citizens show, with their comments and tweets, that they **trust the content** provided by public actors?
- What could be the reasons for this?

3 Flowchart and SPEAK guidelines

This second and final part of the lesson brings together all the elements that constitute a strategy for effective crisis communication, by focusing on the corresponding model based on the analysis developed for the CascEff project (Reilly and Atanasova 2016 [D3.3]; Reilly and Atanasova 2016 [D3.4]). Specifically, it presents a series of tactics for effective communication practices during disasters with cascading effects, which in CascEff have been brought together under the definition of **SPEAK guidelines**; it also presents a **flowchart** for communication between key agencies and members of the public during disasters with cascading effects. This flowchart situates these tactics within each of the **four stages of the disaster cycle**, namely **mitigation (prevention of future emergencies and minimising their effects), preparedness (preparing to deal with an emergency), response** and **recovery** (Baird 2010)**.**

This model of disaster and emergency management is chosen on the basis that it has been widely adopted by key agencies in the field, including FEMA in the US. However, the guidelines and tactics outlined in this communication strategy can be applied to other conceptualisations of the disaster cycle such as 'Planning, Preparation, Response, and Recovery'.

3.1 Communication Strategy Flowchart

We first focus on the flowchart, and we start by examining some **general aspects**. **At each stage**, emergency managers should pay attention to **two aspects of language**. First, there is the **use of terminology** in crisis communication. While this may be necessary in communication between agencies, it should not be assumed that all subscribe to the same definitions of key terms. Terminology databases, such as Firebrary, should therefore be consulted in order to avoid any misunderstandings among these organisations. The use of complex jargon should also be avoided in any communication with the general public. Second, there is **the language that should be used in crisis communication**. In countries such as Belgium, there may be a legal requirement for blue light organisations to communicate with the public in several languages that are commonly spoken in the region. Therefore, emergency management communicators should familiarise themselves with the language proficiency of their target audiences and tailor their communication strategies accordingly.

3.1.1 What to do before: mitigation

Inform citizens about risks and risk-mitigating measures: There may be specific known risks that exist in a local area that members of the public should be informed about. The UK Environmental Agency, for example, publishes a mitigation measures manual for dealing with flood risks and in the aftermath of the 2013/2014 floods in South-West England, and kept members of the public informed about progress with river dredging.

Keep popular communication channels open: Citizens tend to use hashtags and 'fire spaces'[3] in order to address information needs during crises and disasters. These communication channels also provide opportunities for key agencies to share advice and information on disaster preparedness. As discussed earlier, the UK Environmental Agency has received very positive feedback from local residents for its use of a hyperlocal Facebook page to provide information on the dredging of rivers in the areas around the Somerset Levels and Moors. Key

agencies should endeavour to use online and offline spaces in a similar fashion, engaging local communities at every stage of the disaster cycle.

Build partnerships with key stakeholders including local communities: The development of local partnerships will help foster trust between key agencies and members of the public. This will help build preparedness in disaster-prone areas with the public more likely to accept and action upon warning messages. Citizens may also help create situational awareness through the provision of eyewitness accounts on social media providing media.

Test warning systems: Early warning systems in Japan and the US tend to rely upon some form of system testing in order to maximise their impact upon target populations during crisis situations. This should be a priority for any key agency that responds to such incidents in order to prevent information failures associated with incidents such as the Fukushima nuclear accident in 2011 (Thatcher et al., 2015).

3.1.2 What to do before: preparedness

Train staff, assign roles and create knowledge communities: Agencies should consider what roles key staff will play during crisis situations, with emphasis specifically on who is responsible for the authorisation of messages to the public. Members of the communication team should also receive guidance on how to present information to the target audience via multiple and adequate media channels in a clear and consistent fashion. This may be achieved through the creation of special interest groups (or 'knowledge communities') within the sector that allow individuals to share best practice in this area. There should also be contingency planning for large- scale incidents, which often place huge strain on the resources of these teams as they try to answer each citizen query promptly.

Build and promote a social media presence: Social media can help build trust between citizens and the emergency services, particularly when social media sites are regularly updated and members of the public receive courteous and punctual responses to their online comments. In turn, these users are likely to come back to these sites to satisfy their information needs during crisis situations. The promotion of official social media accounts is vitally important in order to encourage members of the public to use these sites during crisis situations. There are a number of ways to do this ranging from the strategic use of pre-existing hashtags on Twitter to the use of Facebook and YouTube advertisements to target certain audiences.

Prepare contingency plans to meet the information needs of online citizens: Inevitably, during a crisis situation there will be increase in demand for information from members of the public. Key agencies should prepare contingency plans on how they will deal with this increased demand for information. Key tasks include:

1) assessing servers' abilities to respond to requests during episodes of increased traffic, ensuring that proper infrastructure is in place and web hosting sufficiently scaled; and
2) setting up a 'dark' website that can be made available to the public should the official website of an organisation crash due to an increase in the number of people trying to access it. This 'dark' website can be a version of the official site that is intentionally 'pared down' (e.g. stripped of non-essential images).

Disseminate prevention messages: A mix of communication channels should be used to inform members of the public about disaster preparedness and the support services available to them should an incident occur in their particular area. This should include information about the different ways in which they can communicate with blue light organisations and other key agencies during such incidents. It may also be prudent to raise awareness about how disinformation and rumours might hinder the emergency response. The aim of these messages should be to reassure the public that adequate measures are in place should a man-made or natural disaster occur in their local area. Emergency services should also consider how to best disseminate these prevention messages to the general public. Automated messaging via platforms such as Hootsuite may be a viable alternative to having staff send messages manually via various media platforms. However, this should not be used during a crisis when members of the public seek reassurances from the police and fire and rescue services that their requests for help are being dealt with.

Establish social media verification procedures: As per the false rumours about fatalities during the Project X Haren riots (see lesson 1), unverified information on social media can contribute to the cascading effects from public order incidents. Hence organisations need to verify crowd-sourced information from social media before it can be used to build situational awareness. Verification and fact checking can be achieved, for example, through the cross-referencing of information obtained from sites such as Twitter with the observations of emergency services personnel and other members of the public who are attending the incident. Work is also currently being done on developing a methodology to identify disinformation and rumours on Twitter based upon the characteristics of tweets like language use, source use and history of posting behaviour. However, for the foreseeable future, verification is likely to remain an activity that involves other social media users and the emergency services working together to check the veracity of information circulating online in the immediate aftermath of disasters.

Decide how you will deal with emergencies reported via social media: The floods in South-West England led to the emergency services receiving many requests for help from citizens via social media. For example, one member of the public who was unable to contact these services via telephone tweeted the local fire brigade to ask for assistance with moving medical gas. While all relevant agencies frequently remind the public to call rather than 'tweet' for help in case of medical emergencies, it is still likely that such requests will continue to be made during future crisis situations. This presents emergency services personnel with a challenge as to how to check the veracity of these reports. It may be prudent in some circumstances for tweeters to be reminded that they will need to provide further information via telephone in order for the emergency services to come to their assistance. Alternatively, citizens may be encouraged to use a specific hashtag in order to capture the attention of the emergency services. What is clear is that key agencies should agree the procedure for dealing with requests for assistance via social media in advance of these crisis situations.

Use social media to manage relationships with traditional media: The cultivation of good working relations with professional journalists can help key agencies in their efforts to provide accurate information to citizens during crisis situations. News media organisations can help amplify messages sent by emergency services on social media through retweeting of such content and also sharing on traditional platforms such as radio, television and newspapers. As discussed earlier in relation to the floods in South-West England, this can help mobilise volunteers to assist with tasks such as providing sandbags to homeowners trying to protect their properties from flooding.

Use an App: During crises, members of the public turn to familiar media channels in order to satisfy their information needs. However, Apps may have great potential for issuing public safety messages to members of the public during incidents such as the Pukkelpop disaster and the floods in Southwest England. Both incidents led to the creation of dedicated Apps, such as 'I am OK' to assure family and friends of festival goers that they were safe from harm. Apps use less bandwidth than other mobile phone functions such as SMS text messaging, which is an advantage in crisis situations where mobile phone networks may fail due to increased traffic. In the UK, for example, Apps have already been developed to enable citizens to report hate crimes and other incidents directly to the police (Dorset Police, 2014). Therefore, emergency managers should explore possible synergies with App developers in order to further develop tools that could be deployed during major incidents. They should also work with the local news media and civil society organisations in order to promote these tools to the general public.

3.1.3 What to do during: response

Send emergency notifications: Emergency notifications can be sent to members of the public during crisis situations. For example, a citizen can sign up to receive Twitter Alerts from official accounts direct to his smart phones. These notifications are delivered via SMS or a push notification, if using Twitter for iPhone or Android. The UK Environment Agency, for example, sends live flood alerts via Facebook and Twitter Alerts. There have also been Cell Broadcast trials in several European states. These Broadcasts allow messages to be delivered to citizens within a specific geographic location, even when load spikes lead to the failure of communication networks.

Listen: Social media provide opportunities for key agencies to listen to what citizens are saying about the incident. PIOs and other members of their communication team can respond directly to those social media users who express dissatisfaction with the emergency response. Observing social media can also help emergency managers anticipate and mitigate cascading effects. However, the representativeness (or lack thereof) of social media users suggests that PIOs should verify these findings using other data sources before making any recommendations to emergency managers.

Pull information: Information can also be pulled from social media in order to build situational awareness in crisis situations. Keyword searches and the monitoring of hashtags can arguably provide as much insight into the evolution of an incident as messages received by the emergency services via their official social media accounts. It can also help identify civil society organisations that might be able to help mitigate cascading effects from public order incidents such as Project X Haren. Although this form of data capture has been traditionally associated with the police, European fire and rescue services have also started to engage in social media data collection and analysis. For example, Belgian fire and rescue services are now able to access UGC, such as photographs, videos and tweets, en route to an incident courtesy of a digital tool. However, it is still essential that information pulled from social media is contextualised with reference to information received via other media channels.

Crowdsource information: Pulling information from social media can improve situational awareness, but information can also be purposefully crowdsourced from members of the public. The authorities can use a dedicated hashtag to encourage citizens to share specific types of images and eyewitness perspectives on relevant incidents. They can also ask members

of the public to help them verify information received from other members of the public via social media or other communication channels.

Push information: 'Push' information can quell rumours and disinformation and address the diverse information needs of citizens during crisis situations. Emergency management communicators should provide regular updates in order to prevent cascading effects occurring from citizens speculating about crisis situations. Even if no further information is available, it is advisable that key agencies explain why, rather than allow a communication gap to develop. The fluidity and uncertainty of a crisis situation should be acknowledged in a dialogic form of communication that directly engages members of the public. Information push should be verified and cross - referenced with updates provided by other agencies in order to ensure message consistency. This will hinder a repeat of the events leading to the Project X Haren riot, during which conflicting messages from the Mayor of Haren and other authorities about an alternative party being organised in the town was said to have directly contributed to the violence. Social media should be deployed in order to push information during a crisis situation. Professional journalists should be invited to amplify these messages through sharing this content with their respective online social networks. Although tweets are restricted to 140 characters, hyperlinks should be provided to websites that contain further information about the recovery efforts. It is important that the information provided on an official website is clearly presented, easily understood, and directly addressing key issues identified through attending to citizens talking about these incidents online.

3.1.4 What to do after: recovery

Tell citizens when the crisis is over: Crises, such as the floods in South-West England, often have a devastating economic impact upon the affected areas. To mitigate the impact of the decline in tourism in the region in 2014, Cornwall Council launched an 'open for business' campaign via various communication channels (own website, traditional and social media, the Visit Cornwall website, tourism and travel magazines among others). Such campaigns are important not only in reviving tourism, but also in encouraging investment in disaster-affected areas.

Use social media to support citizen-led clean-up operations: Members of the public can also use social media to organise recovery operations. For example, citizens began to repair the damage caused by the riots in Haren under the Project Clean X initiative. Key agencies should try to promote these initiatives through re-tweeting messages of support, as well as building relationships with participating civil society organisations

Issue preparedness advice: Key lessons from the incident should be recorded by emergency managers and used to inform future plans for emergency response. They should also consider issuing preparedness advice to local residents, who are likely to be receptive to such content given recent events. However, it is important not to overload citizens with information during a period in which they may still be traumatised by the incident. It may be more appropriate to consult civil society organisations in order to establish what preparedness information should be disseminated at this stage.

3.1.5 The flowchart

All these communication tactics can be summarised in the communication strategy flowchart in the image below:

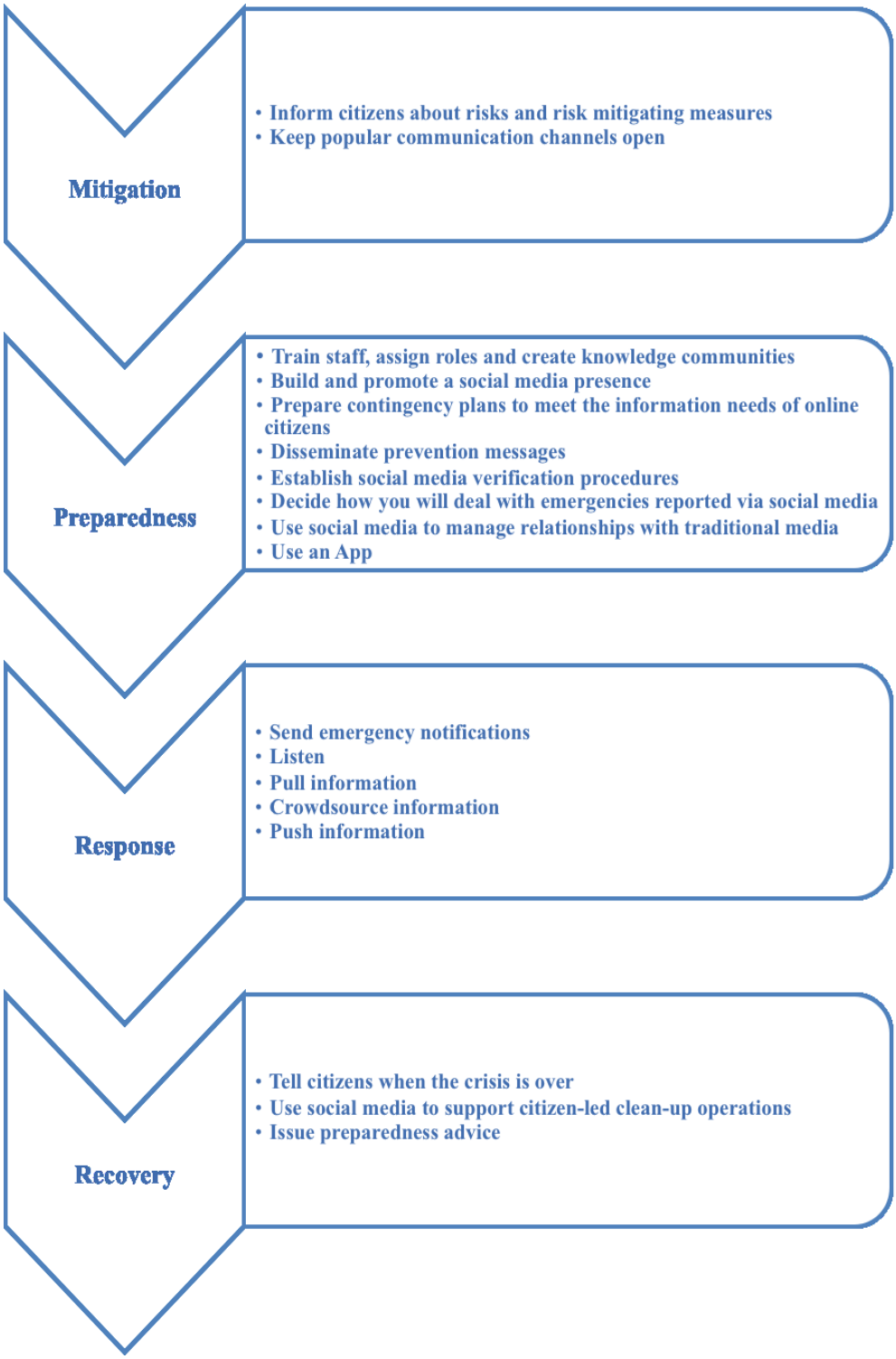

Figure 1 (Reilly and Atanasova 2016 [D3.3]: 40).

3.2 Key recommendations

Five key guidelines for effective communication between blue light organisations and members of the public during crisis situations were identified in the work done for the CascEff project (see Reilly and Atanasova 2016 [D3.3]; Reilly and Atanasova 2016 [D3.4]).

1) **S**tudy the information-seeking behaviours of your audience before deciding upon which communication platforms to use during crisis situations;
2) **P**repare for the loss of critical infrastructure during such incidents by employing a communication mix that includes both traditional and digital media;
3) **E**ngage key stakeholders e.g. civil society organisations in order to ensure that the information shared with the general public is both accurate and consistent;
4) **A**lways consider the ethical implications of using crowdsourced information obtained from social media sites; and
5) **K**nowledge gained from previous incidents should be used to inform future communication strategies.

Emergency managers should implement these **'SPEAK' guidelines** at each key stage of a disaster (from mitigation to recovery) in order to prevent the disruption of information relations that has the potential to lead to cascading effects (Powell and Rayner, 1952).

3.2.1 Study the information-seeking behaviours of your audience

1 - Study the information-seeking behaviours of your audience before deciding upon which communication platforms to use during crisis situations

People tend to search for information about disasters when they perceive that these events are likely to directly threaten their own lives or property (Westerman and Spence 2013). Such information **'needs'** depends on to how the course of the disaster will affect citizens (otherwise known as situational awareness), but also occurs when individuals try to reach out to family and friends in order to check whether they are safe from harm (Thelwall and Stewart, 2007). Individuals may also search for information on which organisations are responsible for **delivering disaster recovery missions** in affected areas (van Leuven, 2009). Previous research, which draws heavily on the uses and gratification theory of Blumler and Katz (1974), suggests that **individuals turn to those media platforms that are perceived to satisfy their information 'needs' during crises** (Austin et al., 2012).

Social media sites such as Facebook and Twitter not only make it easier for citizens to follow breaking news in real-time, but also help bring together those communities that have experienced trauma due to a man-made or natural disaster (Murthy, 2012). Heavy social media users, such as those aged between 16 and 24 years old, are likely to perceive that these sites are more credible than traditional media as they provide crisis information that is not available elsewhere (Sutton et al., 2008). The frequency of updates available on social media may also provide advantages for emergency management communicators who wish to share

accurate, real-time information with members of the public. The amplification and serial transmission of crisis messages can be encouraged through the 'retweet' function on the microblogging site Twitter. There has also been some evidence to suggest that citizens use these sites to search for information to corroborate warning messages before deciding how to act upon them (Sutton et al., 2014). Recent data (Kemp 2017) show that **half** of the world's population used the internet in 2017, and that social media users increased globally of **21%** in just two years between 2015 and 2017. In addition, data estimated 637 million internet European users, and **412 million** active social media users across **Europe** at the start of 2017. Of these, 340 million actively used mobile devices to engage with social media (Kemp 2017).

That is **not to say that social media should automatically be viewed as the most effective mode of communication** adopted by key stakeholders during the various stages of a disaster. The persistence of the **digital divide** (the persistence of the gap between those who are able to benefit from the internet and those who are not) militates against the adoption of crisis communication strategies that rely solely on digital media technologies. Only about half of the European population can be characterised as active social media users (Kemp 2017), with a 21 percent identified as completely off-line (ITU 2016). Although the gap between rural and national internet penetration rates in European Union member states has decreased from 11 percentage points in 2010 to 7 percentage points in 2016 (European Commission 2017), there are still some geographical areas that have little to no internet connectivity. Such broadband 'blackspots' have implications for police and fire and rescue services situated in rural areas within the UK. For example, in 2015 the Llanberis Mountain Service reported that the slow and unreliable internet connection in Snowdonia, North Wales (with speeds said to be below 1Mb/s) hindered their efforts to use digital media tools to locate injured mountaineers (Reisdorf, B. and Oostveen 2015). As well as the digital divide, there remains some skepticism amongst users about the **accuracy and trustworthiness** of information posted online.

While acknowledging the **integral role of social media in 'spreading' crisis information**, the social media mediated crisis communication (SMCC) model proposed by Yan Jin and colleagues acknowledges that **traditional media**, as well as offline social interactions, remain important components of crisis communication (Jin et al., 2011). Several-studies have suggested that the general public continue to perceive traditional media such as newspapers to be more credible and trustworthy than online sources (Stephens et al, 2013). Empirical data gathered from disasters such as Hurricane Sandy, which caused extensive damage in the New York and New Jersey regions after it made landfall on the eastern seaboard of the US in October 2012, suggested that **new assemblages of what could be dubbed 'old and new media practices'** were **adopted by people** in order to seek emotional support during these events. Residents in areas affected by Sandy used every method possible in order to obtain information, receiving news from peer networks, radio, television and social media sites such as Twitter (Burger et al., 2013). This suggests that **emergency management may require the use of multiple asynchronous *and* synchronous channels in order to communicate effectively with citizens in affected areas.** Clearly, it may be prudent for emergency management communicators to use 'tried and trusted' traditional media such as newspapers, radio, television, electronic billboards, text-to-speech phone calls, stewards and public address systems (PA)[4] to disseminate information to the general public.

But this multiple-channels approach is not sufficient, and a more strategic approach than this 'all-channel' model may be required for those blue light organisations that directly communicate with the public during crisis situations. A nuanced interpretation of the research just mentioned suggests that while people are most likely to seek out familiar social networks

in the aftermath of a disaster, access to these may ultimately depend on **what media is available to them**. A pre-requisite for this communication strategy is therefore the **collection and analysis of data relating to the information-seeking behaviours of citizens**. Specifically, this should include:

- an overview of the **communication infrastructure** that is available to residents of areas that are deemed to be vulnerable to man-made or natural disasters; and
- a detailed analysis of the **types of media these residents use** on a daily basis with specific focus on what platforms they would use to obtain situational awareness during disasters.

It is also important to:

- study **the media channels that are most frequently accessed** by residents
- taking into account **the digital sites that are used** by members of the public, and which members of the public use them, during crisis situations (e.g. Facebook, Twitter, and YouTube).

Recommendations:

- **Collect and analyse data on the local, regional and national** communications infrastructure **on a regular basis**.
- **Identify the communication channels** your target audience are **able to access on a regular basis**.
- Identify the **traditional and social media platforms that your target audience uses on a regular basis**;.
- Review the available communications infrastructure and the information-seeking behaviours of your audience **on a regular basis** in order to inform future communication strategies.

3.2.2 Prepare for the loss of critical infrastructure

2 - Prepare for the loss of critical infrastructure during such incidents by employing a communication mix that includes both traditional and digital media

A related concern for emergency management communicators is how to ensure that their communication strategies during crisis situations are not disrupted by 'single points of failure' within the communications infrastructure in disaster-affected areas. The review discussed in the previous session-slide should help identify vulnerabilities in the communications infrastructure, as well as provide valuable insight into the media channels used by citizens in areas likely to be affected by man-made or natural disasters. However, **some form of network failure will be inevitable**, and such issues are best addressed through the use of a communication mix that involves both traditional and digital media.

Power outages and network failures may make it difficult for citizens to access crisis information via both traditional and social media platforms. The loss of electricity might make it difficult for citizens to access television news coverage of disasters. Mobile wireless communication networks and wifi connections may fail when too many users within the same geographical area attempt to log on to Internet services using their smart phones. 'Patchy'

Internet connectivity was said to have impeded the emergency services that responded to both the Pukkelpop disaster and the Project X Haren riots. People might also experience **difficulties with their own communication devices** during such incidents. For example, the heavy rain during the Pukkelpop disaster had damaged the smart phones of many of the festival-goers, thus denying them a form of access to their social networks after the storm that hit the festival site. Battery life might similarly be viewed as a potential point of failure that might prevent citizens from accessing crisis information.

The lack of technical infrastructure required in **face-to-face communication**, **public meetings** and the use of **loudspeakers**, might suggest that these more traditional communication channels are the most reliable way of ensuring that members of the public receive crisis-related information during power outages. These points are corroborated by research on evacuation communication during man-made and natural disasters (Bram et al., 2016 [D3.2]). Yet the problem remains in relation to the efficacy of these modes of communication during disasters that affect large populations, especially in rural areas. In these cases, **radio** is a particularly effective and resilient communication channel that may reach large populations even in those circumstances where power supplies are disrupted. This observation was congruent with previous research into crisis communication during disasters. During Hurricane Sandy, for example, some New Jersey residents reported that they had used portable radios to obtain information about the course of events due to the disruption of power supply and communication networks in the region (Burger et al., 2013).

Nevertheless, it remains important to use multiple traditional and digital media platforms (such as Apps, cell broadcast, e-mail bulletins, newspapers, opt-in text to speech calls like NL-Alert and Be-Alert, radio, SMS, social media and television), in order to reach as many people as possible during disasters. This **communication mix** should include not only **media that are readily available and disaster-resilient**, but **also that are the most likely to be used by local residents** to search for crisis information.

Recommendations:

- **Study the vulnerabilities** of communications infrastructure in areas likely to be affected by man-made and natural disasters.
- **Identify** those **communication channels** that are likely to be particularly **resilient** during disasters e.g. radio.
- Use a **combination** of both social and traditional media in order to reach as many local residents as possible.
- **Low-tech communication channels** e.g. loudspeakers should still have an important role to play in the communication mix.

3.2.3 Engage key stakeholders

3 - Engage key stakeholders in order to ensure that information shared with the general public is consistent

Cooperation between emergency management communicators and key stakeholders, such as local politicians, critical infrastructure providers and civil society organisations, is essential in order to ensure the serial transmission of accurate information during crisis situations

(Sutton et al., 2014). Previous studies have also shown how the repetition of the same information through multiple channels during emergencies can help communicate situational urgency to target audiences, thus making it more likely that they will take appropriate action to protect themselves and their families (Stephens et al., 2013). This can help mitigate the cascading effects of a disaster by putting less stress on essential services that are under pressure, such as healthcare and transportation. Conversely, the lack of message consistency from key stakeholders may contribute to the cascading effects of natural disasters and public order incidents. In the case of the Project X Haren riots, conflicting messages from the Mayor of Haren and other authorities about an alternative party being organised in the town were implicated as a direct contributor to the riots. Furthermore, lack of message consistency could have more drastic effects. For example, during disasters communication networks can become unusable due to high traffic (e.g. during the Pukkelpop disaster). A lack of consistent message could result in the public using a range of communication networks at a much higher volume in order to determine correct information. If this resulted in communication network outages then the effect on disaster relief and support services, such as healthcare, could be significant, and have further cascading effects.

A pre-requisite for inter-agency cooperation is for each key stakeholder to understand their respective responsibilities during emergencies. European states typically call upon the same emergency services to deal with these incidents, namely police, fire and rescue services, and emergency medical services (EMS). However, there are often national variations in terms of whose responsibility it is to lead the response to these incidents and to decide what information should be shared with the general public.[5] Inter-agency cooperation at the local level is also important in order to ensure that real-time accurate information is shared between first responders and members of the public. For example, in the case of the Pukkelpop festival disaster the municipal authorities failed to provide real-time crisis information during the incident. A study of Twitter activity during the disaster revealed that there had been no tweets from official accounts as events unfolded (Terpstra et al. 2012). The organisers of two Belgian music festivals confirmed that they organised regular face-to-face meetings with key stakeholders such as the police or the local authorities' Safety Cell in order to discuss the communication strategies that would be deployed during their respective events. They had also piloted modes of communication, such as the use of mobile telecommunication devices e.g. 'walkie-talkies', in order to ensure that information could be relayed from any part of the festival site in the case of any disruption to the communications infrastructure. These meetings were also viewed as being important in building working relationships and trust between the various agencies that would be involved in these festivals. Hence it had been agreed that the official social media accounts of both festivals would retweet messages from the police and other 'blue light' organisations in the case of an incident.

Key stakeholders, including not only 'blue light' organisations but also more specific actors such as festival organisers, should also cultivate **good relations with the news media** in order to facilitate effective communication with citizens during crisis situations. Our interviewees confirmed that local BBC radio stations had played a vital role in providing critical information on the availability of medical supplies e.g. prescription drugs in the wake of the floods seen in South-West England between December 2013 and February 2014. A dedicated response team from the County Council was permitted to use the facilities at a BBC station, enabling them to provide assistance to callers from areas affected by the floods. There was also evidence to suggest that speculative and sensationalist media coverage of these incidents had the

potential to increase the likelihood of violence and civil unrest. For example, local and national journalists in the Netherlands suggested that some popular entertainment programmes had encouraged thousands of young people to attend the Sweet Sixteen birthday party in Haren on 21 September 2012, which culminated in anti-social behaviour and disorder that later became known as the Project X Haren riots. While it is beyond the scope of this lesson to fully explore the role of the media during crisis situations, it is clear that greater cooperation between emergency management communicators and professional journalists might help address some of the deficiencies in media reporting.

Like Disaster Risk Reduction, **responsibility for communication during crisis situations should be partially shared with civil society organisations** in disaster-affected areas. Citizens can assist emergency management communicators in three specific ways, namely:

1) **the crowdsourcing and verification of crisis information;**
2) **the provision of emotional and material support to those affected by major incidents; and**
3) **participating in digital volunteer groups that bolster disaster response missions.**

Incidents such as Hurricane Sandy have shown how key agencies can leverage the 'power of collective intelligence' via social media members of the public shared critical information via sites such as Twitter and played a key role in correcting misinformation and dispelling rumours that had the potential to hinder efforts to restore order to affected areas (Purohit et al. 2014). Citizens can use social media to share eyewitness perspectives that help build situational awareness for those actors involved in emergency response, producing a form of 'socially produced accuracy' that reduces the possibility of cascading effects occurring in the aftermath of these incidents (Vieweg et al., 2008). Hashtags can function as 'fire spaces' in which data generated by residents in affected areas can be transformed into information that helps first responders allocate resources towards those communities that are most in need of assistance (Potts, 2014). Emergency managers can use information-gathering platforms such as Coosto, Ushahidi and Twitcident to help them sift through the large volume of data available on these sites at each stage of the incident.

Social media can also be utilised by citizens to provide emotional and material support to citizens living in disaster-affected areas. During the floods in South-West England, for example, Council requests for assistance on sites such as Twitter had resulted in hundreds of volunteers helping deliver sandbags to private residences that were threatened by the floods in the region. Indeed, citizen-led social media campaigns such as #forageaid (ITV 2015) and Flooding on the Levels Action Group (FLAG)[6] emerged during this period, providing financial support for affected communities and calling for the dredging of the rivers to avoid future floods.

Citizens also used Twitter in Belgium to provide support to those who had fled the Pukkelpop festival disaster. One Twitter user (tweeter) began to connect festival-goers with the residents of the nearby town Hasselt via the #hasselthelpt hashtag. The hashtag mobilised Hasselt residents to offer them food, shelter and transportation (de Vries et al., 2014). This initiative spread to other nearby towns, with their offers for help promoted via eponymous hashtags like #antwerpenhelpt, #brusselhelpt and #genthelpt. Many also offered festival goers the opportunity to use their internet connection to inform their families and friends that they were safe. Twitter hashtags like #ppok (van Peteghem and Caudron 2012) and Facebook pages such as the Pukkelpop Safehouse page were used to connect these individuals with their loved ones, who had been unable to make contact with one another due to the pressure placed

upon mobile telephone networks in the wake of the incident. The offering of food, shelter and especially transportation could help mitigate the cascading effects of the disaster when offered to individuals affected by the disaster and organisations helping with disaster relief. By offering food, shelter and transportation to individuals affected by the storm, individuals were provided with a safe environment; lessening the risk of harm which could put extra pressure on blue light services.

During large-scale man-made or natural disasters, it may also be appropriate for key agencies to mobilise **digital volunteers**, individuals who leverage new technologies to organise and assist in emergency response, to assist with the analysis of social media data. Several models for digital volunteer organisations exist including Virtual Operations Support Teams (VOST), the Standby Task Force (SBTF) and the Digital Humanitarian Network (DHNetwork) (Meier, 2014). In contrast to other organisations, VOST teams work by request and report directly to the organisation that requested their assistance. VOST teams function as a type of intermediary between citizens who use social media during crises and emergency management teams. While VOST teams have been very active in France and Spain over the past few years, they have often been considered ill-suited for the small-scale incidents that are typical within the EU and on a relatively regular basis. However, the model has been adapted in Belgium, where volunteer teams have been set up which consist of professionals rather than citizens and can be called upon to help in smaller incidents as well. The SBTF[7] and the DHNetwork[8] are more international. Consequently, some digital volunteer organisations may be more suitable to certain types of man-made and natural disasters than others (see Appendix 2 in Reilly and Atanasova 2016 [D3.3]) for further information on these digital volunteer organisations).

This **empowerment of local communities in order** to participate in disaster response has implications for the communication strategies of first responders and those key agencies involved in emergency response. It may increase the resilience of these communities to future disasters and encourage local citizens to fully participate in Disaster Risk Reduction alongside formal emergency management institutions. Yet, social media users **typically disengage** from these online groups once they have had their questions about the incident answered (Potts, 2014). While citizen-led initiatives such as those outlined here add value to crisis communication, 'blue light' organisations look likely to retain their status as the most influential sources of information during such incidents for the foreseeable future.

Recommendations:

- Be aware of the **emergency management structure** in your respective region.
- Build good **relationships with professional journalists and other key stakeholders** in order to ensure message consistency.
- Use **social media to crowdsource crisis information and to empower local communities** to share responsibility for its dissemination to the general public.
- Consider the use of **digital volunteers** to analyse social media data during large-scale incidents.

3.2.4 Always consider the ethical implications

4 - Always consider the ethical implications of using crowdsourced information obtained from social media

Key roles in emergency management such as that of the Public Information Officer (PIO) have become increasingly oriented towards the monitoring and evaluation of the user-generated content (UGC) discussed in the previous section (Hughes and Palen, 2012). The crowdsourcing of crisis information via social media raises a number of ethical issues for PIOs **in relation to the gathering, storage and sharing of UGC**.

Key agencies may, for example, ask members of the public to share their images of man-made or natural disasters via a dedicated hashtag on Twitter. Such information can help build situational awareness and contribute to response and recovery efforts. However, such requests may also inadvertently **jeopardise the physical safety of citizens, as they put themselves at risk to capture this footage**. Research carried out for the CascEff project revealed that so-called 'storm watchers' were engaging in such hazardous activity in order to capture footage of the floods in the South-West of England. There was also video footage recorded by an eyewitness showing the collapse of the Chateau tent at the Pukkelpop festival that resulted in five fatalities (CBC 2011). In light of these incidents, emergency management communicators should be cognisant of the risk posed to citizens within disaster-affected areas when making requests for information via social media. It might even be appropriate in some circumstances for them to refrain from making such requests, or call against citizen involvement in producing content, during extreme weather events such as thunderstorms that are likely to attract 'storm watchers'.

The second ethical dilemma relates to the **potential harm that might arise from the use of UGC created during such incidents**. While the Terms of Service (ToC) of platforms such as Twitter may make it clear to users that they should have no expectation of privacy in relation to their tweets, those that express anguish and distress during disasters **may be re-traumatised if such content is re-circulated by key agencies** such as the police and fire and rescue services. It is also highly doubtful whether the **verbatim reproduction** of these comments is necessary in order to illustrate the key themes that emerged from social media discussions about such incidents (Reilly, 2014; Reilly and Trevisan, 2015).

Such ethical dilemmas could be addressed by relying on the following **recommendations:**

- **Anonymise, aggregate and validate** data supplied by members of the public before sharing.
- **Remind members of the public that they need to ensure their safety** when recording incidents.
- Consider what data you need from members of the pubic and whether the potential **benefits from having it outweigh the potential costs** involved in collecting it.
- **Only collect as much data as is needed** for operational reasons e.g. to establish situational awareness.
- Familiarise yourself with national and super national policies **and regulations on data protection**, as well as research and issues of ethics and privacy, and ensure that your use and storage of social media **data complies with the relevant laws**.
- **Inform members of the public about how the crowdsourced data will be used** (and stored).

3.2.5 Knowledge gained from previous incidents

5 - Knowledge gained from previous incidents should be used to inform future communication strategies

The research carried out for the CascEff project (Reilly and Atanasova 2016 [D3.3]) indicated that communication strategies can be informed by lessons learnt from previous disasters. A systematic review should focus on what elements of the communication strategy did and did not work during major incidents. It should include not only **communication flows between the emergency services and the public**, but also those **between key agencies** during such incidents. Each stakeholder should also consider **the criteria by which they evaluate the success** (or not) of communication strategies that could be deployed during such events. Clearly social media metrics might provide an insight into the reach of emergency messages issued on sites such as Twitter, as well as the role of citizens in the crowdsourcing and verification of crisis information. Such **data should be triangulated** alongside other metrics such as the number of telephone calls received by the emergency services and the traditional news media outlets used by citizens to obtain information on the incident. The scorecard provided by the EU FP7 Project CrisComScore allows participants to audit their disaster preparedness and communication plans[9] and they can also be used to evaluate the crisis communication plans of these stakeholders.

A holistic approach towards crisis communication strategies might emerge from an official inquiry into the events under review. However, a shared responsibility approach towards communication during crisis situations is more likely to emerge through the organisation of workshops that **bring together citizens and the emergency services** to identify best practice. Hackathons, such as the one organised in the aftermath of the Project X Haren riots, might provide a suitable forum for engaging all relevant stakeholders in learning lessons from previous incidents.

Nevertheless, it remains important that **key lessons are identified and recommendations are implemented** in order to address any obvious weaknesses in communication strategies deployed during such incidents.

Recommendations:

- **All stakeholders should practice reflection** (what went wrong and what went well).
- **Assess communication flows during incidents from multiple perspectives** (e.g. from emergency services and members of the public).
- Consider **what data** (e.g. social media metrics) should be used to evaluate the reach of official emergency messages.
- Consider organising **a hackathon or an official enquiry** to identify key lessons from incidents.

4 Conclusions

Emergency managers should **assess the information needs and behaviours of the public at all stages of the disaster** in order to maximise the impact of messages sent by their agencies. Desired behavioural changes (e.g. evacuation instructions) are most likely to occur if extensive information is shared about disaster preparedness at the early stages of the cycle.

Shared responsibility towards DRR should be extended into the field of crisis communication. Key agencies are likely to remain the most trusted sources of information during crisis situations. At the same time, social media helps these organisations build situational awareness through the crowdsourcing of crisis information, as well as pushing information that offers advice and reassurance to those affected by such incidents. They can also help empower local communities and build resilience towards disasters.

Key agencies should collaborate with other emergency services and civil society organisations to ensure that these messages are clear, consistent and accurate. Such messages are much more likely to be acted upon by members of the public who live in disaster prone areas.

Radio, television, newspapers and telephone calls remain important channels for those unable or unwilling to access new media technologies. They are also seen as **trusted** sources of information **during crisis situations**. They may also be more reliable in the immediate aftermath of man-made or natural disasters, when there may be **technological limitations** or breakdown.

Emergency management communicators should therefore **target those communication platforms that are most commonly used** by residents in disaster-affected areas in order to maximise the reach of their content. They should also focus on those communication channels that may be **more resilient and effective** in the immediate aftermath of a man-made or natural disaster.

A strategic communication mix **of social media, traditional media, and low-tech communication channels** (such as face-to-face meetings) should ideally be employed **at all stages** of man-made or natural disasters. While it is misleading to suggest that there is a 'killer app' in terms of crisis communication, it is important to fully consider the potential use of social media to correct rumours and disinformation.

Evaluation and reflection should be critical components of crisis communication practices at both the individual and organisational levels. Lessons learnt from previous incidents should help inform future communication plans for man-made and natural disasters.

5 Notes

1. For more on Ivy Lee's role in the development of crisis communication and PR, see http://www.nku.edu/~turney/prclass/readings/3eras2x.html (accessed 18 May 2017).

2. For more information on the UK Resilience communications framework, see https://www.gov.uk/topic/public-safety-emergencies/emergencies-preparation-response-recovery (accessed 17 May 2017).

3. 'Fire spaces' refers to environments where connections among actors remain relatively stable while they add information to the network or modify it as content becomes highly mobile and sometimes unpredictable. See Law, J. & Mol, A. (2001).

4. Public address systems are those systems of sound amplification and distribution comprised of a microphone, amplifier, and loudspeakers, that are used to address large publics.

5. See Reilly and Atanasova (2016) [D3.3] pp. 28-29 for a comparison of approaches in three different European countries.

6. Flooding on the Levels Action Group http://www.flagsomerset.org.uk/Media.aspx

7. The SBTF is a global network of volunteers trained and ready to collaborate online in the immediate aftermath of a natural disaster. See http://blog.standbytaskforce.com/.

8. The DHNetwork is a consortium of volunteer and technical communities http://digitalhumanitarians.com/about.

9. See http://cordis.europa.eu/result/rcn/45886_en.html (accessed 17 May 2017).

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