Project acronym: COSMIC
Project title: The COntribution of Social Media In Crisis management
Grant number: 312737
Programme: Seventh Framework Programme – Security Research
Objective: SEC-2012.6.1-3
Contract type: Coordination and support action
Start date of project: 01 April 2013
Duration: 24 months
Website: www.cosmic-project.eu

Deliverable D3.3.1:
First report on the strategic use of emerging communication technologies for crisis stakeholders

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Dissemination level: Public
Deliverable type: Final
Version: 1
Submission date: Due 31st January 2014

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Change Records

Issue	Date	Description	Author (Company)
0.1	4/2/2014	Report for internal review	TRI-ED-HRT
0.2	5/2/2014	Internally reviewed version	HRT
0.3	5/2/2014	Submitted version	ED

EXECUTIVE SUMMARY

This report examines the use of new technologies to satisfy strategic communication goals of relevant stakeholders during crises. These are examined at three different levels, namely:
♦ among responders/law enforcement agencies
♦ between responders and the public
♦ among the public themselves

The findings regarding the strategic use of emerging technologies by different stakeholders will be used in conjunction with WP4, which focuses on emergency communication by the public.

The report is split in two parts, one treating the strategic communication goals and the other presenting emergency response scenarios and the role of social media in them. As the first part has identified, there are four strategic goals relating to communication that are essential for stakeholders to be able to utilise communication to enhance their abilities to manage a crisis situation. These strategic goals include: two-way communication, one-way communication/alerts, information sharing, and situational awareness. Our findings show that each of these goals should not be treated in isolation, but rather, should be considered in relation to one another as, under some circumstances, they are dependent on each other for enhancing crisis management. For instance, during a flood, in order for the public to assist responders in gaining situational awareness, information sharing (e.g., photographs or video content), two-way communication (e.g., being able to verify information, or request further information) are essential to building situational awareness which in turn can contribute to decision making to help coordinate response efforts.

The second part of the report shows scenarios on how new technologies can potentially meet these inter-connected strategic goals for each of these stakeholder groups across the different phases of a crisis. Scenarios for emergency response have to be based on field experience and information available to rescue organisations taking part in the course of a crisis incident. To this end, we examined the basic aspects of such scenarios from two points of view:
- The organisation's mode of operation in specific events via their Standard Operating Procedures (SOPs)
- The application of those to real-life situations as experienced by the COSMIC partner the Hellenic Rescue Team

In both categories, our findings show that the presence of social media appears particularly important. The additional evidence supplied by Standard Operating Procedures of stakeholder responder organisations and the real-life situations confirm that social media:
- Provide help towards responders by completing the building of situational awareness
- Are able to supply additional information, in particular at the first stages of a catastrophic incident, which can be decisive in attracting external funds and sponsoring and therefore enabling the participation of voluntary organisations (NGOs) such as the HRT
- Can provide valuable information able to direct rescuers of survivors
- Are a means of publishing information towards the public concerning rescue efforts and other vital to life information

The present document is to be supplemented by a second part, which will enrich the existing treatise and also investigate other strategic goals such as the creation of partnerships between

stakeholders for the improvement of services or the opportunities offered by the interoperability between different systems and the exchange of data.

1   INTRODUCTION

This report examines the use of new technologies so as to satisfy strategic communication goals of relevant stakeholders during crises. These are examined at three different levels, namely:
♦ among responders/law enforcement agencies
♦ between responders and the public
♦ among the public themselves

The findings regarding the strategic use of emerging technologies by different stakeholders will be used in conjunction with WP4, which will focus on emergency communication by the public.

In the previous COSMIC Deliverable 2.1 on *"Baseline analysis of communication technologies and their applications"* we classified the operational states of social media under crises into the six fundamental functions listed below:

1. One-way communication (notify/alert)
2. Two-way communication (converse/provide feedback)
3. Request/offer assistance
4. Relay (share a piece of information with others)
5. Campaign (awareness raising/fund raising)
6. Organise (co-ordinate response/enable individuals to organise themselves)

In what follows, we analyse the strategic role of new communication technologies in these functions and in real-life scenarios and processes which are typical of rescue missions.

The present document is to be supplemented by a second part, which will enrich the existing treatise and also investigate other strategic goals such as the creation of partnerships between stakeholders for the improvement of services or the opportunities offered by the interoperability between different systems and the exchange of data.

2   STAKEHOLDER'S STRATEGIC GOALS

This chapter seeks to provide an overview of four key strategic goals relating to the communication needs of three groups of stakeholders: among responders/law enforcement agencies, between responders and the public, and, among the public themselves. As will be discussed, at times, the following strategic goals are inter-related and should not be treated in isolation from one-another: two-way communication, one-way communications/alerts, information sharing, and situational awareness.

Partners will use these strategic goals to structure scenarios that are central to these three groups of stakeholders in examining their communication-related needs and how emerging technologies may fulfil these during a crisis. In the second version of this deliverable, D3.32, partners will examine additional key strategic goals that new and emerging technologies may contribute to; building partnerships between stakeholders for the improvement of services, as well as, the opportunities offered by the interoperability between different systems and the exchange of data.

As outlined in D1.3 of the COSMIC project, communication is an essential element of crisis management,[1] albeit a complex challenge for the various stakeholders.[2] As agued by Vos et al. "in different phases of the crisis, the goal of communication is to reduce uncertainty about response, resolution, negative consequences, public perception, and blame of the situation".[3] As we have outlined elsewhere, it is essential to distinguish between risk and crisis communication during the different phases of a crisis.[4] In the preparation and warning phase, communication is often in the form of risk communication; "the flow of information and risk evaluations back and forth between academic experts, regulatory practitioners, interest groups and the general public".[5] Alternatively, during the response and recovery phase, crisis communication occurs, referred to by Coombs as, "the collection, processing, and dissemination of information required to address a crisis situation".[6] Adequate communication is therefore essential for effective crisis management.

In order to identify these strategic goals, partners have conducted desk-based research to examine the key findings of other deliverables within the COSMIC project, as well as findings from other EU projects and relevant literature. The chapter concludes by identifying the criteria to be used for the development of scenarios in the remainder of this report.

2.1 AMONG RESPONDERS/LAW ENFORCEMENT AGENCIES

First responders and law enforcement agencies include those stakeholders who are on the frontline of preparing for, responding to, and, recovering from a crisis. Within Europe these include: emergency services (e.g., police, fire and ambulance/health care providers), national and international non-governmental organisations (NGO's), local and national authorities and European bodies.[7] As this sub-section will discuss, one and two-way communication, information sharing and situational awareness are all central among responders/law enforcement agencies in the preparation, response and recovery of a crisis. The following table provides a summary of the strategic goals among responders/law enforcement agencies for each of the four stages of a crisis.

Table 1: Communication related strategic goals among responders/law enforcement agencies during the different stages of a crisis

	Two-way communication	Alert / One-way communication	Information sharing	Situational awareness
Preparation	X		X	
Warning	X	X	X	X
Response	X		X	X
Recovery	X		X	X

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[1] Blaha, M., Bonnamour, M.C., Miskuf, R., de Vries, D., Groenendaal, J and Helsloot, I. Report on the role of main stakeholders in crisis situations, *Deliverable 1.3 of the COSMIC project,* December 2013.

[2] Vos, M., Lund, R., Reich, Z and Harro-Loit, H. *Developing a Crisis Communication Scorecard.* University Library of Jyvaskyla, 2011.

[3] Ibid., p. 17.

[4] Blaha et al., 2013.

[5] Leiss, W, *In the Chamber of Risks: Understanding Risk Controversies.* McGill Queens's University Press, Montreal, 1996, p. 388.

[6] Coombs, W.T. "Parameters for crisis communication", in Coombs, W. T., & Holladay, S. J. (2011). The Handbook of Crisis Communication. John Wiley & Sons. [p. 20]

[7] Blaha et al., 2013.

The preparation phase of a crisis involves "calamity arrangements with contingency plans as well as well-educated and trained emergency personnel and crisis management teams. Planning is helpful for determining what may happen when something goes wrong, and furthermore, what is needed in order to bring the situation back to a state of normalcy".[8] During the preparation phase of a crisis, as observed in D1.2, invariably responders and law enforcement agencies need to communicate with one another, via two-way communication to ensure that they have an effective crisis management plan in place. As will be seen in the second version of this deliverable, an essential element is therefore the establishment and building of partnerships across different agencies to ensure the effective and efficient coordination of services in times of crisis. For instance, as discussed in D1.2, in 1973 the London Emergency Services Liaison Panel (LESLP) was formed, and consists of representatives from different emergency services, local authorities, voluntary sector organisations and military branches. The group meet every three months, and as part of their efforts in preparing for a major incident in the capital, have developed and continue to revise their "Major Incident Procedure Manual". The building of partnerships between the different stakeholders involved in LESLP, as well as effective two-way communication, information sharing and collaboration is crucial to the planning and coordination of these different stakeholders in preparing for and responding to a crisis.[9]

In the warning phase of a crisis responders and law enforcement agencies are often involved in alerting others to an imminent situation, and are reliant on one-way communication to alert other response organisations. For instance, if we return to the example of the LESLP, any member of LESLP can alert others and declare a major incident, subsequently, whilst the incident may not require the response of all members, they are all required to be on standby should their services be required.[10] At this stage of a crisis, responders must also begin to share information about the nature and extent of the crisis with other response organisations to help begin to build situational awareness (SA).

SA involves "knowing what is going on around you".[11] Although debated, a "general definition of SA" concerns "the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future".[12] Within the management of crises, as will be seen in the subsequent paragraph, SA is essential to responders' efforts in being able to respond to the growing demands of a crisis and to inform and complement decision making.[13] In addition, adequate decision making can help build SA.[14] Accordingly, following the initial alert, as the immediate realisation and understanding of the crisis builds two-way communication and information sharing is required between responders to begin co-ordination.

The response phase of a crisis involves the initial emergency response, which often includes search and rescue operations to be carried out by responders and law enforcement agencies.[15] The response period calls for effective two-way communication and decision making to

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[8] Watson, H., Wadhwa, K., Groenendaal, J., de Vries, D., and Papadimitriou, A. "Report on search and rescue actions", *Deliverable 1.2 of the COSMIC project,* September 2013b. [p. 8]

[9] Ibid.

[10] Ibid.

[11] Endsley, M. R, "Theoretical Underpinnings of Situation Awareness: A Critical Review", in Endsley, M.R., and Garland, D.J. "Situation Awareness Analysis and Measurement", 2000, pp. 3–32. [p. 5]

[12] Ibid.

[13] Ibid.

[14] Ibid.

[15] Watson et al., 2013b.

respond to the demands of the situation and crucially, to help gain a level of control over any uncertainties that may have appeared as a result of the crisis. Not only is it important for effective two-way communication to occur for those within a single organisation, but also for interagency communications. For instance, as identified in D1.2, following the 2005 London attacks, in order to respond to the crisis it was essential for official bodies (i.e., the different stakeholders involved in LESLP) to quickly gain footing, as well as a continual understanding of the situation including for instance, the number of explosions, potential casualties and any other potential targets.[16] Thus, both single agency communication and interagency information sharing is required to enable decision making and response efforts to progress, both of which require efficient two-way communication.[17] However, interagency information sharing is often hampered by the lack of procedures and systematic information management in many agencies, as well as interoperable information formats.

In the aftermath of a crisis, for responders and law enforcement agencies, the recovery phase of a crisis involves "all activities aimed at bringing the evolved situation back to normalcy, from rebuilding activities to providing compensation for damage. This phase also encompasses learning from (near-) disasters, providing feedback to other links in the chain and thus making societies less vulnerable to similar events in the future".[18] In this period, as well as continuing recovery efforts, agencies are involved in a period of knowledge discovery, requiring two-way communication, information sharing and active reflection to identify and build upon lessons learned. As shown in D1.3, learning from a crisis is essential to improving crisis management, however, there are challenges involved including; the desire to share lessons learned, and being able to compare these lessons across different countries and/or agencies.[19]

2.2 BETWEEN RESPONDERS AND THE PUBLIC

In the preparation, response and recovery of a crisis, responders and members of the public are closely tied. As part of their responsibilities for managing a crisis, responders must form a trusting relationship with the public to ensure that they are adequately prepared for, and able to respond to and recover from a crisis. Within this context, the term "responders" including organisations such as national agencies, law enforcement agencies and civil society organisations involved in managing the potential impact of a crisis on members of the public. Members of the public are in-part, reliant on responders for providing them with detailed, accurate and up-to-date information during all stages of a crisis. Likewise, responders are somewhat reliant on members of the public for, where possible, feeding them information during the response phase of a crisis. As such, there is a symbiotic relationship between the two in the effective management of crises. Accordingly, as this sub-section will discuss, all four strategic goals; one and two-way communication, information sharing and SA are crucial to maintaining an effective working relationship between responders and members of the public in the preparation, response and recovery of a crisis. The following table provides a summary of the strategic goals between responders and the public for each of the four stages of a crisis.

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[16] Ibid.
[17] Blaha et al., 2013.
[18] Watson et al., 2013b, p. 9.
[19] Blaha et al., 2013.

Table 2: Communication related strategic goals between responders and the public during the different stages of a crisis

	Two-way communication	Alert / One-way communication	Information sharing	Situational awareness
Preparation	X		X	
Warning		X	X	X
Response	X	X	X	X
Recovery	X		X	X

During the preparation phase of a crisis responders participate in risk communication activities. As identified by Steelman and McCaffrey, risk communication "seeks to inform people about a potential future harm and the associated dangers so that they might take action to mitigate the risk".[20] A key communication related strategic goal, which is often a challenge at this time, includes information sharing activities.[21] That is their ability to adequately inform and educate those likely to be affected by a crisis (e.g., members of the public) with crisis related information in order to help them enhance their resilience. As identified in D1.1, such a task is complex as it is dependent on a number of social factors which may contribute to a person's attitude to risk and thus, will impact how effective their responsive risk communication is. As such, a number of social related variables (e.g., age, gender etc.) must be taken into consideration.[22]

Furthermore, as outlined in D1.3, it is essential that the public have an understanding of their roles and responsibilities in a crisis, which will subsequently help to boost crisis management efforts and effectiveness; this requires two-way communication and effective information sharing to help educate the public. Educating the public about disaster management involves: informing them of any potential risks they may face and how they can be mitigated, educating them about the characteristics of disasters, informing them how best to respond to different types of disasters and providing them with an understanding of how they can support responders in a crisis.[23] For instance, in some parts of the US, in response to the growing threat from wildfires, Community Wildfire Protection Plans have been developed to help homeowners during such an event.[24, 25] Similarly, during the 2012 California wildfires, social media was seen to be an essential tool for one-way communication, enabling authorities to alert members of the public in the affected area.[26]

During the warning phase of a crisis, responders continue to participate in risk and crisis communication activities relating to information sharing, where they must, in a timely fashion, adequately inform the public of any impending crises that they may be vulnerable to.

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[20] Steelman, Toddi A, and Sarah McCaffrey, "Best Practices in Risk and Crisis Communication: Implications for Natural Hazards Management", *Natural Hazards*, Vol. 65, No. 1, 2013, pp. 683–705. [p. 689]

[21] Blaha et al., 2013.

[22] Watson, H., Wadhwa, K., Finn, R.L., Kotsiopoulos, I., Yannopoulos, A., Groenendaal, J., Schmidt, A., de Vries, D and Helsloot, I. "Report on security crises with high societal impact", *Deliverable 1.1 of the COSMIC project,* 31 July 2013a.

[23] Ibid., p. 20.

[24] Steelman and McCaffrey, 2013, p. 688.

[25] As will be discussed in the second version of this deliverable, community building is also essential to the preparation phases of a crisis, where for instance, building an online community prior to a crisis occurring can help to ensure information is disseminated as and when a crisis occurs.

[26] Papadimitriou, A. Yannopoulos, A., Kotsiopoulos, I., Finn, R., Wadhwa, K., Watson, H and Baruh, L. "Case studies of communication media and their use in crisis situations", *Deliverable 2.2 of the COSMIC project,* 30 September 2013.

During this stage, their primary goal is to ensure that the public are alerted to the dangers, including a clear understanding of the nature and timeline of the threat, what action should be taken and any other relevant information to ensure their safety is shared, and that the public can immediately begin to build their own SA and respond accordingly. As discussed in D2.2, the use of alerting systems and social media as an alerting mechanism was seen during the 2013 UK heat wave where the UKs Met Office used Twitter and Facebook to send out weather related alerts to members of the public.[27] As such, one-way communication in the form of an "alert", as well as the sharing of crucial information, is essential to building SA in the immediate warning phase of a crisis.

Furthermore, during the response phase of a crisis, just as members of the public are reliant on responders for sharing information to help them build their SA, so too are responders reliant on members of the public to provide them with information to help them build their own SA.[28] As identified in D1.3, information gathering from the public is integral to response activities.[29] For instance, following the 2013 Boston marathon attacks, the Federal Bureau of Investigation (FBI) used their Twitter account to request photographs and video footage to be sent to them by those at the scene of the attacks. Similarly, following Hurricane Sandy in the US in 2012, response organisations requested information from the public to help build their SA.[30]

During the response phase, as extensively discussed in D2.3, it is also essential for responders to monitor the sharing of information which will help to ensure that misinformation and other activity which could impact the reliability of information is identified, and that accordingly, the correct facts can be passed along to the public.[31] For instance, as argued by the Queensland Police in their experience of using social media to quell rumours following the floods caused by Tropical Cyclone Tasha in December 2010, both one and two-way communication can be an effective way of "mythbusing".[32]

Furthermore, on-going communication with the public surrounding the status of events is crucial; at this point whilst one-way communication in the form of updates is useful, so too is ensuring two-way communication continues to take place to establish a form of dialogue between responders and the public. For instance, following the eruptions of the Eyjafjallajokull volcano in 2010, the European Organisation for the Safety of Air Navigation (EUROCONTROL), used social media applications (e.g., YouTube, Facebook and Twitter) to communicate with airlines and members of the public throughout the crisis. By doing so they were able to play a significant role in conversing with passengers throughout the period of disruption and to help them respond accordingly.[33]

The response phase of a crisis may also be met with extensive volunteerism. During such a time, it is often the case that response agencies are inundated with generous offers of help and

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[27] Papadimitriou et al., 2013.
[28] Queensland Police, "Social Media Case Study", Queensland Police Website, 2013. http://www.police.qld.gov.au/services/reportsPublications/other/socialmedia.htm
[29] Blaha et al., 2013.
[30] Papadimitriou et al., 2013.
[31] Salvatore, S., and Baruh, L. "Report on the adverse use and reliability of new media", *Deliverable 2.3 of the COSMIC project,* November 2013.
[32] Queensland Police, 2013, p. 5.
[33] Watson, H., and Finn, R.L. "Privacy and ethical implications of the use of social media during a volcanic eruption: some initial thoughts", *Proceedings of the 10th International ISCRAM Conference,* Baden-Baden, Germany, May 2013.

assistance from members of the public. For instance, following the terrorist attacks in the USA in September 2001, extensive numbers of individuals offered their assistance.[34] As such, during this time it was essential for responders to be able to communicate with the public via two-way communication, manage volunteers and essentially, put the services that the public offered to good use. Crucially, being able to offer some assistance in a crisis, may for some, fulfil a psychological role in enabling them to achieve social-psychological goals, including helping to establish a sense of connectedness and assisting them in managing the psychological impact of the crisis.[35] As such, communication is required to optimise the use of volunteers in the response to a crisis.

Lastly, during the recovery phases of a crisis, continued open and reliable two-way communication between responders and the public is a priority, not only to ensure that the affected community is kept up-to-date with recovery efforts, but in addition, to include those affected by a crisis in identification and dissemination of lessons learned.[36]

2.3   AMONG THE PUBLIC

As with the other stakeholders examined in this chapter, communication is central to the preparation, response and recovery efforts among members of the public as a result of a crisis. The following table provides a summary of the strategic goals for each of the four stages of a crisis.

Table 3: Communication related strategic goals among the public during the different stages of a crisis

	Two-way communication	Alert / One-way communication	Information sharing	Situational awareness
Preparation	X	X		
Warning	X	X	X	X
Response	X	X	X	X
Recovery	X		X	X

In preparing for a crisis, members of the public are able to share information they receive from official sources to others in their social networks, to do so, one and two-way communication is essential. As argued by FEMA's "Fundamentals of Emergency Management", preparedness is not simply the responsibility of response organisations, but in addition, members of the public can take measures to ensure that they adequately prepare themselves and their families to take steps to prepare for an emergency.[37] By informally sharing preparation strategies with others, the public can play a role in helping to share good practices within a community.

During the warning phases of a crisis both one and two-way communication continues to be pivotal to share news of an impending crisis with others in their social networks. Such communication activities enable members of the public to inform each other of emerging events which helps them enhance their SA and overall resilience to a crisis.

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[34] Lowe, Seana, and Alice Fothergill, "A Need to Help: Emergent Volunteer Behavior after September 11th", *Beyond September 11th: An Account of Post-Disaster Research*, 2003, pp. 293–314.
[35] Ibid.
[36] Blaha et al., 2013.
[37] FEMA, *Fundamentals of Emergency Management*, 2010.

During the response phase of a crisis members of the public may continue to use one and two-way communication to share insights, experiences and information with others in their social networks. For instance, following the Boston attacks members of the public used social media to share information with others relating to road closures and police activities, which helped to build SA among those caught up in the crisis.[38] Elsewhere, during the Gezi protests, members of the public used social media to share information with others in their social networks, and many relied on social media for updates rather than the traditional media which was viewed as biased in its reporting. As such, one and two-way communication among the public helped to ensure the spread of what was deemed more reliable information which subsequently helped to build SA within the affected community.[39]

During the response stage of a crisis there is also the danger of miscommunication and the widespread sharing of rumours among members of the public. However, as experienced during the Virginia Tech shootings in 2007, members of the public participated in collective problem solving to help ensure that reliable information was shared via social networking sites.[40] As remarked in their study of a Facebook group that participated in problem solving activities, the use of social media by members of the public were conducted in a "concentrated, well-intentioned, and earnest fashion" where instead of "rumor-mongering, we see socially-produced accuracy".[41] Thus, during the response stage of a crisis, members of the public can work together to help share information that disputes rumours, thereby helping to mitigate any further diffusion of rumours, and therefore, can contribute to sharing reliable information.

Lastly, during the recovery stage of a crisis two-way communication and the sharing of information continue to be important to enable members of the public to learn from each other's experiences and to cope and recover from these. Not only does this help to continue to maintain SA, but in addition, two-way communication may help to fulfil a psychological role during a crisis as it enables members of the public to actively participate in recovery efforts.

2.4 CONCLUSION

As this chapter has identified, there are four strategic goals relating to communication that are essential for stakeholders to be able to utilise communication to enhance their abilities to manage a crisis situation. These strategic goals include: two-way communication, one-way communication/alerts, information sharing, and situational awareness. As highlighted in the sub-sections above, each of these goals should not be treated in isolation, but rather, should be considered in relation to one another as, under some circumstances, they are dependent on each other for enhancing crisis management. For instance, during a flood, in order for the public to assist responders in gaining situational awareness, information sharing (e.g., photographs or video content), two-way communication (e.g., being able to verify information, or request further information) are essential to building situational awareness which in turn can contribute to decision making to help coordinate response efforts.

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[38] Papadimitriou et al., 2013.

[39] Ibid.

[40] Vieweg, Sarah, Leysia Palen, Sophia B Liu, Amanda L Hughes, and Jeannette Sutton, "Collective Intelligence in Disaster: An Examination of the Phenomenon in the Aftermath of the 2007 Virginia Tech Shootings", *Proceedings of the 5th International ISCRAM Conference*, Washington, DC, USA, 2008.

[41] Ibid., 2008, p. 10.

In the remainder of this report, partners will show scenarios on how existing and emerging technologies, can potentially meet these inter-connected strategic goals for each of these stakeholder groups across the different phases of a crisis, whilst maintaining the integrity of the quality of data and communication.
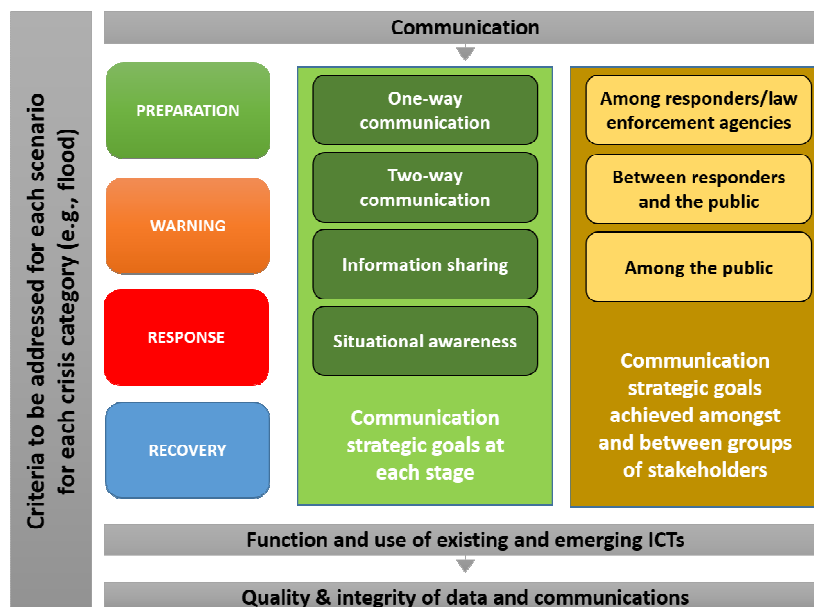

Figure 1: Scenario criteria

3   EMERGENCY RESPONSE SCENARIOS

The study of the FOCUS project[42] on natural disasters' management in the EU, observes that there is a lack of a systematic approach on the security of citizens at EU level. It also notes that "research is diffused and often of bad quality as it is not based on real data and basic practices: literal essays made for the officials usually do not solve the problems. Sources for research in the field are diffused among European, state and regional levels and also between public and private participating parties." Moreover, the FOCUS researchers state that for the majority of natural disasters in the EU there are no systematic measures aimed at preparedness for naturally occurring crises and neither is there a systematic tool for recovery after such disasters. The European Solidarity Fund is characterised as a partial measure which can only help countries affected by large scale (above a certain threshold) disasters.

FOCUS recommends that the solutions proposed by professional researchers should be reviewed and should lead to practical implementations. Researchers state that although there are hundreds of projects which at various levels (technical, social, organisational) address natural disasters, a synthesis of the individual results into a single concept is currently missing.

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[42] Disaster management in the EU – Present and future: Challenges for research, Foresight Security Scenarios – Mapping Research to a Comprehensive Approach to Exogenous EU Roles (FOCUS), July 2012, http://www.focusproject.eu/documents/14976/5d763378-1198-4dc9-86ff-c46959712f8a

Although improvements are evident, for example the European Civil Protection exercises[43] such as the EU-Taranis 2013[44], the lack of a systematic approach noted above means that there are no general EU-wide guidelines and preparedness plans publicly disseminated and available to guide stakeholders and actors involved in the crisis chain of events. In addition, the scenarios of the exercises conducted under the auspices of the Community Mechanism for Civil Protection[45] are not generally available, as evidenced in the published list of the European Civil Protection exercises[46].

3.1   BASIC CONSTITUENTS

According to the Oxford dictionaries[47] a scenario is "a postulated sequence or development of events" and/or "a setting, in particular for a work of art or literature". Transferring this to serve our purpose, a crisis management scenario should include both aspects of the definition, i.e. a setting within which action (events) take place as well as a sequential presentation of the events constituting such action. Another feature of such a scenario is the interaction between external events (i.e. the natural course of a disaster such as a wildfire or a flood) and the response of the safety and security actors involved. These actors are formal bodies implicated in the management (mitigation) of the effects of a crisis at all levels, i.e. at preparation, warning, response and recovery. They are organisations mandated by the appropriate authorities, be them salaried professionals (state or hired private organisations) or volunteers (such as citizens' organisations and civil society organisations[48]).

The common characteristic of both of these categories is the existence of some structure under which they operate, which usually includes the mandate, the hierarchy and a way of action prescribed according to a taxonomy of conditions. This structure is collectively referred to under the term "Standard Operating Procedures" (SOPs)[49] and plays an important part in shaping the effectiveness of the response to a crisis. In the words of the US Environmental Protection Agency[50]:

- "SOPs detail the regularly recurring work processes that are to be conducted or followed within an organization. They document the way activities are to be performed to facilitate consistent conformance to technical and quality system requirements and to support data quality. They may describe, for example, fundamental programmatic actions and technical actions such as analytical processes, and processes for maintaining, calibrating, and using equipment. SOPs are intended to be specific to the organization or facility whose activities are described and assist

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[43] European Commission: Humanitarian Aid and Civil Protection exercises 2002-2013, http://ec.europa.eu/echo/civil_protection/civil/prote/exercises.htm

[44] EU-Taranis 2013 exercise, http://www.taranis2013.eu/en/zur-ubung. In fact, the exercise would be an excellent opportunity for disseminating the results as well as the scenarios assumed and tested to a wider audience, but unfortunately these are not available.

[45] European Mechanism of Civil Protection, http://ec.europa.eu/echo/policies/disaster_response/mechanism_en.htm

46 European Commission: Humanitarian Aid and Civil Protection exercises 2002-2013, http://ec.europa.eu/echo/civil_protection/civil/prote/exercises.htm

[47] Oxford Dictionaries at http://www.oxforddictionaries.com/definition/english/scenario by the Oxford University Press

[48] These are also frequently called "Non-Governmental Organisations (NGOs)

[49] Although the US military use the term "Standing Operating Procedures" to stress the fact that these are unique to a certain organisation and not universal.

[50] United States Environmental Protection Agency, "Guidance for Preparing Standard Operating Procedures, EPA QA/G-6", April 2007, http://www.epa.gov/quality/qs-docs/g6-final.pdf

that organization to maintain their quality control and quality assurance processes and ensure compliance with governmental regulations."

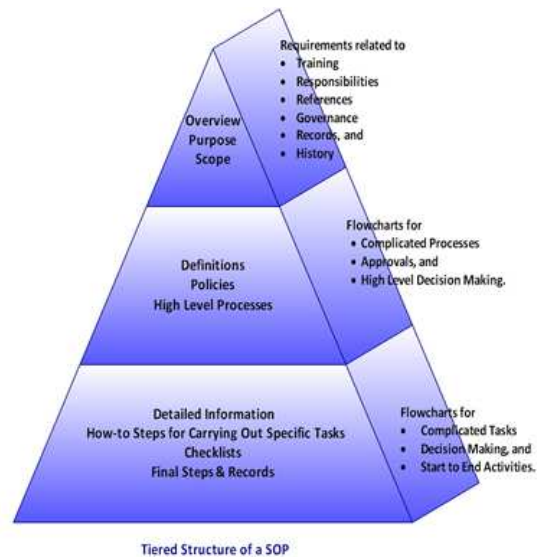A typical general structure of such a procedure and its constituent parts is shown below.

Figure 2. General structure of a Standard Operating Procedure[51]

A scenario, therefore, of any crisis should take into account the operational environment of the responders, which is shaped by their applicable standard operating procedures, which, in turn, characterise the organisation and reflect its mandate. As mentioned before, organisations at European level do not publicise such information; in contrast, there is extensive data published by the Federal Emergency Management Agency (FEMA) in the US, which is indicative of the way responders to a crisis should react.

Basic elements of a scenario for response to a crisis
The basics of a scenario for response to a catastrophic incident will have to cope with cascading events and will necessitate challenging legal, policy, and regulatory interventions. Standard operating procedures of large organisations in charge of emergency response are indicative of typical response scenarios. In what follows, we show such a generic scenario derived from the corresponding FEMA documentation[52].

Planning
This is the stage where the response mission and objectives are set, and tasks for action are defined. It is of interest to note here that the FEMA recommends that at this early stage "a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or community-based approaches to meet defined objectives" is undertaken. This is the first manifestation of a one-way communication between the responder and the public and, of course, includes social media.

Public Information and Warning

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[51] Weeden Marcia, "The Well Written SOP – Critical for Continuous Improvement", Writing Assiatsnce Inc, http://www.writingassist.com/resources/articles/the-well-written-sop-critical-for-continuous-improvement
[52] FEMA, "National Preparedness Goal", 1st Edition, 2011, http://www.fema.gov/media-library-data/20130726-1828-25045-9470/national_preparedness_goal_2011.pdf

This stage comes as a realisation of the community engagement plan of the previous stage and lasts throughout the crisis incident. It includes information on threats or hazards, action taken and the available assistance. The FEMA recommends "clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay" critical information concerning life-sustaining actions.

Operational Coordination
This concerns all critical stakeholders and core capabilities for SOP-compliant command, control and coordination structures for response

Critical Transportation
Provision of transportation at all levels, such as the creation of safe transportation corridors for evacuees, survivors, and subsequent restoration of basic services.

Environmental Response/Health and Safety
Concerns health and safety hazard assessments, issue of guidance for personnel, if needed, prescribes action for response personnel and provides adequate resources for response and later recovery.

Fatality Management Services
This includes body recovery, victim identification, temporary mortuary solutions, sharing of information with mass care services for reunifying family members and caregivers and the provision of counselling.

Infrastructure Systems
This includes the maintenance and stabilisation of all critical infrastructure functions supporting life, community and rescue operations.

Mass Care Services
Provision of life-sustaining services such as hydration, feeding and sheltering to affected populations.

Mass Search and Rescue Operations
The goal is saving the greatest number of endangered lives in the shortest time possible. The important for COSMIC feature here is the FEMA recommendation for community-based search and rescue support operations across a wide geographically dispersed area. Here social media can mobilise the community into locating possible survivors and persons in need.

On-scene Security and Protection
This aspect concerns the creation of a safe, secure and lawful environment affected communities and responders.

Operational Communications
This step concerns the availability of communication capacity, both among response organisations and their members as well as among communities and communities-responders.

Public and Private Services and Resources
It involves provision of essential public and private services and resources to the affected population and the surrounding communities, for example emergency power, fuel, food, healthcare, fire-fighting and others.

Public Health and Medical Services
This step concerns lifesaving medical treatment and countermeasures to combat additional diseases and injuries.

Situational Assessment
This includes all decision-relevant information on the hazard, the cascading effects and the status of the response. What is interesting for COSMIC here is the FEMA recommendation that "governmental, private and civic sector resources within and outside of the affected area" are used for this purpose. As will be seen in their Standard Operating Procedures for communication, a significant part of this is attributed to social media.

3.2   SOCIAL MEDIA: ROLE AND PRESENCE

The role of social media in the basic scenario described above is two fold: covering communication needs including information sharing and help in building situational awareness. In what follows we elaborate on the role of social media from the point of view of standard operating procedures (SOPs) as described by the FEMA[53]. Annex R of the procedures[54] refers explicitly to digital and social media and to web-based and other interactive communication with the public. The accepted concept is that "official websites, blogs, photos, videos, social media sites, text messages (SMS), and smartphone applications are effective tools to advise and inform the public if used in a coordinated, strategic, and timely manner, and should be used in concert with other non-digital communication channels."

The background setting of the social media presence according to the FEMA is shown in the following table. Of particular interest is the recognition of the role of social media in health incidents, where they are seen as the fastest means of public announcement.

4.2 Strategic Communications Assumptions
1. *The first public announcement of a potential public health or medical emergency will come through social media, followed by announcements in traditional news media.*
2. *The public affected by the incident will need to be informed quickly about the measures they can take to protect their health and the health of their families. Regardless of the type of incident, people will be concerned about real or perceived health impacts and will raise questions about protecting health.*
3. *There will be incomplete information, misinformation, rumors, and misconceptions among the public.*
4. *There will be an insatiable demand for information from the public and from domestic and international media.*
5. *There will be overwhelming public pressure on government to provide facts quickly.*

Table 4. The operating background of the FEMA SOPs (article 4.2) on communication with the public (outreach)[55]

Another important aspect in these procedures is the provision of article 2.2 which states that "all content, messaging, and communication channels should be accessible to populations

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[53] "Emergency Support Function 15 (External Affairs): Homeland Security, Standard Operating Procedures", FEMA, August 2013, http://www.fema.gov/media-library-data/965d87d8c5ffc4bcccb01979913e01fc/ESF15_SOP_08-30-2013-02.pdf
[54] ibid
[55] ibid

with access and functional needs and populations with limited English proficiency", the process being coordinated by the Digital Communications Specialist of the Media Relations Unit of the Joint Information Center (JIC).

The main information portal is USA.gov, operated by the General Services Administration (GSA), supplemented by departmental and agency websites and their corresponding social media sites. In fact the procedure states that "agencies should always use pre-established accounts during an incident because the account already has an established base of users and level of trust with social media users."

Specific guidelines are included for keeping messages up to date, responding to questions from users, cross-linking with sites of other agencies and keeping content readable in an accessible format.

Finally, article 5.0 refers explicitly to "Social Media Monitoring and Reporting for Situational Awareness". In fact monitoring publicly available content across online channels is considered as being "as important as posting information". The Emergency Support Function 15 of the SOPs is explicitly instructed to "use publicly available social media sites for situational awareness" and to "search on appropriate keywords, hash-tags, and other search terms on digital channels to find information for situational awareness." The actor charged with such functions, i.e. the Digital Communications Specialist "should monitor for messages sent from the public directly to the agency social media accounts" and take action in cases where incorrect information is discovered.

A case study scenario on Hurricane Sandy of 2012 where more than 15 staff from multiple FEMA offices at the peak of the storm were supporting the social media operation, via social media content and managing media accounts such as the newly established Facebook and Twitter accounts to provide updates on Sandy response and recovery. Situational awareness was also aided by shared "social media discussions on power outages, volunteering and donations, and sentiment about the response efforts." An important feature of the operation was rumour control, described in the following table.

Hurricane Sandy Rumor Control

♦ *A page on fema.gov and m.fema.gov (FEMA's mobile site) was created. When a rumor was identified, the social media team worked with ESF #15 staff to track down additional information and gather the correct information. These details were then added to the Rumor Control page, providing clear language about the misinformation and resources where people could find correct information for each rumor.*

♦ *Rumor Control messages were shared widely by FEMA's social media accounts, as well as by other responding agencies. The social media team shared this information with the interagency through the NICCL, and collaborated with state and local partners to share these messages and expand their reach.*

Table 5. Rumour control measures during Hurricane Sandy[56]

Recapitulating, the above paragraphs show that social media have established a firm role in crisis management and have become part of the standard operating procedures of a large organisation such as the US Federal Emergency Management Agency (FEMA). As COSMIC research has shown so far, their contribution has been tried and tested in recent disasters and crises and there is no reason for this to be missing from the established procedures of European organisations of a similar mission, for example the European Mechanism for Civil Protection.

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[56] ibid

3.3   REAL-LIFE RESCUE-MISSION SCENARIOS – THE CASE OF AN NGO

Following the general concepts from the point of view of standard operating procedures which stem from a large state organisation, as shown in the previous sections, we now turn to response scenarios concerning responders and responders and the public, realised by another type pf stakeholder, namely a civil society organisation (NGO). These are based on real-life experiences of our partner organisation Hellenic Rescue Team (HRT). Before those, we refer briefly to the organisational structure and the standard operating procedures used by HRT for the activation of the response mechanism.

3.3.1   Organisational structure

The Hellenic Rescue Team is a Non-Governmental Organisation (NGO) dedicated to Search And Rescue (SAR), whose members have participated in SAR operations since 1978 on a voluntary basis. Since 1994, HRT has operated in the legal form of an association. The central administration is based in Thessaloniki, with over 30 branch offices throughout Greece.

The organisation has been certified by the General Secretariat of Civil Protection[57], belonging to the Hellenic Ministry of the Interior under Registration No. six (6), and since June 2005 by the UN's International Search And Rescue Advisory Group (INSARAG)[58]. HRT is in constant cooperation with the Hellenic Foreign Ministry and the European Community Humanitarian Office (ECHO)[59]. It is also a full member of the International Maritime Rescue Federation (IMRF)[60], the World Mountain Rescue Federation (IKAR-CISA)[61], and the International Rescue dog Association (IRO)[62].

With a workforce of more than 2000 volunteers throughout Greece, HRT participates and has participated in search and rescue operations in emergency situations and massive disasters throughout the world. Staff includes volunteer professional and amateur rescuers with sound scientific and technical training. The organisation chart is shown in the next picture. The organisation is represented by a person who presides over the Board of Directors (President).

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[57] http://www.civilprotection.gr
[58] http://www.insarag.com
[59] http://ec.europa.eu/echo/about/index_en.htm
[60] http://www.international-maritime-rescue.org/
[61] IKAR CISA - International Commission for Alpine Rescue Commission - Internationale du Sauvetage Alpin http://www.ikar-cisa.org/
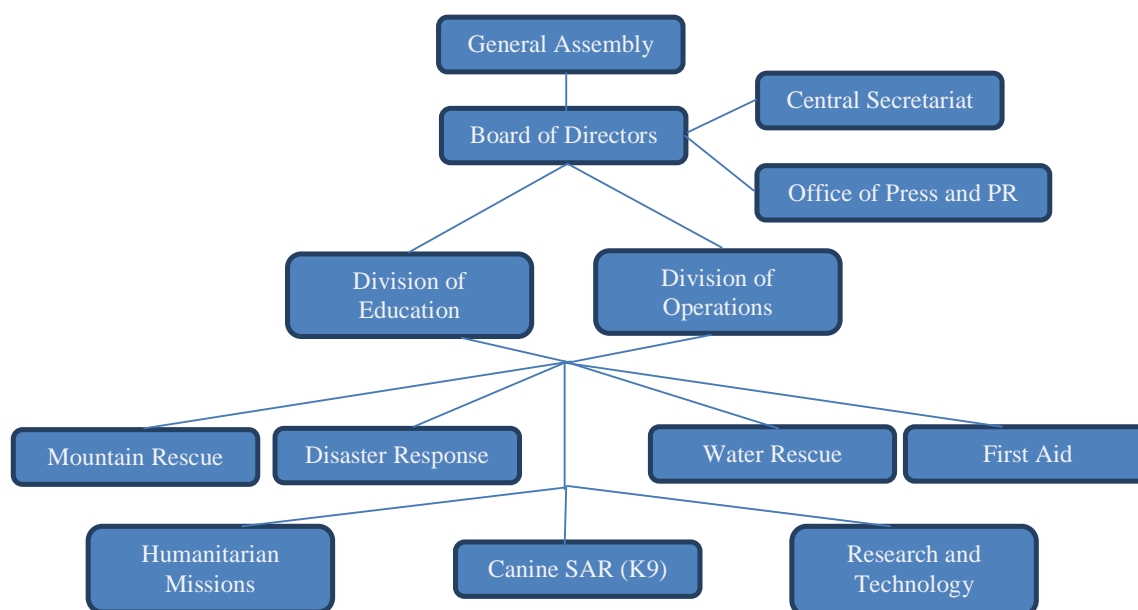[62] http://www.iro-dogs.org/en/iro-home/introduction.html

Figure 3. Organisation chart of the Hellenic Rescue Team

3.3.2 Activation procedure of the response mechanism in crisis situations abroad

In what follows, we first show the corresponding standard operating procedures of HRT prior to their application in realistic scenarios.

On receipt of initial information relating to a possible disaster, the management of operations is activated and the following procedure is initialised:

PHASE A
1. The Operations Division carries out an initial cross reference of the received information (signal). This procedure is executed using all possible communication channels (GDACS[63], the On-Site Operations Coordination Centre (OSOCC), traditional and **social media** and others)
   - if the signal is not verified then the procedure is repeated in two hours time.
   - if the signal is verified then:
2. The Mission Support Team (MST) is initialised and the Board of Directors is informed of the situation.
3. The MST
   - Monitors the Virtual On-Site Operations Coordination Centre (VOSOCC)[64], the GDACS, and all media and issues brief & concise reports for internal briefings.
   - Proceeds to send requests for sponsorship for a possible mission in cooperation with the Office of Press & Public Relations.

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[63] The Global Disaster Alert and Coordination System (GDACS) is a cooperation framework between the United Nations, the European Commission and disaster managers worldwide to improve alerts, information exchange and coordination in the first phase after major sudden-onset disasters.
http://www.gdacs.org/monitor.aspx
[64] This is part of the GDACS for information exchange and coordination of bilateral assistance in the early phase after major disasters, http://vosocc.unocha.org

- Informs all divisions and branches for the possible initialisation of a mission in the affected country.

Instructions – notes
- In PHASE A an initial assessment of the situation is carried out on the basis of the first information collected. In order to save time in case an operation to the affected country is decided, the steps required to prepare for such an operation are planned even before a decision is made.
- All the information collected by the team's monitoring mechanism has as a final addressee the Director of Operations, who is in constant communication with the Board of Directors to support the decision-making process.
- The Mission Support Team comes under the Division of Operations.
- Steps 1 - 3 must be completed within 6 hours from the receipt of the initial signal (T+6h).
- In T+6h the first assessment of the situation should be completed and a response decision finalised.

PHASE B – Finding financial resources – How to dispatch
Phase B is conducted once the first assessment of the situation has been considered as positive and a decision on the necessity of response has been taken.

1. The Division of Operations prepares the initial budget of the mission and submits it to the Board of Directors.
2. The Board of Directors (BoD) considers possible means of funding (self-funded or through sponsorships) with potential sponsors already contacted in Phase A.
3. Depending on various factors, such as the type of emergency, the location of the country where the emergency has occurred, and others, the BoD considers sending an initial Exploratory Team (ET) of only 2-3 people to the affected area to assess the situation from first hand and to provide inside information on the situation.
4. The Ministry of Foreign Affairs is contacted by the President of HRT for the possible disposal of a C-130 aircraft in order to transport the team to the emergency site.
5. If the funds are available then a final decision is made to launch a response mission.

Instructions – Notes
- Financing of an operation can be self-financed or through sponsorships. Self-financed operations usually only occur for nearby incidents.
- The information that is considered when assessing the situation includes, among others, the number of victims and the status of any international mobilization.
- The Exploratory Team (ET) consists of individuals experienced in missions and similar procedures, regardless of specialty or department.
- The departure of an Task Force (following the ET) should occur within 18 hours of receiving the initial signal (T+18h) and only once the final decision for the operation becomes positive.

The following actions occur simultaneously
1. The MST performs preparatory tasks for the mission of the ET, which departs as soon as they are finished. These tasks include the following:
    - Collecting information on accessing the affected area (point of entry).
    - Compiling a contact list of local bodies.
    - Reporting to the VOSOCC.

- Briefing the ET on the latest development (situation reports).
- Means of transportation, tickets, etc.

2. The team prepares for the mission by retesting the equipment and notifying members for the creation of a task force. This task force is established with a written joint decision of all branches and divisions which will participate in the operation as well as the Board of Directors.
3. Confirmation must be obtained on the logistics of the operation, i.e. when the team departs, how, etc.
4. The ET departs within a time interval which should be not larger than 24 hours after the receipt of the initial signal (T+24h)

PHASE C – Mission in progress
The following Operations Support Procedures are applicable during an operation by the Division of Operations:

1. Activate the HRT's 24-hour central Operations Centre (OC). Personnel are provided by all divisions who can support the mission.
2. Regional operation centres are also activated so as to support the OC by collecting information on all the latest developments via the monitoring of all prescribed frequency and communication channels.
3. The Press Office periodically issues press releases on the status of operations. The material is supplied by the Division of Operations. Updates on the operations are also posted on the HRT's website and social media accounts, such as those in Facebook, Twitter, YouTube.
4. A complete and detailed log book on all OC actions relating to matters concerning the evolution of the mission, must be constantly maintained.

Instructions – Notes
Once the ET arrives at its destination, i.e. the affected area, it acts according to the INSARAG guidelines, as briefly shown below:
- Contact the Reception / Departure Centre (RDC);
- Login to OSOCC to retrieve and post information on the current situation;
- Set up a Base Of Operations (BOO) camp. Set up network communications;
- Login to the OSOCC for mission assignment;
- Participate in daily cluster meetings;
- When the mission ends, contact the RDC;
- Return home.

Every evening (local time of the affected region) the ET informs the OC with a detailed report on the actions performed throughout the day.
The OC also continuously monitors the VOSOCC so as to provide extra support to the ET.

PHASE D – Return
1. Upon arrival of the team an immediate debriefing follows
2. 1-2 weeks after the operation the debriefing of other groups and individuals is performed
3. A final report on all actions performed during the mission is drafted and sent to the OCHA within 45 days after the return.

The application of the following procedures is shown in the two earthquake incidents below.

3.3.3   Real-life scenario: Haiti 2010

In January 12th, 2010 and at about 22:00, an earthquake of magnitude 7 on the Richter scale occurred 27 miles west of the Haitian capital, Port-au-Prince.

The reception of the initial information (signal) on the incident took place at 22:30 of the same day via the platform of the GDACS (Global Disaster Alert and Coordination System). The HRT's Division of Operations activated the team's response mechanism for international crises. Cross-checks of the information received were performed by monitoring the international media and all notification and cooperation systems between the EU and the UN (GDACS and VOSOCC). Upon positive verification of the information, the Board of Directors of HRT was informed and the Mission Support Team was activated.

The Mission Support Team (MST) started to monitor closely the available information channels and updated in real-time the Director of Operations on all latest developments. The Press Office was also contacted for the publication of regular press releases on the current situation, while emergency information was also propagated to all members of the Hellenic Rescue Team of all sections and branches on the possibility of sending team members to the affected area. At the same time, the Office of Press and Public Relations directly contacted potential sponsors in order to investigate the possibility of covering the costs through external sponsorship.

Three to four hours after receiving the first signal, the HRT had already formed a draft list of available members who declared an interest in the mission. Also, all evidence suggested an increased operational status indicating that a rescue team could be sent within the calculated timeframe.

An initial budget was soon after established by the Director of Operations and submitted to the Board of Directors for approval. An emergency meeting of the Board of Directors was conducted in the early hours of January 13th, 2010 (T + 11h) and after taking into account the latest information and the initial budget gave a negative answer for sending a team to Haiti, as the support costs of such an effort were prohibitive. This was so because almost no response had been received from prospective donors and the mission had to be self-financed. Because of the fact that at an operational level the team was ready to respond, a small exploratory team of 2 persons was established and set on a 24h alert ready to depart immediately.

The Board sent formal requests to the Ministry of Foreign Affairs for the disposal of a C-130 aircraft and the possibility of the team boarding on it. By that time the Greek Government had not yet decided whether it would officially send any help to Haiti (T+15h).

The Mission Support Team (MST) performed all procedural tasks regarding the departure of both the Exploratory Team (ET) and the Task Force (TF) while the necessary equipment was also retested to confirm their operational status. The list of available volunteers for the mission was also compiled. From the list of available volunteers that had expressed an interest for their participation in the mission, 10 members were selected to form the operational team which was approved by the Board of Directors, the involved heads of departments and the

Education and Management Divisions. The ET and TF were ready to depart as soon as the means of transportation could be financed.

Over the course of time and while the volume of information about the event and its consequences kept increasing, the HRT, fully prepared for departure, began to investigate the possibility of converting the rescue mission into a humanitarian mission. Possible sponsors were contacted once again and, eventually, a sponsor who devoted considerable funds for the support the team's needs was found (T + 3d). The funds were sufficient not only to cover the cost of transportation, as the Greek State had yet to announce the dispatch of any kind of assistance, but also to fund humanitarian and development action.

Upon completion of all the necessary formalities for the disbursement of the amount, airline tickets were issued for the immediate departure of a 10-member Task Force. Due to the fact that the airport of Port-au-Prince was closed and flights were only accepted if originating from official public authorities for assistance missions, the HRT's team flew to a neighbouring country, namely the Dominican Republic, and from there using its own means (charter bus) transferred to the capital of Haiti. The team had departed knowing that the equipment would follow in a cargo flight to Haiti. Eventually though, and due to problems at the airport, it was later estimated that the cargo would arrive 10 days after the HRT had reached Haiti. Since the formulated operations plan forecast the HRT to remain in Haiti for 10 to 12 days, it was mutually agreed that there was no point in sending the equipment after all. This was the point that changed the objective of the mission.

Upon arrival, the ET contacted the Reception/Departure Centre of INSARAG and was informed on the situation. They also met with a representative of UNISEF to investigate the possibility of a development programme concerning the orphan children of Haiti. On the same day, the team set camp at the location selected by the United Nations and a network of communications was established to allow members to communicate with each other but also to allow exchange of information with the Operations Centre of the Hellenic Rescue Team in Greece.

On the 22nd of October, 2010 the United Nations officially announced that all search and rescue missions had been terminated and soon after all international SAR teams present in Haiti since the first few hours after the earthquake began preparations for departure. On the 23rd of October though, and despite the termination of all SAR missions, efforts of the HRT's ET led to the rescue of a survivor found alive in the ruins of a building. With the help of French and American SAR teams, the victim was retrieved from the debris 11 days after the devastating earthquake. It is worth mentioning that **the information on a possible survivor was propagated very rapidly throughout the world via a tweet that was broadcasted at the time.** The "tip" was confirmed by the United Nations centre of operations and subsequently the SAR teams available at the site were commanded to proceed with the rescue operation.

During the remaining days, the HRT was in constant communication with the UN's coordination centre and until the 28th of January, 2011, they were asked to cross-check several other "tips" similar to the tweet that lead to the rescue of the aforementioned victim. HRT also participated in the successful recuperation and transport of electronic equipment and documents from a collapsed UN building in Haiti.

On the 27th of January 2011 HRT began preparations for the departure of the team from Haiti, which occurred on the very next day. On the 28th of January 2010, the Hellenic Rescue Team arrived at the Macedonia airport of Thessaloniki and over the course of the next days, essential processes (debriefing) were performed in order to draw conclusions and valuable lessons from the mission as well as prepare a report to be sent to the Office for the Coordination of Humanitarian Affairs (OCHA).

3.3.4   Real-life scenario: Chile 2010

On the 27th of February 2010 and at 08:34 Eastern European time, an earthquake of size 8.8 of the Richter scale struck Chile. The initial information on the earthquake was received from the media and was immediately cross-referenced by the available briefing channels of the Hellenic Rescue Team (GDACS, VOSOCC and social media). The Mission Support Team (MST) was immediately activated by the Division of Operations while at the same time the Board of Directors was informed of the situation.

Based on the procedure followed in such cases and with the recent experience of the Haitian earthquake in mind, the MST proceeded with the continuous monitoring and recording of all new information through GDACS, VOSOCC, traditional and social media while also publishing briefings for the event every two hours. In cooperation with the Office of Press and Public Relations, potential sponsors to support a possible mission were contacted. All branches of the HRT were also contacted and informed with all the latest data on the incident. In less than five hours, a picture of the situation had already taken shape and the Division of Operations submitted the initial budget to the Board of Directors, which was examined taking into consideration all current data.

The sponsor who had contributed all the necessary funds for the Haiti mission again provided financial help and an Exploratory Team of two (2) individuals was formed. This would depart immediately once a more explicit picture of the situation was available and once preparatory work could be completed to support the arrival of a subsequent Task Force. The ET was ready to depart immediately for Chile within 19 hours (T+19h) of the reception of the initial signal. At the same time, procedures for the formation of a Task Force continued, including retesing of the equipment (even though it had been proven operational during the previous mission in Haiti). Upon arrival in Chile the ET contacted local institutions and authorities and in combination with the fact that the government of Chile had not declared an official demand for help, the situation was re-evaluated and was decided that an Task Force would not have to be sent to Chile for assistance. The ET returned to Greece in the following few days.

3.4   CONCLUSIONS

Scenarios for emergency response have to be based on field experience and information available to rescue organisations taking part in the course of a crisis incident. To this end, in this chapter, we examined the basic aspects of such scenarios from two points of view:
- The organisation's mode of operation in specific events via their Standard Operating Procedures (SOPs)
- The application of those to real-life situations as experienced by the COSMIC partner the Hellenic Rescue Team

In both categories, our findings point to the fact that the presence of social media appears particularly important. The establishment of a specific geographically distributed organisational unit per incident, dealing with digital communications and social media in particular, is foreseen in the SOPs of the US FEMA. This is supported by the real-life account of its role during Hurricane Sandy and the added application of a specific "rumour control" procedure. The additional evidence supplied by SOPs and the real-life situations confirmed that social media:

- Provide help towards responders by completing the building of situational awareness
- Are able to supply additional information, in particular at the first stages of a catastrophic incident, which can be decisive in attracting external funds and sponsoring and therefore enabling the participation of voluntary organisations (NGOs) such as the HRT
- Can provide valuable information able to direct rescuers of survivors
- Are a means of publishing information towards the public concerning rescue efforts and other vital to life information

4   OVERALL CONCLUSION

We examined the use of new technologies to satisfy strategic communication goals of relevant stakeholders during crises. This was examined at three different levels, namely:
- among responders/law enforcement agencies
- between responders and the public
- among the public themselves

We identified four strategic goals relating to communication that are essential for stakeholders to be able to utilise communication to enhance their abilities to manage a crisis situation. These include: two-way communication, one-way communication/alerts, information sharing, and situational awareness. These goals should not be treated in isolation, but rather, should be considered in relation to one another as, under some circumstances, they are dependent on each other for enhancing crisis management. For instance, during a flood, in order for the public to assist responders in gaining situational awareness, information sharing (e.g., photographs or video content), two-way communication (e.g., being able to verify information, or request further information) are essential to building situational awareness which in turn can contribute to decision making to help coordinate response efforts.

Subsequently, we showed scenarios on how existing and emerging technologies, can potentially meet these inter-connected strategic goals for these stakeholder groups across the different phases of a crisis. We examined the basic aspects of such scenarios from two points of view:
- The organisation's mode of operation in specific events via their Standard Operating Procedures (SOPs)
- The application of those to real-life situations as experienced by the COSMIC partner the Hellenic Rescue Team

In both categories, our findings point to the fact that the presence of social media appears particularly important in:
- The provision of help towards responders via supplementing the situational awareness picture

- Their ability to supply additional information, in particular at the first stages of a catastrophic incident, which can be decisive in attracting external funds and sponsoring and therefore enabling the participation of voluntary organisations (NGOs) such as the HRT
- The supply of potentially valuable information able to direct rescuers of survivors
- Their role as a means of publishing information towards the public concerning rescue efforts and other vital to life information

In the second part of this document the existing treatise will be enriched via the investigation of other strategic goals such as the creation of partnerships between stakeholders for the improvement of services or the opportunities offered by the interoperability between different systems and the exchange of data.