Preamble

Social media platforms have become a feature of everyday lives of millions of people and can play a vital role in saving and safeguarding people's lives and livelihoods. Platforms such as Facebook, Platform X (formerly called Twitter), Wikipedia and other social media sites are useful tools to educate populations on natural and technological disaster prevention and preparedness (*e.g*. preparedness checklists, behaviour to be adopted, information on where key survival items are available); provide live updates on the impact of disasters people witness as it unfolds or simply inform about individuals' whereabouts and conditions; communicate about ongoing events and their impact.

While these platforms have gradually become a communication tool for official crisis managers and rescuers, they require specific competences and raise challenges related to citizens' expectations and new uses as well as in terms of informational disorder. Social media impact official crisis managers and individuals' practices across three dimensions: informational, communicational and organisational.

The SAPEA working group (2022)[1] Strategic Crisis Management in the European Union sheds light on three actual global trends: the increasing frequency and severity of natural disasters, the increasing vulnerability of the States and the increasing complexity of the management of these events. It recalls the importance of taking into account four dimensions: the scale of the event (i.e. its magnitude and frequency), its type (e.g. human-made and natural hazards), its timing (i.e. sudden onset, creeping or protracted crisis) and its level of governance (local crises, crises unfold within the borders of a nation state or transboundary crises affecting multiple sectors in multiple states).

In 2023, the Computational Social Science for Policy (CSS4P) Unit at the Joint Research Centre, European Commission (Ispra, Italy) published its first handbook[2] where social media for crisis management is presented both as a field of application and as a domain, that may benefit from such scientific methodology. Social media data can support contextualisation and understanding of an event through the multiple formats and sources while methodologies such as social network analysis become a means to characterise, understand and define the dynamics of a disinformation campaign.

In a post-Covid-19 context, the timely challenges raised by social media concern both the questions of ((re)building trust between citizens and public institutions by encouraging the recognition of citizens as the first link in the crisis management operational chain) and fighting against the several types of informational disorder by accompanying professional practices to become acculturated to digital tools.

In this context, disaster risk reduction policy and practices must address these two questions in order to better understand their associated stakes (e.g. situational awareness, information disorder reduction, crisis communication, collaboration with main stakeholders) as well as being more prepared to include these tools in case of major events. By doing so, they also contribute to preparing civil society to use these media

[1] https://sapea.info/topic/crisis-management/ [25/07/2023]

[2] https://link.springer.com/book/10.1007/978-3-031-16624-2 [25/07/2023]

during a disaster. This aspect is not limited to the reception of key messages from official institutions (following a top-down perspective). It also covers possible interactions with public institutions, and the integration of citizen-led initiatives (on a top-down or more horizontal perspective).

This set of guidelines is intended to ensure that national governments and their counterparts at regional and local level, civil society organisations, relevant offices in both the public and private sectors as well as citizens gain a clear idea of how to mobilise, communicate and interact with digital tools such as social media and mobile applications in a disaster. It begins with a set of working definitions and then considers the requirements of good preparedness during all phases of crisis management: mitigation and planning (disaster risk reduction); alert, emergency action and recovery. The mobilisation of digital tools such as social media and mobile apps. needs to be considered with respect to all these phases for successful disaster risk communication.

Successful implementation

Disasters and their impacts can vary considerably from one place to another around the world and emergency response systems are strongly influenced by their political and cultural backgrounds. However, the conceptual approach to disaster risk management can be summarised in terms of a set of common factors[3].

1. Political commitment. Governments must commit themselves to developing disaster risk management strategies including new channels of communication and digital tools as well as citizen-generated content and initiatives as part of their overall political agendas. As part of the more general endeavour to ensure the safety of populations and the associated risk or disaster communication, they must consistently pay attention to both the large panel of tools evolving rapidly and the new democratic space of expression some of these tools have also been constituting since the Internet (*i.e.* social media today).

2. Coordination and continuity. In order to guarantee the effective development, application and monitoring of emergency systems, one particular body of governmental administration should be responsible for the coordination and continuity of initiatives. In close cooperation with all relevant stakeholders, it would be the task of the coordinating body to make sure that all relevant information is collected and centralised. Specifically, the coordinating body guarantees the interoperability of the emergency systems mobilised by each of the main agencies of a State (such as e.g. Health services, Civil Protection, Police, etc.) in order to support the first operational dimension of collaboration in a disaster. The coordinating body could also ensure a technological and research watch in order to monitor and easily integrate innovations and good practices into the main disaster management task forces.

3. Networking. At least one network should exist that allows stakeholders to meet and exchange information about the challenges to be met if risks are to be identified and solutions are to be found. These networks should always be open to new members, specifically to civil society whose actors may be competent regarding targeted risks or

[3] EuCAN, 2008, p.18
https://www.eurewelcome.lu/online/www/menuContent/documents/18/19/containerContent/37/41/11/FRE/ECAA_final.pdf [25/07/2023]

disasters, should proceed both on site (i.e. in the physical world) and online, and should take full account of evolutionary changes in technology, habits and expectations regarding digital tools.

4. Strategic planning. A master plan should be set up and updated. The organisation of training activities and the evaluation of emergency exercises should be part of a continual process of adaptation of the master plan. Communication and digital aspects should be systematically included "by-design" into each strategic plan. Consequently, the master plan should include both digital strategy (such as communication through social media and other digital apps. available in the state) as well as the management of "media pressure" (such as rumour or information disorder campaigns on social media) and of online citizens' requests and citizen-led initiatives.

5. Knowledge management. A coherent programme of knowledge management should be used to ensure the transfer of acquired know-how to those who can benefit from it. This knowledge would facilitate the organisation of training activities and allow emergency schemes to be constantly improved. The involvement of civil society (*e.g*. Virtual Operational Support Teams[4] and relevant associations or actors depending on the risk/ disaster) will provide specific benefits.

6. Identification and optimisation of resources. The evaluation of a master plan and continual updating of its capacities, and the general level of knowledge, should allow stakeholders to estimate needs regarding financial, organisational and human resources. This includes the identification of the availability of (digital) expert communities such as the VOST (virtual operation support teams), or other non-affiliated relevant volunteers. At the same time, the best possible use of existing or new resources may allow the action plan to be improved.

7. Communication. In order to ensure that everyone is kept informed about the state of preparedness, a good communication policy is needed. Energetic dissemination of information based on all the channels, historical (i.e. traditional media, press releases) and newly available (i.e. social media, cell phone text message broadcast and other public or private applications supporting information spreading)[5] will ensure that more and more relevant stakeholders are contacted and involved in the preparedness and operational processes.

Phases of transition

The level of implementation for emergency strategies is very different at international level. In order to identify the level of preparedness, different phases can be identified, namely: awareness, inception, development and consolidation. These phases are summarised in the following table.

[4] VOST: https://vosteurope.org/ [28/07/2023]

[5] See also Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code, which also refers to warning systems and emergency communication https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02018L1972-20181217 [02/08/2023]

	Awareness	Inception	Development	Consolidation
Political commitment	Motivating the government to become active	Deciding to start the process of implementation	Creating an official mandate and attributing tasks	Including the measure systematically in budget provisions
Co-ordination	Deciding who should take responsibility for the task	Nominations and job description	Organising actions and reporting	Establishing the co-ordinating body in official structures
Networking	Identifying potential partners	Inviting internal and external partners and defining roles, structures and working methods	Establishing working methods	Maintaining the structure and acquiring expertise
Strategic planning	Looking for possible models	Defining goals, aims and actions	Developing a master plan with agreed and fixed strategies, actions, time scale and resources	Organising an on-going assessment of quality and success levels
Knowledge management	Rising levels of interest and appearance of questions	Situation analysis (legal framework, documentation, etc.) Identifying needs for education or external expertise	Setting up a common knowledge base (for education, training, information, conferences, etc.)	Managing newly acquired knowledge on an on-going basis
Resources	Looking for existing resources (voluntary roles)	Clarifying the allocation of resources	Allocating resources according to a master plan and opportunities	Assigning stable resources
Communication	Interest appears (through key experiences, press releases, etc)	Communicating and announcing intentions Seeking external exchange and communication	Communication and feedback of steps achieved	Ongoing monitoring of quality and success (customer relationship management)

Creating action plans

Once political commitment has been secured, coordination arrangements have been agreed and are operational, and collaborative networks have been established, an action plan can be defined. This usually comprises of four phases: **p**revention (long-term planning and disaster risk reduction), **p**reparedness (shorter-term emergency planning and early warning), **r**esponse (emergency management and humanitarian assistance), and **r**ecovery (rehabilitation, returning to normality and reducing future risks). While improving disaster resilience through the PPRR stages, three resilience-building dimensions have to be taken into account: disaster risk reduction (minimising residual risks), emergency management (building safe communities through shared responsibility) and community development (creating social capital for disaster)[6].

While the PPRR stages or the distinction between disaster risk reduction and emergency management constitute two categorisations encompassing the same actions, community development, *i.e.* supporting social interactions and competencies, constitutes a critical and transverse set of actions which requires specific attention to effectively build resilient society on a territory.

Prevention and preparedness / disaster risk reduction

Before disasters strike, national policies, legal framework, plans and programmes should be developed to support the integration and use of digital tools such as social media into practices and facilitate communication and collaboration with civil society. This includes the adoption of decisions to face the known present challenges:

- **Technical** - *e.g*. data quality, trust, format content, interoperability, AI and big data questions, collected data visualisation, recommendation systems based on social media data: promoting specific research grants and collaborations in an end-user-perspective (covering both public and private actors);
- **Legal and ethical** - *e.g.* the absence of a legal basis to involve citizens, concerns about personal data protection and privacy, issues of co-accountability of actors, empowerment, equity, justice or fairness, and other unintended consequences related to social media and digital tools such as rumours:
  - Defining programmes and promoting media education and training to face information disorder;
  - Implementing working groups gathering experts, lawyers, ethicists and social scientists to draft and discuss a timely political and legal agenda to draft and enact legal framework both allowing to involve citizens (VOST or unaffiliated volunteers) and setting also limits of IT uses;
  - Fostering collaborations with public and IT companies which mobilise specific design methodologies to embrace the previous ethical questions when defining and developing new digital tools (i.e. embracing an "ethics-by-design approach").
- Organisational - *i.e.* challenges faced inside official crisis management institutions such as lack of time and resources, reorganisation of the operational plans:

[6] Neil Dufty (2012) "Using social media to build community disaster resilience" - Australian Institute for disaster reduction https://knowledge.aidr.org.au/resources/ajem-jan-2012-using-social-media-to-build-community-disaster-resilience/ [01/08/2023]

- ➢ Allocating funding to recruit additional and digital competent human resources and to train teams;
- ➢ Defining and implementing a concrete digital communication strategy on social media to being identified by civil society in this digital space, being heard when communicating during the event and being able to identify and face any information disorders - this action includes collaboration with VOST;
- ➢ Giving more time to test and experiment operational new rules and procedures (such as digital communication strategy) integrating both social media and other digital tools uses as well as citizens' involvement; making these actions compulsory.

The overall goal of these phases is to ensure that the society as a whole acquires a (digital) hazard culture and shares the same knowledge, competences, and values to face a disaster.

Response / emergency management

- ❖ This phase aims at facing the occurrence of the disaster. To do so, it should embrace digital opportunities by including the two following actions:
  - ➢ Activation of specific networks of actors (depending on the nature of the expected disaster) to monitor the environment: *e.g.* VOST to screen the social media (and identify potential information disorders), expert communities (*i.e.* including civil society) to support both top-down communication and bottom-up information/initiatives gathering;
  - ➢ Timely top-down communication through historical and new media (*e.g.* cell-broadcast, social media) to inform the civil society - this can include relying on VOST.
- ❖ Specifically, the mobilisation of digital tools as an additional channel to assess and communicate, collaborate and engage with citizens can be implemented as follows:
  - ➢ Using social media data as an additional situational assessment tool to obtain a clearest vision of the disaster and scaling up or down the means consequently - this action can be assumed by VOST or other pre-identified expert communities (*e.g.* air or water pollution, level of water rising, etc.);
  - ➢ Mobilising (digital) expert communities (*e.g.* WAZE[7], google map communities) to both collect relevant data and information regarding the state of roads, landscapes etc. and update usual maps used by citizens;
  - ➢ Communicating through a top-down perspective using cell-broadcast and social media about the situation. When possible and relevant, engaging with citizens by answering their requests on social media;
  - ➢ Monitoring the digital space to identify any potential information disorders (rumours or disinformation campaigns) to avoid any panic or fear which may lead to disastrous consequences on the field (*e.g.* people movement towards an area touched by wildfire) - this action requires the mobilisation

[7] Waze is a mobile application for driver assistance and navigation assistance based on a satellite positioning system coupled with a map its users can modify, based on the principle of participative production. The calculated route can be updated in real time using information linked to traffic conditions.

of specific tools and methodologies supporting the identification of information disorders based on characterisation of social networks.

This set of actions will be successful only if digital tools and specifically social media are included in the prevention and preparedness stages. Indeed, these two previous phases constitute the basis of effective trust and collaboration between official crisis management institutions and civil society as a whole supporting actors to build, acquire, and share the same digital culture i.e. contributing to developing a resilient community.

Recovery

During the recovery phase, the official crisis managers and rescuers communication constitutes a key-action in a context of extreme uncertainty, fear and traumatism. Historical and new media channels have to be mobilised to ensure the whole population (victims or outside the affected area) received timely and relevant pieces of information about both extent of damage and potential number of casualties as well as the ongoing rescue operation and recovery actions.

- Being present and communicating to hold and limit:
  - Spread of information disorder through the occupation of media space and early identification of rumours or disinformation campaign;
  - Emergence of unaffiliated citizen-led initiatives which can telescope and impede ongoing recovery actions when they are not adapted or too numerous.
- Monitoring citizen-led initiatives to collaborate and engage with civil society by:
  - Identifying needs or issues in real time and taking them into account in the ongoing operational plan;
  - Relying on citizen-led initiatives when a need is not yet met, when the capacity of operational resources is insufficient or when their action covers a non-priority issue.

The recovery phase is a key stage in the building of trust and co-reliability between official institutions and civil society. It becomes a means to anticipate the preparation of feedback on the event and the actions taken. The inclusion of civil society in the feedback process is a means to promote transparency and reinforce trust and resilience.