STRENGTHENING DISASTER RESILIENCE THROUGH SOCIAL MEDIA AND CROWDSOURCING

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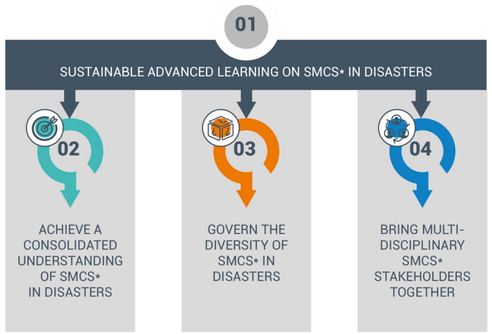
1. INTRODUCTION

Social media and crowdsourcing (SMCS) are increasingly proving useful for addressing the effects of natural and human-made hazards. SMCS allows different stakeholders to **share crucial information during disaster management processes** and to **strengthen community resilience** through engagement and collaboration. The **LINKS** (**Strengthening links between technologies and society for European disaster resilience**) Horizon 2020 project intends to strengthen societal resilience by contributing to a better understating of and learning on the uses of SMCS in disasters. The actors whom the project is addressing include: **practitioners**, **policy and decision makers**, **research networks**, **industrial bodies**, and **citizens**.



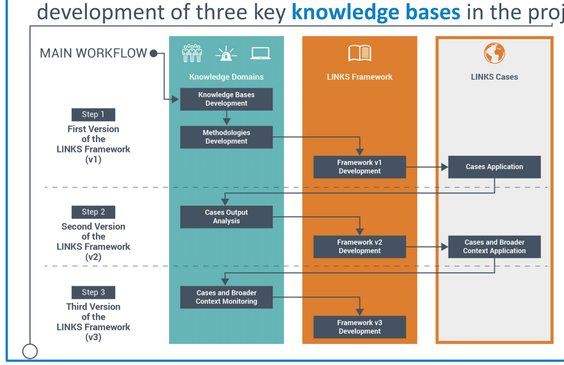
2. METHODS

The methods applied in different phases of the project include:

- **Desk studies on the state of the art** of specific knowledge domains related to the use of SMCS in disasters, including disaster risk perception and vulnerability (DRPV), disaster management processes (DMP), and disaster community technologies (DCT).
- **Live and digital ethnography** including **surveys, questionnaires**, **interviews** across 5 different scenarios (the **LINKS cases**): earthquake in Italy, industrial hazard in The Netherlands, drought in Germany, flooding in Denmark, terrorism in Germany.
- **Participatory Action Research** including **focus groups** and **stakeholder engagement workshops** evaluate learning potentials of the project outputs.

3. RESULTS

LINKS is presently in the first leg of Step 1 in the project workflow. Preliminary results are related to the development of three key **knowledge bases** in the project.



Disaster Risk Perception and Vulnerability (DRPV)

Assessing changes in the citizens' perception of disaster risks induced by SMCS and assessing changes in vulnerability of practitioners and citizens

Risk perception is the way individuals and groups appropriate, subjectivise and perceive risks that might or might not be calculated in an objective manner during risk assessments. Vulnerability is intended as the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility to the impacts of hazards.

- **Vulnerability and risks perception** can be shaped by how we use SMCS. The latter can help to reduce vulnerability, but differences in abilities and possibilities should be considered
- Populations should be **educated to deal with disasters** using SMCS. The way SMCS are perceived affect **trust** in the authorities. **Accessibility of information** is relevant in the measure in which institutions are able to provide targeted communication while maintaining comprehensibility.
- Some **limits of SMCS in DRPV**: disinformation, fake news

Disaster Management Processes (DMP)

Assessing how SMCS changes the procedures and processes within the crisis and disaster management

Disaster Management Processes refer to the organization, planning and application of measures preparing for, responding to and recovering from disasters

- The **full governance and management potential of SMCS** in disasters is underutilized
- SMCS platforms provide a **window of opportunity to manage disasters more efficiently and inclusively**
- Challenges related to **politics, organisational set-ups, ethics, information quality and type of involved citizens**
- **Lack of resources and know-how** (especially from policy makers)
- Difficult to assess **how DMP adapt and change** in the light of the knowledge gained through SMCS
- Important focus on **multiple levels** and **multiple actors**

Disaster Community Technologies (DCT)

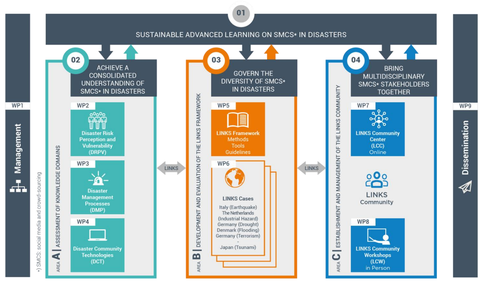
Assessing SMCS technologies used by different stakeholders in disasters

A DCT is a software(-function) for interaction with, within or among groups of people who have similar interests or have common attributes (communities) in case of a disaster as well as performing analysis of these interactions

- **Lack of overview of DCT** and technological know-how about the application of SMCS technologies in disasters
- A comprehensive structured overview of existing DCT is needed to achieve a **consolidated understanding of SMCS technologies in disasters**
- For this purpose, a **DCT-schema is developed to classify DCT**: e.g., visualisation, sentiment analysis, filtering, event detection, monitoring and aggregation of data, ways to collaborate
- Support **selection and practical implementation** of DCT

4. FUTURE WORK

The **key gaps, needs, and best practices identified across the 3 knowledge domains** are set to be tested in a series of upcoming case assessments across Europe. These findings will be the foundation for developing and evaluating an **interactive LINKS Framework** (**Area 'B' – Development and evaluation of the LINKS Framework**). The Framework consists of different learning materials for different stakeholders to provide a better understand and improve the application of SMCS in disasters. What needs to be learned by whom as well as how to enable dynamic learning processes, will become clearer in the course of the project. The Framework will follow a **three-step iterative process** and and be co-created through engagement with a multidisciplinary and community of stakeholders (**Area 'C' – Establishment and management of the links community and links community center**). They will collaborate with the LINKS Consortium to learn and benefit from the project development and results, and carry on the project outcomes into the future through an online platform (**LINKS Community Center** – LCC) and in presence events (**LINKS Community Workshops**– LCW).



5. CONCLUSIONS

Our preliminary results from the knowledge bases have shown that SMCS provide good **potentials for sharing information /experiences of different actors in times of crises**. Yet, the diversity surrounding the implementation and use of SMCS creates **uncertainty among institutions and individuals** as to the **efficacy and best practices for these solutions**. **Data and technology overload**, **false and misinformation**, **ethics and privacy**, and the **lack of accessibility by some vulnerable groups** create additional barriers.

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LINKS

Strengthening links between technologies and society for European disaster resilience