

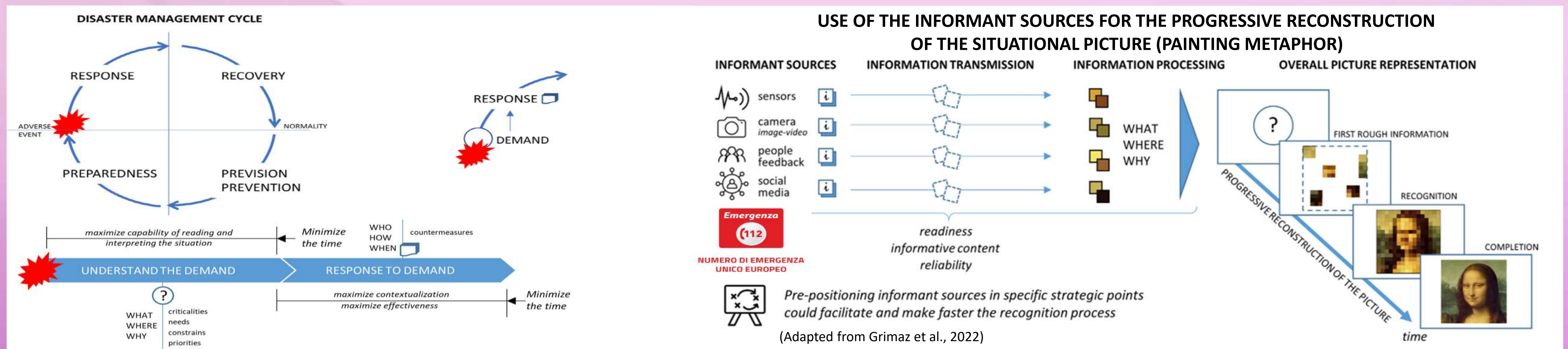
## Emergency Management and Information Technology: challenges and potentials

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### INTRODUCTION

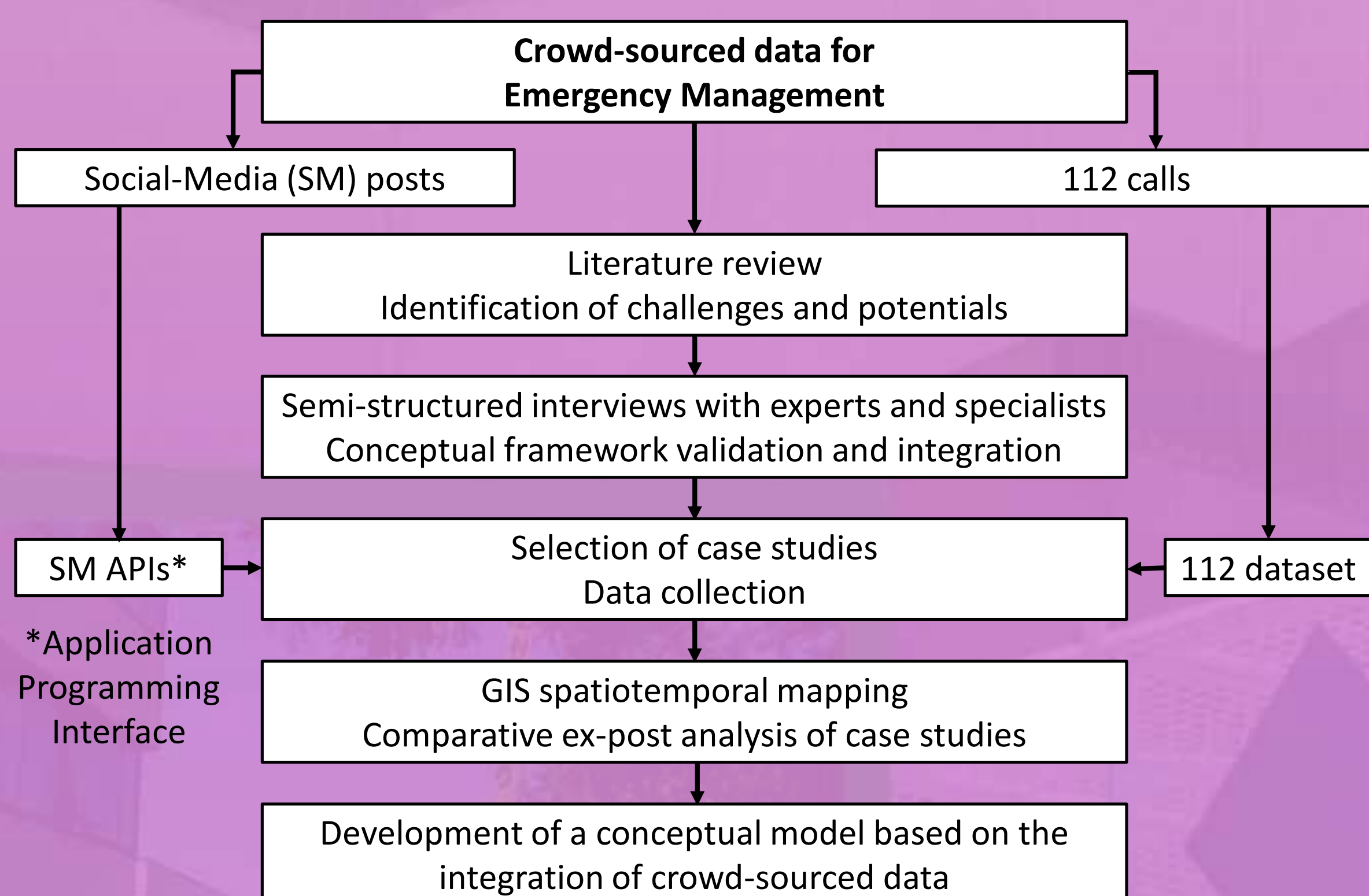
The widespread diffusion of portable devices enables data collection and knowledge sharing through communication networks formed by citizens (crowd-sourced data). The paradigm of citizen-sensing defines how information can be gathered and exchanged by people through their devices in a coordinated manner, allowing the individual to act as human sensor (Avvenuti et al., 2016). Disaster Management recognizes the opportunities associated with the huge amount of data from social networks (e.g., messages, photos, videos) as they provide an additional layer of information to support Emergency Services. Therefore, a research priority in this field is to leverage the possibilities offered by crowd-sourced data to improve decision-making and response capacity. However, social media data show some critical issues such as trustworthiness, information overload and privacy policies that limit their use for decision support systems. The overall objective of this project is to gain insight into the challenges and potentials of crowd-sourced data and highlight a new form of citizen-sensing: the database of Public Safety Answering Points (PSAPs) of the European Emergency Number 112.



### MAIN HYPOTHESIS

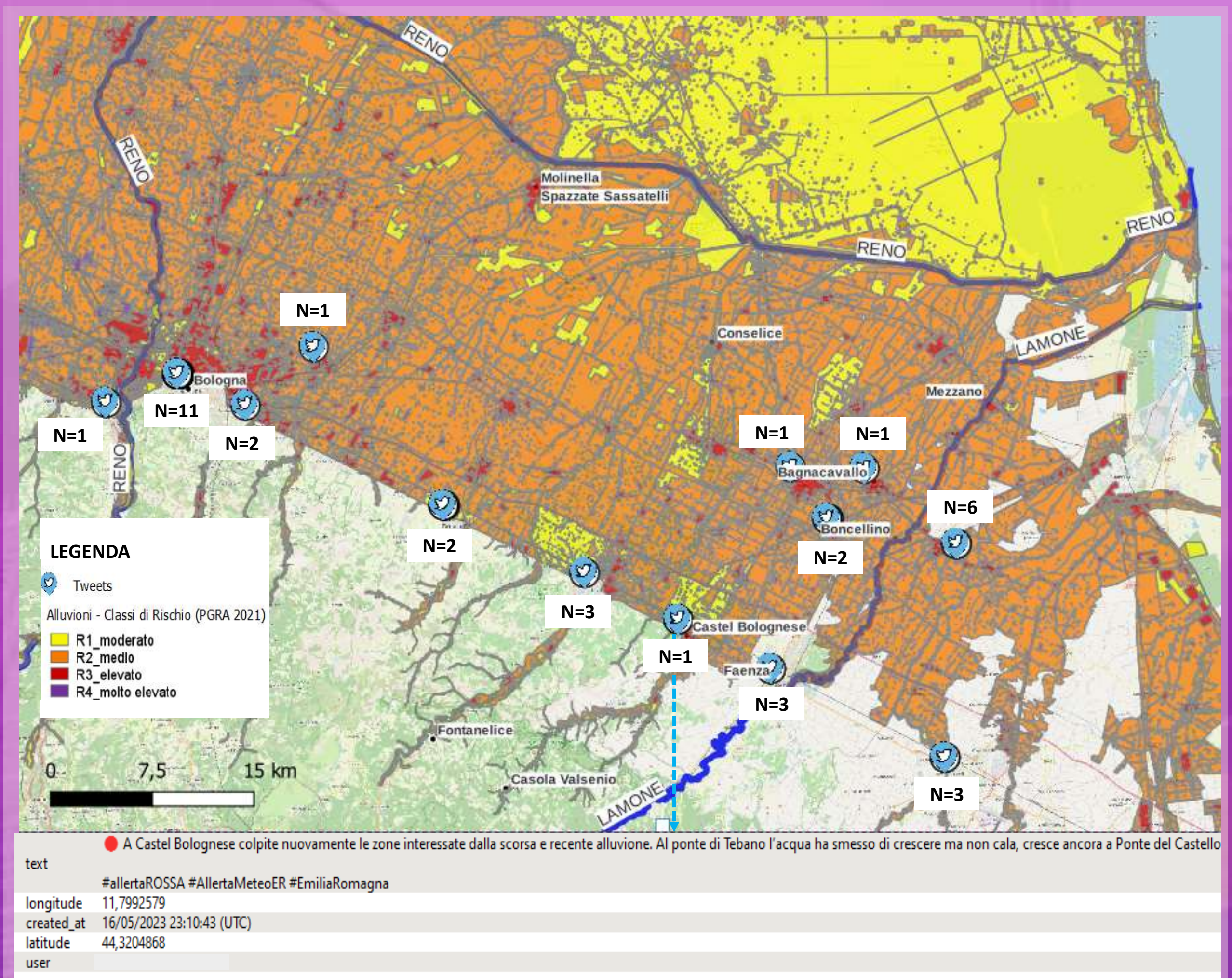
**Information and Communication Technology (ICT) and crowd-sourced data can support the Civil Protection System, enhancing situational awareness and decision-making in large-scale emergencies.**

### METHODOLOGY



### EXPECTED RESULTS

The research will provide the following contributions: (i) state-of-the-art of Social Media in Emergency Management (SMEM) and Next Generation 112; (ii) thematic maps on spatiotemporal distribution of social-media posts and 112 calls; (iii) Analysis and discussion of the results derived from the two types of citizen-sensing; (iv) development of an emergency management model that efficiently and effectively integrates crowd-sourced data with the traditional informant sources used by the Civil Protection System.



Case study: Emilia-Romagna flood on May 15-17, 2023. Data collection is based on querying Twitter API (Application Programming Interface) through Python coding. The query to retrieve tweets relies on the following Twitter trending hashtags and topics: #allertaROSSA, #AllertaMeteoER, #EmiliaRomagna, AlluvioneEmiliaRomagna. Preliminary results show geo-located tweets in high flood risk areas.