



I-REACT: Fighting against natural disasters with European R&D

- I-REACT studies how to combine information from satellites, drones, social networks, and information contributed by smartphone users to prevent and fight natural phenomena in record time.
- It will serve as a versatile solution for authorities, civil protection services, and citizens.
- Funded by the EU, the project brings together twenty organizations from nine European countries.

Extreme weather events such as floods, wildfires, or earthquakes, cause thousands of deaths every year, as well as great economic losses worldwide. According to the UN, in the last ten years, these phenomena have caused 0.7 million deaths, and cost 1.7 billion dollars. Moreover, the climate change-caused temperature increase is making these extreme weather events and their consequences grow in frequency and severity.

In this context, the I-REACT Project is conceived, which aims to develop a new platform for emergency response on a European level for integrating large amounts of data coming from different technologies, and analysing it in real time. That's what the acronym means: 'Improving Resilience to Emergencies through Advanced Cyber Technologies'.

This system will receive and integrate information from current European emergency prevention systems, and complete them with information obtained from satellites and drones. For a better spatio-temporal resolution, it will also analyse and integrate information from social networks, or directly from users of a mobile application. This same application will make it easier for authorities to send warnings to citizens, as well as guidelines to prevent these phenomena from becoming catastrophic. Lastly, emergency personnel will have access to new tools, such as precise geolocalisation devices, and augmented reality glasses with which to receive and transmit information from the affected zone to the emergency centre.

This way, citizens, civil protection, and policy makers will be able to prevent and react to disasters in an effective manner. The project is funded by Horizon 2020, the EU Framework Programme for Research and Innovation; and it will last for three years. Lead by the Istituto Superior Mario Boella (ISBM) in Turin, Italy, it involves twenty European participants in nine countries.



A system with tailor-made responses for each of the phases of an emergency

Emergencies have three key phases: prevention, preparedness, and response.

The **prevention** phase consists of preparing the community to eliminate or reduce the probability of future disasters. With that in mind, the I-REACT platform will integrate historic data from past incidents, real-time reports, weather forecasts, and satellite data. Combined, this information will generate precise maps for disaster prediction. These maps will relate to a decision-making help system which will help authorities effectively prevent future disasters.

The **preparedness** phase in the face of imminent disasters involves coordinating communication between governments, civil protection, and citizens, to be ready in the case of an emergency. With this aim, I-REACT will also analyse data coming from European Early Warning Systems, as well as information generated by citizens in social networks.

The third and last phase is **response**, in which first aid and evacuation are vital. I-REACT will integrate information from drones, mobile phones, and other portable devices, as well as augmented reality tools, to help first responders work against the disaster on the ground. At the same time, it will serve to warn citizens with information and guidelines in real time.

To carry out this scientific and technological challenge, the project involves a multidisciplinary team of European experts and a solid committee of advisers, in order to contribute to a more resilient future.

Additional information

Official website: www.i-react.eu

Project motion graphics video: www.youtube.com/watch?v=4t5ScCh6XU0&feature=youtu.be

Project infographic: <http://52.178.145.126/wp-content/uploads/2016/10/I-REACT-descargable-negro-1.pdf>

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