

E-CITIJENS

Civil Protection Emergency
DSS based on CITizen Journalism
to ENhance Safety
of Adriatic Basin



**PROMOTING SAFETY
AND RESILIENCE IN THE
CROSS-BORDER AREA
THROUGH INNOVATION,
PARTICIPATION AND
HARMONIZATION**

#EDSS

INCREASING SAFETY THROUGH SOCIAL MEDIA BASED TOOLS

Deliverable «Publications and booklets», WP 2 Communication Activities.
Activity 2.2 Media Relations, printed promotion documents and publications.
Partner in charge of WP: Adriatic Ionian Euroregion (PP7).
Partner in charge of publication: Adriatic Ionian Euroregion.

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Partnership

Lead Partner: Molise Region (IT)

Partners:

- P1 Split and Dalmatia County (HR)
- P2 Veneto Region (IT)
- P3 University of Split (HR)
- P4 EEIG EuRelations (IT)
- P5 University of Bologna (IT)
- P6 Pescara Municipality (IT)
- P7 Adriatic Ionian Euroregion (HR)
- P8 Zadar County Rural Development Agency (HR)
- P10 City of Dubrovnik (HR)

Project communication channels:

www.italy-croatia.eu/web/e-citijens

Facebook - Twitter - LinkedIn - YouTube

PROJECT DESCRIPTION

Overall objective

The objective of the E-CITIJENS project is to increase the safety of the Croatian and Italian Adriatic basin from natural and man-made disasters by enhancing Civil Protection's capacity at reducing disaster risk through an innovative emergency management system capable of harnessing the potential of social media networks

Specific objectives:

- equip the Civil Protection with an advanced and efficient Emergency Decision Support System (EDSS), based on a semantically enriched web platform integrating institutional data sources, local sensors and real-time updates voluntarily provided by citizens via the social media (citizen journalism)
- raising citizens' awareness of their role of «active sensors», while stimulating them towards a responsible use of social media during emergencies
- harmonise the Civil Protection Regulatory System in Italy and Croatia by identifying similarities and differences, critical issues to be dealt with, and by developing common technology-based operational models

E-CITIJENS main activities:

- A scientific analysis of current risk scenarios, emergency management legislation and social media applications to model a «social media based» Civil Protection emergency management system in three target risk categories: *floods, forest fires, earthquakes*
- Developing, testing and releasing a «social media based» Emergency Decision Support System (EDSS) platform also through 6 pilot deployments, simulations and exercises, aimed at assessing available methodologies, monitoring systems and technical knowledge across the cooperation area
- A Citizenship Awareness Raising Campaign targeting 150.000 people through a sustained programme of events including 12 Info Days and 30 Work Cafes, and participation in several international conferences in order to reach out to the widest scientific and civil protection community

- Definition of an Emergency Services Regulatory Framework and final Adoption Plan by directly involving local/regional elected members and public officials as well as representatives of civil protection and other emergency structures in 6 capacity building workshops

Main project outputs:

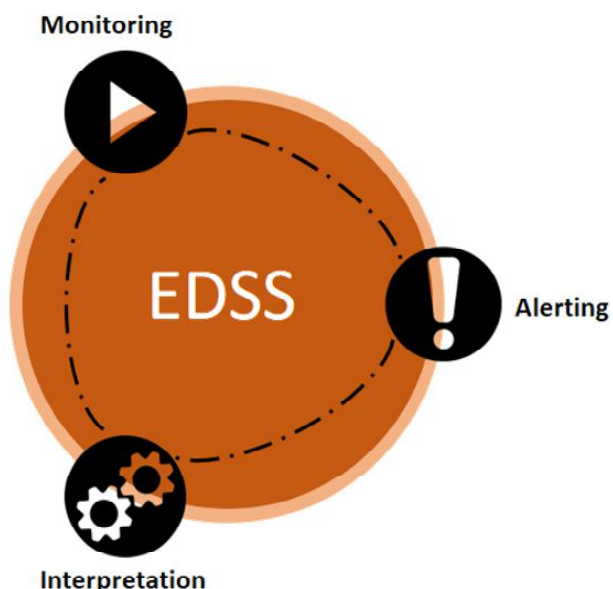
- A «social media based» Emergency Decision Support System (EDSS) platform, a Civil Protection Emergency System Model and a Cross-border Functional Centre, representing operational instruments to ameliorate the efficiency of emergency management
- A Citizens Participatory Awareness Raising Framework and a Cross-border Emergency Services Regulatory Framework, representing permanent guidelines for future actions and measures

BACKGROUND

With this publication we want to highlight the steps that were taken by the E-CITIJENS Consortium in order to create an innovative Emergency Decision Support Systems (EDSS) to support Italian and Croatian Civil Protection in achieving a better and more efficient management of natural and man-made risks by means of an innovative, social-media based tool. Also, we want to clarify the legislative-regulatory implications of the implementation of the EDSS. This activity was coordinated by PP1 Split and Dalmatia County.

The E-CITIJENS EDSS is a semantically enriched web enabled platform, able to integrate heterogeneous data from institutional (research centres, sensor networks, etc.) and information collected from social media sources, as to create place-based risk scenarios in real-time and facilitate decision-making and coordination with first respondents.

In a nutshell, the EDSS platform consists of monitoring, interpretation and alert integrated tools that work in real-time with a view to analyse data and identify actions to handle the critical event. The engine outputs analysis results in a reasonable time to make immediate the initiatives that must be undertaken. As far as the selection of social media posting, the platform works as follows:



- Identifies the posts containing one or more of common **terminology** keywords and/or the project hashtag (#EDSS);
- Classifies each post according to **scores** assigned to each key term;
- Identifies the posts with the higher potential of hazard and data aggregation level.

The value added of the platform is not only linked to the **participatory process** that it activates aimed at inducing citizens to change their role from traditional «vulnerable element» of emergencies to «active sensors». It also implies **governance and policy innovation** aspects that are worth underlining.

According to the Treaty of Lisbon, the EU has competence in supporting, coordinating or complementing national Civil systems for preventing and protecting against natural or man-made disasters». The E-CITIJENS project has worked towards enhancing the existing civil protection regulatory systems in Italy and Croatia as to improve their level of uniformity and similarity. An Emergency Regulatory Framework (ERF) was developed, consisting of recommendations and guidelines on the implementation of the EDSS. The ERF was developed considering transnational, national, regional and local levels and was addressed to local, regional, national and EU policy makers as well as civil protection stakeholders, who are now provided with a uniform cross-border emergency legislative basis.

The Emergency Services Regulatory (ESR) Framework described the status quo of civil protection systems in Italy and Croatia, and provided recommendations and guidelines for the inclusion of EDSS in the civil protection system of 6 out of the 10 project partners that represent administrative units:

- ◆ Molise Region, LP
- ◆ Veneto Region
- ◆ Pescara Municipality
- ◆ Split and Dalmatia County
- ◆ Zadar County
- ◆ City of Dubrovnik

The framework included basic requirements, a strategic review, an analysis of the current situation at partner level, as well as recommendations in six key areas (legislation, plans and procedures, operational centers, early warning systems, training and exercises and a cross-border functional centers.

In so doing, the E-CITIJENS delivered a coordinated action addressing current needs by using inputs and adaptations from local and regional civil protection departments and by trying to generalise results to a wider, national and European context and thus ensure continuity among levels of government. Coordination and cross-border collaboration was key to the success of the action and participation of local and regional authorities, stakeholders and citizenship to the E-CITITJENS activities clearly showed that there is interest in identifying best practices and exchanging knowledge in the quest for transferrable models for better and more efficient safety and resilience policies in the area.

FOUR-STEP PROCESS FOR THE CREATION, TESTING AND IMPLEMENTATION OF THE EDSS

The E-CITIJENS action can be summarised as a four-step process that led to the creation and testing of the EDSS as well as to the creation of the conditions for its implementation in the territories involved in the project and beyond.

STEP 1 MODELLING A SOCIAL MEDIA BASED EMERGENCY MANAGEMENT SYSTEM

The aim of this first step was to model «social media based» Civil Protection emergency management system to establish a cross-border model of an emergency management system. Three Thematic Task Forces (TTF) were established to parametrise best practices, knowledge and experiences as linked to:

- ◆ risks scenarios in three main target risk areas (floods, forest fire, earthquakes);
- ◆ risk management legislation;
- ◆ use of social media in emergency situations and crowdsourcing processes.

The step led to a reclassification and a consistency analysis useful to the elaboration of a functional model of «social media based» Civil Protection Emergency system and to the design of related hardware and software specifications of the «social media based» Emergency DSS platform.

STEP 2 CREATION OF AN EMERGENCY DECISION SUPPORT SYSTEM (EDSS)

With this second step the E-CITIJENS consortium developed a «social media based» Emergency Decision Support System (EDSS) platform able to support the emergency management system model addressed to three main target risks areas and with a view to establish virtual twinned Cross-border Functional Centers (CFCs) in Italy and Croatia. The EDSS platform was designed as to aggregate heterogeneous data sources coming from present emergency management systems, national measurement networks and information and alerts voluntarily provided by citizens through social media posting.

The step led to the creation of an application with the following main components: integration engine to streamline and normalize heterogeneous data sources; «decision support» engine to develop risk scenarios; «GIS mapping» engine to locate risks; social network sources connector engine; taxonomic and semantic engine to identify and evaluate information collected from the social media data.

Furthermore, the establishment of virtual twinned Cross-border Functional Centers (CFC), equipped with ICT mirror systems and running EDSS platform, was strongly promoted with a view to favour a better coordination of civil protection chains of command in Italy and Croatia and under the EU Civil Protection Mechanism.

STEP 3 TESTING THE EDSS PLATFORM THROUGH PILOT DEPLOYMENTS

The aim of this third step was to prepare the appropriate environment for running test of the platform's functionality by using simulated emergencies or critical situations in addition to normal day-to-day functionality and monitoring. To this end, partners implemented 6 pilot deployments to check the degree of compatibility of the EDSS operational modules. Pilot deployments were carried out in parallel in each territory involved in the project and included exercises/simulations related to emergency event scenarios (flood, earthquake, fire, oil spill, industrial and marine incidents, etc.). The testing phase also implied the adoption of ICT equipment for civil protection departments as well as training of civil protection personnel. Actors of the civil protection system as well as citizens actively participated in the testing.

The step was useful to technically and operationally assess the performance of the platform, to report malfunctioning, achieved results and faced critical issues, as well as to evaluate its impact on actual emergency management systems.

STEP 4 RELEASE OF THE EDSS PLATFORM AND TRANSFER OF A RELATED EMERGENCY SERVICES REGULATORY FRAMEWORK

The fourth and last step consisted in the technical tuning of the EDSS Platform based on the results of the pilot deployments, and the creation of guidelines for its adoption in the territories involved in the project and beyond. To this end, the Consortium elaborated an Emergency Services Regulatory (ESR) Framework addressed to local, regional, national and EU policy makers and containing a set of policy recommendations to enhance civil protection legislations and emergency operational rules coherently with the adoption of the EDSS platform.

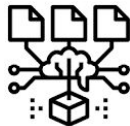
The step implied a capacity building action aimed at spreading and making the knowledge and lessons learned from the project accessible and exploitable by policy makers and civil protection stakeholders such as Civil Protection National Departments and Regional Agencies in Italy and National Protection and Rescue Directorate and County/City Protection and Rescue Departments in Croatia. Also, capacity building was aimed at collecting feedbacks that could be useful to the consolidation of the ERS Framework.

The ESR Framework was finally adopted at the 5th and Final Steering Committee in Dubrovnik. A related Adoption Plan Protocol was signed by project partners representing administrative units during the final Cross-Border Conference, held back-to-back with the Steering Committee.

SUMMARY OF THE FOUR-STEP PROCESS



STEP 1 MODELLING a «social media based» Civil Protection emergency management system based on three risks scenarios (floods, forest fire, earthquakes) and considering risk management legislation and the use of social media during emergency. Result: creation of hardware and software specifications of the «social media based» Emergency DSS platform.



STEP 2 DEVELOPMENT of a «social media based» Emergency Decision Support System (EDSS) platform able to aggregate heterogeneous data sources including citizens' alerts provided through social media posting. Result: creation of application able to activate real-time communication channels between institutions and citizens.



STEP 3 TESTING of the platform's functionality by means of 6 pilot deployments including simulations of emergency event scenarios (such as flood, earthquake, fire, oil spill, industrial and marine incidents, etc.). Result: technical and operational assessment of the platform and its impact on actual emergency management systems.



STEP 4 RELEASE AND TRANSFER Technical tuning of the EDSS Platform and elaboration of an Emergency Services Regulatory (ESR) Framework for a coherent adoption of the EDSS platform. Result: Adoption Plan Protocol signed by all regions and counties that promoted and implemented the E-CITIJENS project.

CONCLUSIONS. WHAT IS NEEDED TO SUCCESSFULLY INNOVATE CIVIL PROTECTION SYSTEMS

Both Italian and Croatian civil protection systems are based on the principle of subsidiarity and multilevel governance. In both countries civil protection authorities such as the national government, regions/counties, cities and municipalities are responsible for delivering civil protection policies within their jurisdiction and for establishing and operating a civil protection headquarters in case of emergencies.

Each headquarter must make strategic decisions about the mobilisation of first response forces (civil protection units, firefighters, medical teams, police, mountain rescue etc.) and therefore needs information from the emergency area to determine priorities and the number of resources needed to save lives, protect property and the environment. At the regional level, this information is usually collected by operations units such as 112 centres or fire brigade centres and forwarded to the respective civil protection headquarter. With the EDSS platform decision-making and coordination with first respondents is guaranteed. However, some adjustments are needed to make the system work.

Based on the results of the E-CITIJENS project and on the current administrative and technical conditions, the deliverables achieved could be further implemented through the following actions:

- Inclusion of the EDSS platform as one of the sources of information in Civil Protection Operational Plans in relation to the measures and activities for collecting real information from the field
- Updating operating procedures of the Operations Rooms that adopt the EDSS for the creation of event scenarios
- Including the EDSS in specific advanced training for Operations Room operators, in training of communication centers personnel as users of the platform, as well as in training and awareness raising activities for citizens, with a special emphasis on primary and secondary school children, and focusing on the responsible use of social media during emergencies, as part of continuous education programmes for all stakeholders of the civil protection system

- Implementation of the EDSS platform in civil protection functional centres and identification of operation centres for its adoption
- Dissemination and capitalisation of the EDSS as an additional source of information about emergencies to politicians and civil protection stakeholders in the cooperation area
- Identification of existing early warning systems that could be integrated in the EDSS, including video surveillance systems, maritime traffic surveillance system, traffic camera monitoring system, meteorological forecast systems etc.



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