

BORIS2

Cross **BO**rders **RIS**k assessment for increased prevention and preparedness in Europe: way forward



LAYMAN'S REPORT

Project consortium:



UNIVERZA V LJUBLJANI
University of Ljubljana

DCNAustria

Disaster Competence Network Austria



UCG

Univerzitet Crne Gore

CI3R



TED UNIVERSITY

Associated partners:



The EU-funded BORIS2 project helps cities and authorities better prepare for natural hazards such as earthquakes & floods.



Funded by
the European Union

BORIS2 is a project funded by the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO)

Project Fact Sheet

BORIS2

Call: UCPM-2023-KAPP

Project ID: 101140181

Project duration: 01.01.2024 - 31.12.2025

Project lead: Italian Center for Research on Risk Reduction (CI3R)

Total cost: 1.004.897 Euro (EU contribution: 854.163 Euro)

Project consortium:

Italian Center for Research on Risk Reduction (CI3R), Italy
www.ci3r.it

University of Ljubljana (UL), Slovenia
www.uni-lj.si


Disaster Competence Network Austria (DCNA), Austria
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Introduction

BORIS2

The European Union (EU) funds a wide range of research and development projects across various fields through its multi-annual funding programs. These projects aim to promote innovation, collaboration, and advancement in areas such as science, technology, energy, environment, health, and safety.

BORIS2 is a project funded by the EU, specifically by the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO). It helps cities and authorities better prepare for natural hazards such as earthquakes and floods. The project's goal is to identify risks early on, especially in high-risk urban areas, to deliver a methodology (an approach for local decision-makers & planners) and a tool for emergency planning.

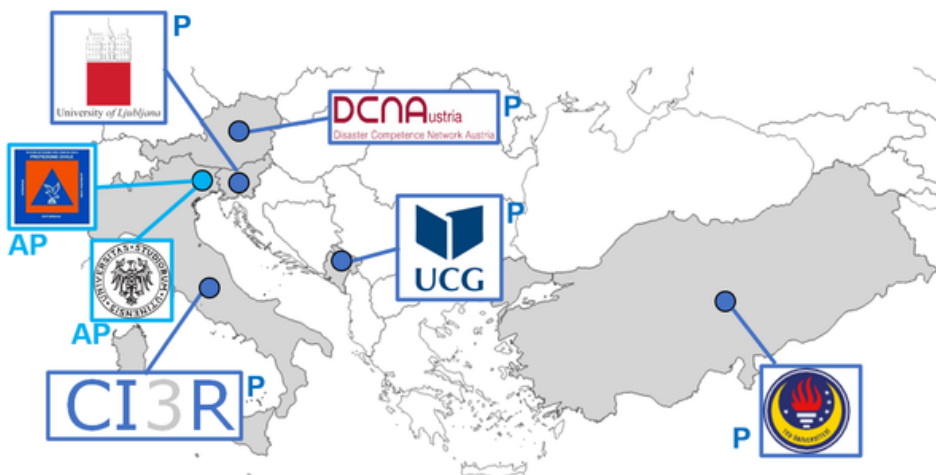


Background & Goals

BORIS2

BORIS2 builds on the results of the BORIS project (2021-2022) which looked at the fact that the Eastern Alps, including the border regions of Italy, Slovenia, and Austria, as well as parts of South-Eastern Europe, are exposed to **high risks from earthquakes and floods**. These risks may be amplified by not having a common prevention and preparedness framework, especially in cross-border areas. That is why the project developed a **multi-risk analysis methodology for municipalities** (i.e., a step-by-step approach that local decision-makers and planners can follow to understand and compare the risk of different natural hazards). BORIS also developed an open-source web-platform for assessing single and multi-risks, offering different kinds of data, models and documentation.

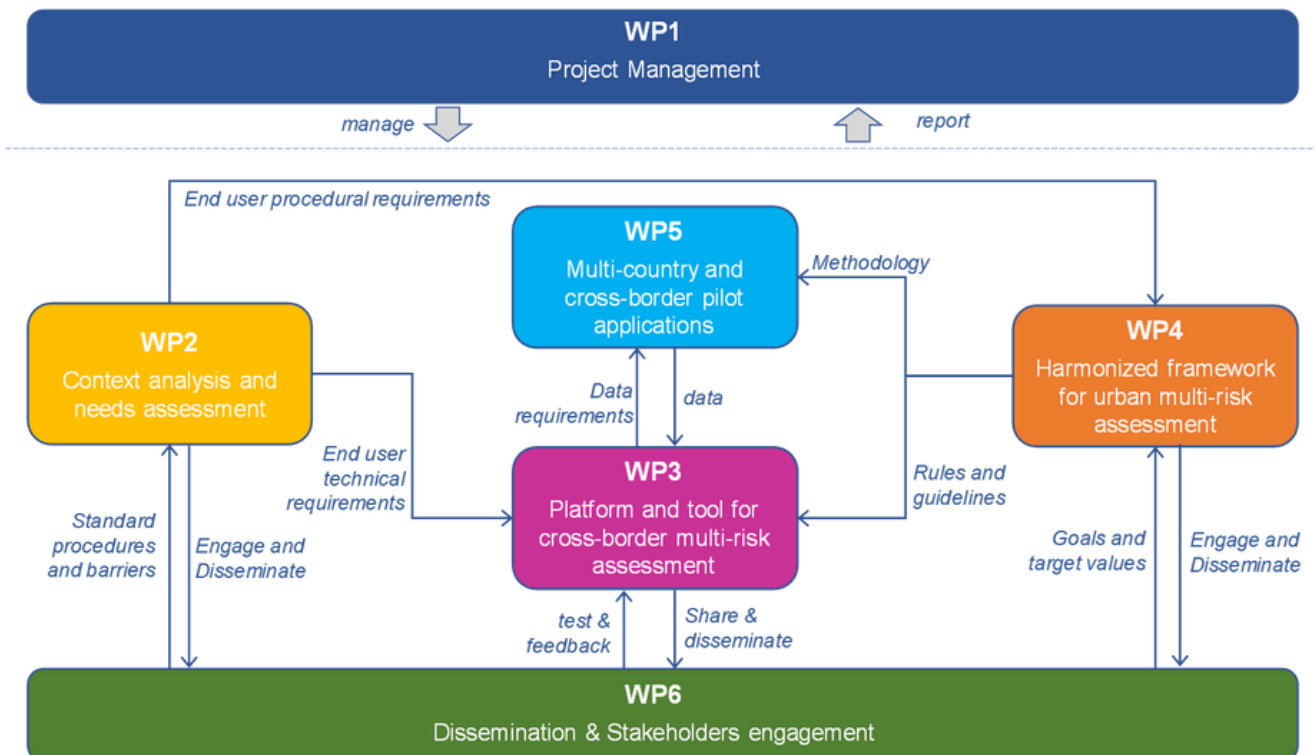
The main goal of BORIS2 was to improve the methodology so it could also work at a more detailed level, such as neighbourhoods or small grid areas and to evaluate if the buildings and roads that are normally used to manage an emergency (the so-called Emergency Management System) are still functional after hazards hit. In the updated methodology it is possible to identify urban areas that are most affected by one or several risks, helping authorities to better plan for emergency response. The BORIS platform was also updated - e.g., with simulation and visualization features.



This map shows the project partners and the geographic focus of BORIS2 which is on the cross-border areas between Italy, Slovenia and Austria, with the added contribution of Turkey and Montenegro.

Project Structure

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Like in other EU-funded projects, the work to achieve the goals of BORIS2 was divided into work packages (WPs). The following list provides the main objectives (tasks and goals) of each WP:

- **WP1:** coordinate and oversee project activities and reports; administrative and financial management
- **WP2:** analysis of data, processes, planning actions, policies etc. in different countries to support urban disaster risk management
- **WP3:** define end-user requirements of the platform, design new functionalities (features, tools) of the platform & implement them
- **WP4:** based on WP2: develop harmonized methodologies for seismic risk/flood risk/multi-risk assessment at sub-municipal level
- **WP5:** apply, test, and demonstrate the multi-risk approach in practice; collect necessary data on earthquake and flood risks, (e.g., information on infrastructure), & store it in the platform
- **WP6:** conduct workshops, webinars etc. to collect feedback from stakeholders (e.g., civil protection experts), post regular project updates, provide training materials (videos) for the platform

BORIS2 in Numbers

BORIS2

- 1 open-source web-platform for assessing single and multi-risks
- 2 webinars (recordings available on the [UCPKN platform](#))
- 3 pilots (Italy-Slovenia and Austria-Slovenia borders + Montenegro)



- 4 steps developed within the BORIS2 methodology
- 5 in-person events (stakeholder workshops, kickoff, final event)
- 6 publications & presentations (conferences, journals etc.)

In total, the workshops in Vienna, Trieste and Podgorica gathered 75 participants, the two webinars reached a total of 100 people.

Results: Methodology

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The BORIS2 methodology is a structured approach that helps cities and authorities better understand and prepare for earthquakes, floods, and combined disasters. It looks not only at **possible damage to buildings**, but also at **how emergency services** (such as fire brigades, medical services, and civil protection) **might function** during and after such events. This is especially important in cross-border regions as disasters do not stop at national boundaries.

The methodology follows **four main steps**:

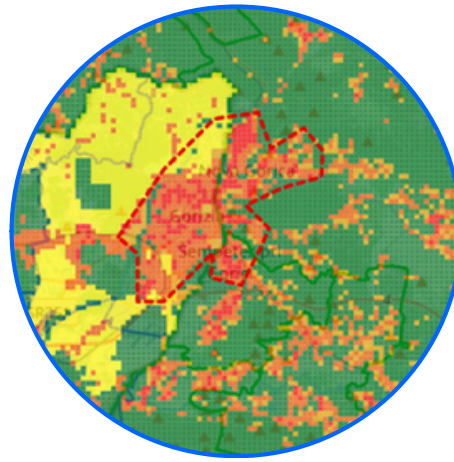
- **First**, it identifies “hotspot” urban areas that are most at risk by using detailed data on buildings and hazard maps. This helps decision-makers see where problems are likely to occur.
- **Second**, disaster scenarios are selected, including rare but severe events, to understand potential impacts and how likely they are.
- **Third**, it estimates possible damage, injuries, displacement, and fatalities, and checks whether structures of the emergency management system (EMS) would still be able to operate. This can cover large areas, including border regions.
- **The final step** focuses on the emergency response system (ERS) relevant for the hotspot, assessing if its is functional after the event and comparing the capacity (e.g., no. of available hospital beds) and demand. It also looks at critical infrastructures like roads and if they are obstructed or not.

Overall, the methodology helps to identify weaknesses and guide improvements in preparedness, response, and resilience.

Check out the visualization of the methodology on the next page:

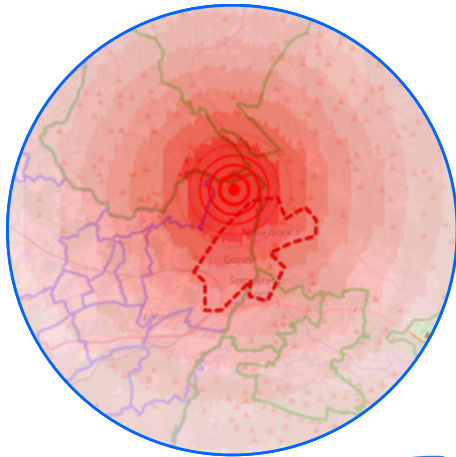
1. Preliminary risk assessment to identify possible hotspot

Example for earthquake

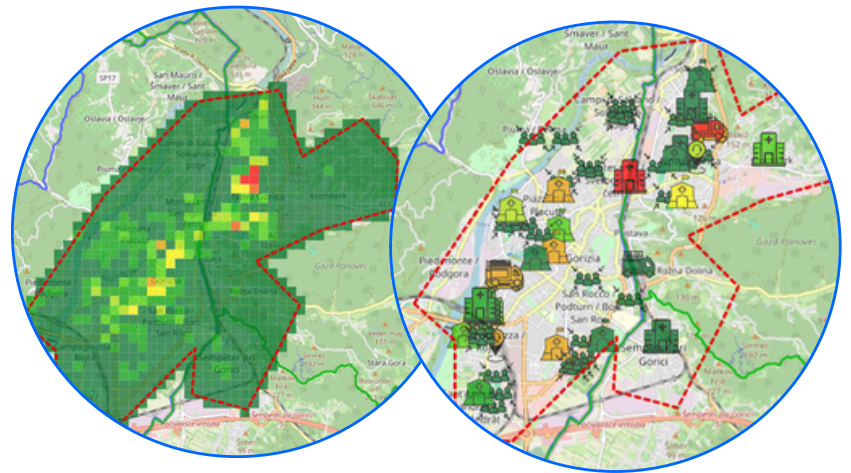


2. Choose a scenario for earthquake, flood or compound

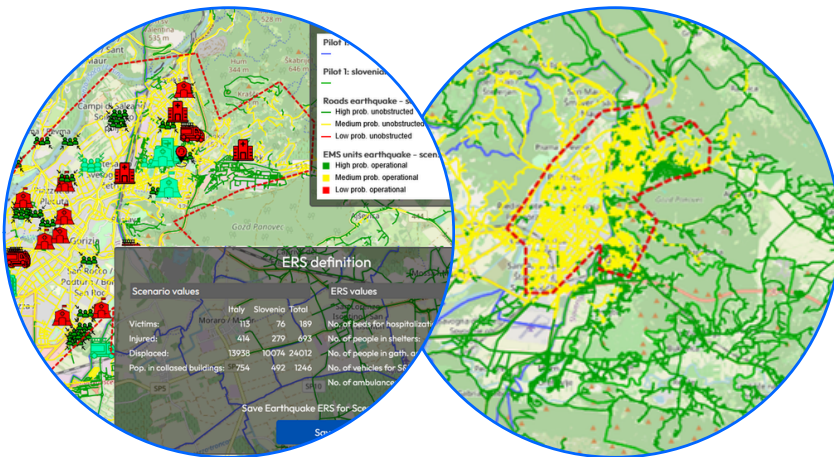
Example for earthquake



3. Evaluate losses (e.g., injuries) & damage for EMS



4. Evaluate operability & capacity vs. demand of ERS and roads usability



1 Time-based Risk Assessment and Intensity-based Loss Estimation for Residential Buildings

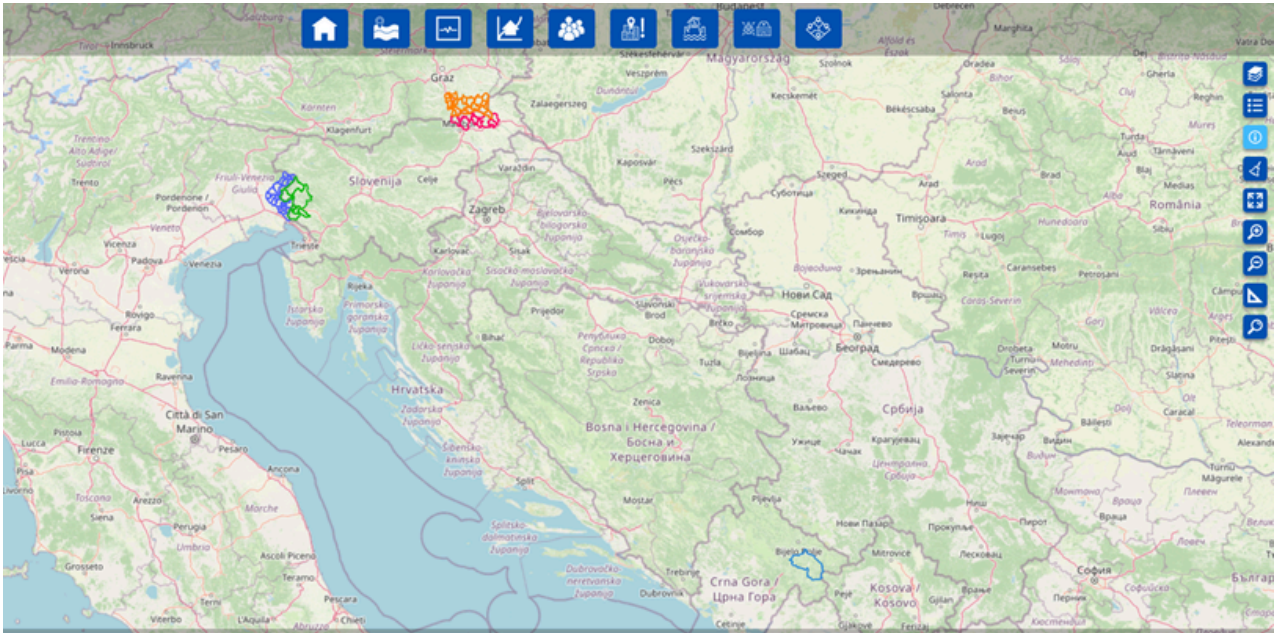
2 Definition of Earthquake, Flood and Compound Hazard Scenarios

3 Scenario-based Loss Estimation for Affected Area

4 Emergency Response System and Emergency Management System's Performance Assessment at the Municipal Level

Results: Web-Plattform

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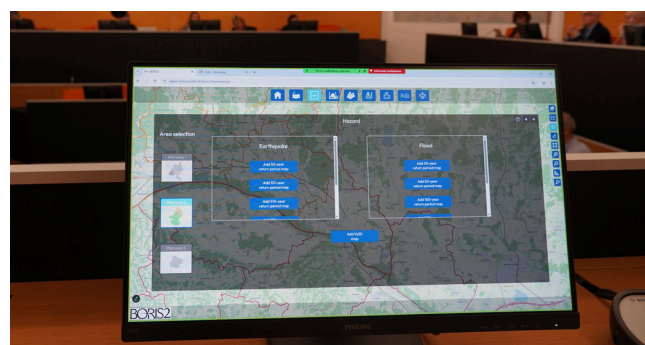


The BORIS2 platform is a **tool to support strategic decisions for better emergency planning**, so, potential users include civil protection authorities and local and regional governments. Using the modified BORIS methodology, it can highlight urban areas that are most impacted by single and multiple risks. Critical infrastructures and their connections have been included for the evaluation.

The platform (and methodology) has been tested in **three pilot areas**: the Italy-Slovenia & Austria-Slovenia borders as well as Montenegro. It allows users to analyze, visualize, store, and update data and models, and to clearly display damage and impact information. Help is available not only in English but all the languages of the project partners (Italian, German, Montenegrin, Slovenian & Turkish).

To access the platform,
please contact [EUCENTRE](#).

Photo on the right: In addition to the methodology, the BORIS2 platform was presented at the project's final conference in Pavia, Italy (December 11, 2025).




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Keep in touch:

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