Civil Defense exercises: VR training thanks to TRACENET

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The innovative platform based on Virtual Reality (VR) solutions created by the FBK - 3DOM unit with the aim of facilitating remote training of emergency response teams and technical staff, simulating intervention cases and making the various teams interact to better plan the actions to be taken, is now active.

Can Virtual Reality (VR) support training and exercises of Civil Defense departments? Can geospatial technologies and 3D data assist the preparation of prevention, preparedness and ... learn from

The

[TRACENET](#) **(Training Center Network on 3D and VR)** project, supported by the European Union under the **Union Civil Protection Mechanism ([UCPM](#))*** program, sought to answer

these challenging questions with an innovative and unique solution for the sector. The project started in January 2023, was led by the **Autonomous Province of Trento – Civil Defense Department**, technically driven by **FBK's 3DOM unit**, and was developed in collaboration with and the **Portuguese Fire**

"**FBK's 3DOM unit** has

acted as single technology partner in **TRACENET**, *developing the VR framework to support the Civil Defense and emergency response agencies in training activities*" said **Fabio Remondino, technical coordinator of the project and senior researcher at Fondazione Bruno Kessler.** "The framework now allows operators to work with 3D scenarios within virtual reality environments, interacting and planning remotely but collaboratively".

"The technological framework of TRACENET," added **Simone Rigon**, developer at **FBK-3DOM**, *"is now enabling multiple operators, remotely located around the world, to execute specific and useful actions to improve the preparedness of rescue teams in case of hazards and emergencies on the territory".*

"The IT and 3D experience of the FBK-3DOM team," explained **Elisa Mariarosaria Farella**, researcher at **FBK-3DOM**, *"has allowed us to develop a VR solution meeting all the needs and requirements given by the end-users. Currently, the* **TRACENET** *framework has flooding hazard scenarios but it could be expanded in order to include other ones, like earthquakes".*

The **TRACENET** framework was developed to be complementary to the traditional field exercises and to innovate civil defense, reducing exercise costs and protecting our environment. The focus was on creating a

robust framework with intuitive interactions, making training more immersive and enhancing real-world preparedness. The international and interdisciplinary cooperation in **TRACENET** was key to achieve the goals of the project.

"International collaboration represents an added value for Civil Defense agencies" explained the project coordinator for the Autonomous Province of Trento, **Silvia Marchesi.** *"The flooding scenario that was developed and tested in Trento was an ideal opportunity that allowed us to consolidate the operational capabilities of the personnel called to respond in the event of a real emergency.*

"Testing a VR flood simulation ensures that teams can collaborate smoothly and intuitively in a high-detail 3D environment", added **Gi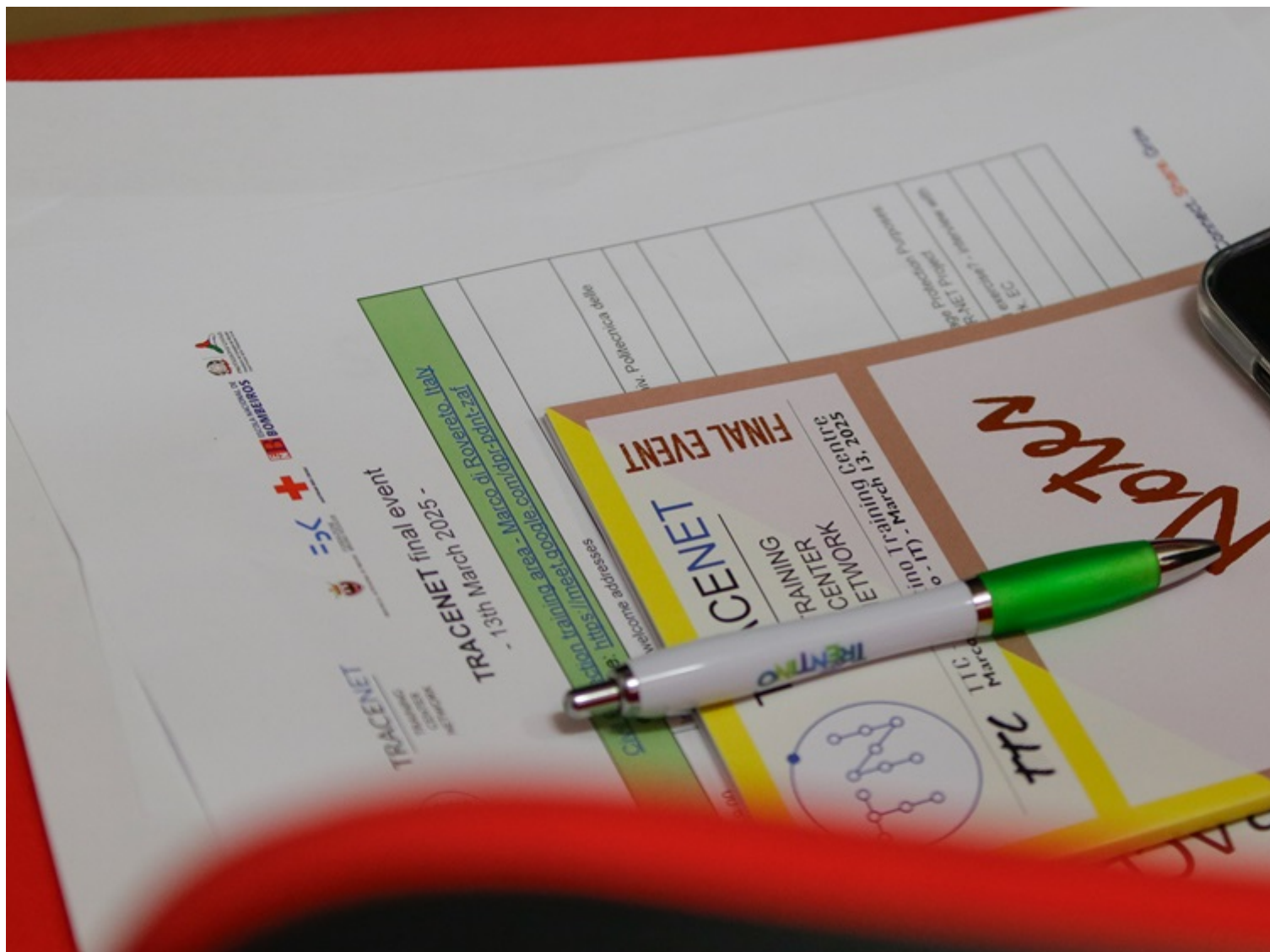ulio Perda**, developer at **FBK-3DOM** . *"Players are placed in role-specific spaces where they can interact seamlessly and*

In short, **TRACENET**

introduced a new solution, based on VR, for running training and exercises like those implemented within the Modex program. The next step now is to further expand the potential of the VR framework and convince more national training schools to start (or keep) using VR in training practices to reduce costs and travel.

*The UCPM is a dedicated EU system established in 2001 to coordinate relief and humanitarian aid for disasters whose magnitude exceeds the response capabilities of the individual affected country.

- Tracenet project: https://tracenet.fbk.eu/
- Homepage 3DOM - FBK: https://3dom.fbk.eu/home

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