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TERRIFFIC: Tools for the initial 30 minutes after a CBRNe incident

The time needed to assess the situation after a CBRNe (Chemical, Biological, Radiological, Nuclear, explosives) incident is critical to minimize the exposure of the public as well as first responders. This trade-off between speed, effectiveness and the safety of first responders during the first hours continues to be a major challenge today, after many years of operational and technological innovation. To complicate things even more for first responders, the situation is often highly dynamic due to many factors - especially if the incident involves terrorism: the presence of perpetrators in the crime scene and combination of the Radiological and/or Nuclear (RN) attack with a conventional attack; changing meteorological conditions; fragility of buildings damaged by explosions; the presence of a secondary Improvised Explosive Devices (IEDs) timed to explode after the arrival of first responders; the presence, and state, of victims; the reaction of the civil population etc. Hence the situational awareness must be dynamically updated, in particular swiftly taking into account the evolution of the radiation plume and determining the extent and severity of the contamination and the dimensions of the control zone. The aim must be to collect and to update information quickly whilst in parallel the responders prepare for intervention or are already intervening. This allows to greatly reduce the damage, suffering and costs caused by CBRNe incidents. Within the European TERRIFFIC project trials are ongoing to optimize the assessment process. The paper presents newest developments within the TERRIFFIC project to get optimal information to first responders in the initial 30 minutes after an incident. The concept involves radiation monitoring with unmanned vehicles (drones and robots). A comprehensive system of complementary, interconnected and modular software and hardware components will be presented. Advanced mixed reality technology will be leveraged to provide first responders with ad-hoc available and continuously updated information during operations.

The TERRIFFIC project brings together 10 European organisations, which work together to deliver an important step change in the effectiveness of first responders during the initial hours of a Radiological, Nuclear, explosive (RNe) incident. This will lead to reduced response times, less health and safety risks for the response teams, and less human intervention in the operation due to a higher number of automated processes and extended mobile detection capabilities.

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