# TRIAL 1 In a Nutshell

This document offers a condensed overview of the 1st DRIVER+ Trial and its results.

The Context

From 22 to 24 May 2018, the first Trial organized as part of the DRIVER+ project took place in Warsaw, Poland, at the Main School of Fire Service (SGSP). This event involved 24 practitioners from 13 EU countries with the purpose of demonstrating how to best support cross-border communication, coordination and resource management through the use of socio-technical solutions.

The Trial

After an open selection process, three solutions were selected to be trialled in the context of a toxic spill-over scenario: Socrates OC (by GMV, Spain), 3Di (by Nelen & Schuurmans, the Netherlands) and Drone Rapid Mapping (by Hexagon Safety & Infrastructure, Poland). Socrates OC sets up a Common Operational Picture at a European level for emergency services, 3Di allows practitioners to simulate the dynamics of a flood in relation to the geography of the affected area, and Drone Rapid Mapping enables the mapping of an affected area using cloud computing following a drone flight. With the DRIVER+ Test-bed a Common Information Space and a Common Simulation Space were created in which practitioners were able to trial the applicability and effectiveness of these solutions while responding to a disaster where coordination across different countries is imperative. They could also simulate how to adapt their response to an emergency based on the changing dynamics of a flood. This involved assessing how the solutions allowed the practitioners to better respond to the accident, compared to their response without applying those solutions.
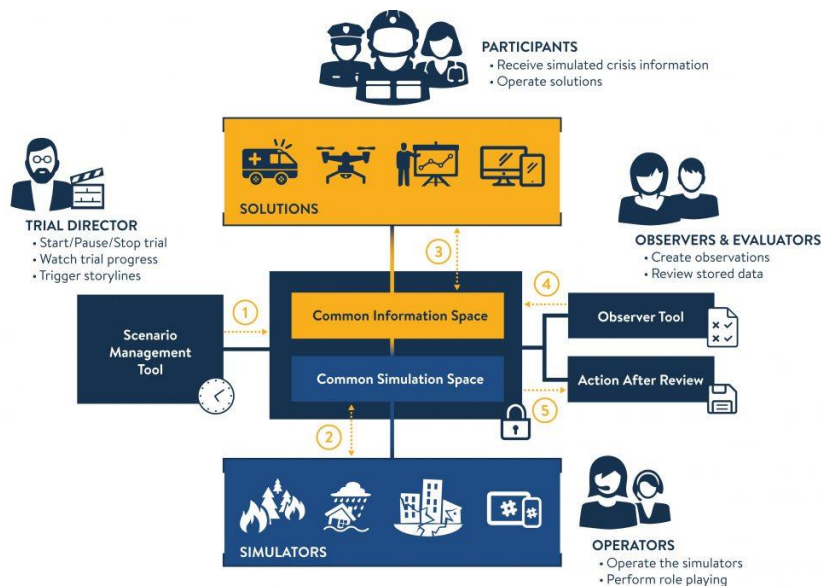
The Trial has been developed and evaluated using the Trial Guidance Methodology (TGM) which supports practitioners in finding innovation in Crisis Management through trialling new solutions. The TGM gives a very practical, concrete yet systematic and robust support in clearly identifying the gaps and formulating the questions the practitioners want to address, the performance indicators to support a proper evaluation, guidelines to develop a realistic scenario, and the tools to create this realistic environment and supporting the assessment.

The overall research question was broken down into several sub questions, and for each of these, two scenarios were developed: a) the baseline, in which the regular legacy systems are being used, and b) the innovation line, in which

the new solutions are applied. In total, five Trial sessions have been completed in which the solutions have been applied individually and combined.

The Results

Comparing the accomplishment of the tasks between both lines after each run, gives an indication about the potential value of each new socio-technical solution. It was illustrated that the trialled Common Operational Picture solution (Socrates OC) has the potential to improve communication through an increase of the quality of situational reports and as well the Request for Assistance. Although the increase of quality of these documents is not related to all established criteria, the Trial showed that some criteria, such as reproducibility, were positively affected by the solution. Increasing this kind of feature in the operational documents leads to more effective horizontal (cross-border, cross-sector) and vertical (between hierarchical levels) communication during Crisis Management. This finding was confirmed in the opinions of the practitioners and the observers.

The quality of communication during decision making can be improved by a dynamic modelling solution (3Di) and a visualization solution (Drone Rapid Mapping/DRM). 3Di showed to be a potential "game changer" in decision making processes by limiting the number of information taken into account and prioritizing the information related to the time available for implementing response measures. It leads to shortening the decision time and through this supporting the coordination and resource management. DRM showed it can potentially shorten the time for damage and needs aerial assessment and through that accelerating coordination and resource management processes. Both solutions were positively assessed in the practitioners' and the observers' opinions.

The outcomes of the Trial provide ground to formulate the following recommendations related to EU policies, regulations and mechanisms:

1. Use of the integrated information systems providing Common Operational Picture may improve pooling and sharing civil protection assets during cross border disaster by better communication (incl. cross-border reporting). This may positively influence host nation support activities of the country affected by a disaster as information about shared resources will be available earlier at different levels of command.
2. Use of dynamic modelling for flood simulation may result in improved precision of emergency planning (risk management related to floods and to critical infrastructure). It may also improve forecasting of possible impacts in response phase – during the development of actual disaster.
3. Use of the integrated information systems providing Common Operational Picture between authorities of different levels (vertical configuration) may improve assessment of the operational needs and gaps and facilitate formulation of a more precise Request for Assistance under the Union Civil Protection Mechanism. Such approach increases participation of local and regional level authorities in formulation of the needs.
4. Capabilities enhancing use of drones, such as orthophotomap generation and 3D modelling, may support operations of the European Emergency Response Capacity assets (modules/teams) which have "searching competence". Aerial observation and mapping may improve realisation of post disaster needs assessment, especially in case of major, wide area disasters.

In summary, in the context of cross-border major disaster a shared Common Operational Picture has potential to support communication, coordination and resource management by improvement of operational documentation quality especially with respect to accuracy, completeness, reproducibility, composition and format of the information. Furthermore, solutions as a dynamic threat modelling and 3D mapping are able to improve internal communication in the decision making team as well as accuracy and duration of the decision making process. However, this added value is rather specific and limited to specific aspects of the solutions' functions as well as the Trial context. Trialling of the future rescEU assets in accordance with DRIVER+ methodology may enable early assessment of new solutions effectiveness in realization of operational tasks.

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