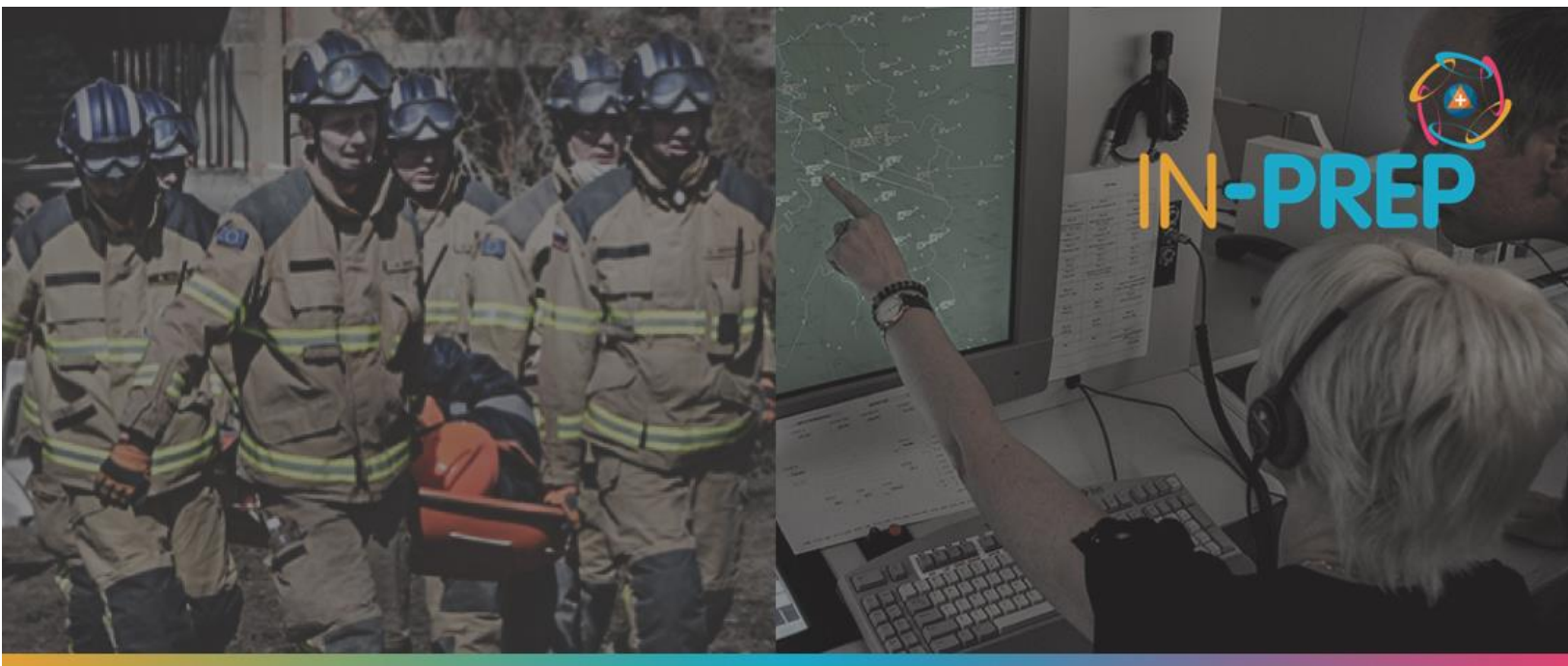




# IN-PREP

**“An INTeGrated next generation PREParedness programme for improving effective inter-organisational response capacity in complex environments of disasters and causes of crises”**

## **D3.1 Technology Assessment & Logical and Physical IN-PREP Reference Architecture (Iteration One)**



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## Document Summary Information

<b>Grant Agreement No</b>	740627	<b>Acronym</b>	IN-PREP
<b>Full Title</b>	An Integrated next generation preparedness programme for improving effective interorganisational response capacity in complex environments of disasters and causes of crises		
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<b>Project URL</b>	<a href="https://www.in-prep.eu/">https://www.in-prep.eu/</a>		
<b>Deliverable</b>	D3.1 - Technology assessment & Logical and physical IN-PREP reference architecture (Iteration One)		
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## Executive Summary

According to ANSI/IEEE Std 1471-2000, an Architecture is “the fundamental organisation of a system embodied in its components, their relationships to each other and to the environment and the principles guiding its design and evolution”. According to Open Group Architecture Framework (TOGAF), an Architecture is a) a formal description of a system, or a detailed plan of the system at component level to guide its implementation and b) the structure of components, their inter-relationships, and the principles and guidelines governing their design and evolution over time. The architecture of IN-PREP, presented in this document, follows the TOGAF definition.

The IN-PREP Mixed Reality Preparedness Platform (MRPP) is considered a novel integration of “best of breed” tools and applications, as a unified and interoperable system provided at the service of all disciplines of civil protection organisations (fire brigades, law enforcement, civil protection and medical services) to better plan and prepare for disasters and causes of crises. This will be realised with the help of MRPP, an end-to-end interoperable system for preparedness - with the vision to operate also in response - of transboundary disasters and causes of crises, through:

- Collaborative Response Planning
- Multiagency Training (in collaborative mode across the command chain, across disciplines, across borders and for multiple hazards)
- Dynamic Scenario Building

The IN-PREP Logical Architecture and the System requirements included in this report propose a solution that best meets the gaps and end-user requirements documented in the D2.1, D2.2 and D2.6 and the use case definitions outlined in the D2.7.

The main building blocks of the MRPP’s logical architecture are:

- 1) The Scenario Building and Execution Modules, for creation, editing, storage and execution of representative threat scenarios prepared by exercise designers, trainers and planners to guide the training session;
- 2) The Planning Module, for facilitating collaborative response planning at multi-agency configuration of the actors participating in a given training session allowing for editing and concatenation of individual response plans;
- 3) The Assets Registry, for allowing assets and resources management during a training session to facilitate decision making process;
- 4) The Preparedness Modules, for boosting realism into training and assisting the response planning process through enriching information given to participants with respect to risks, vulnerabilities and associated impacts;
- 5) The Training Mobile, for allowing the trainees to visualise their training missions;
- 6) The Evaluation Module, for permitting evaluation of recorded training sessions;
- 7) The Recommendations Module, for boosting decision making capability through the training sessions by delivering the trainees with an additional level of intelligence
- 8) The Communication Module, which interconnects all above modules in a unified, interoperable and seamless way conveying the appropriate level of information at the right audience at the right moment of the training session.

Such functions, the tools used and the actors operating them have been provisionally mapped across the IN-PREP training programme (Annex A) as the technology, services and applications delivered within the project are fully considered practitioners’ pulled, evident by the abundance to user requirements and use cases and concept of training scenarios (i.e. Table Top Exercises, TTXs; and Full Scale Exercises, FSXs).

Moreover, the design of the Physical Architecture took into consideration the technology assessment presented in this document and the technical capabilities of the partners of the IN-PREP consortium that have been appropriately mapped.

Last but not least, the system requirements are used as the means to a) map achievement of user requirements and use cases, b) govern the IN-PREP developments (WP4 and WP5) and integration framework (WP6) and c) evaluate

performance of the MRPP within the Training Programme as will input Key Performance Indicators and the evaluation protocol (D7.2 and D7.5).

Future work for the next version of such deliverable (i.e. D3.2 in M31) shall include a) an update of system requirements based on the “living” documentation procedure of user requirements, b) further elaboration to preparedness modules (section 3.3.5) and physical architecture (Section 3.4) as per experience gained from TTXs and FSXs realized and field integration procedures respectively, c) further elaboration and addressing system security and deployment aspects.

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