

Project Plan for the CEN Workshop on Building a Common Simulation Environment

1. Status of the Project Plan

- Initial draft Project Plan, to be further developed, prior to submission for approval
- Draft Project Plan to be approved at the Kick-off meeting of the Workshop to be held in Delft on 9 July 2019
- Approved Project Plan

2. Background to the Workshop

2.1. General

Current and future challenges due to increasingly severe consequences of natural disasters and terrorist threats require the development and uptake of innovative solutions that are addressing the operational needs of practitioners dealing with Crisis Management. DRIVER+ (Driving Innovation in Crisis Management for European Resilience) is a FP7 Crisis Management demonstration project aiming at improving the way capability development and innovation management is tackled. DRIVER+ has three main objectives:

1. Develop a pan-European Test-bed for Crisis Management capability development:
 - Develop a common guidance methodology and tool (supporting Trials and the gathering of lessons).
 - Develop an infrastructure to create relevant environments, for enabling the trialling of new solutions and to explore and share Crisis Management capabilities.
 - Run Trials in order to assess the value of solutions addressing specific needs using guidance and infrastructure.
 - Ensure the sustainability of the pan-European Test-bed.
2. Develop a well-balanced comprehensive Portfolio of Crisis Management Solutions:
 - Facilitate the usage of the Portfolio of Solutions.
 - Ensure the sustainability of the Portfolio of Tools.
3. Facilitate a shared understanding of Crisis Management across Europe:
 - Establish a common background by establishing Centres of Expertise which will take up the results of the project and also planning to perform based on the CWA.
 - Cooperate with external partners in joint Trials.
 - Disseminate project results.

In order to achieve these objectives, five sub-projects (SPs) have been established. **SP91 Project Management** is devoted to consortium level project management, and it is also in charge of the alignment of DRIVER+ with external initiatives on crisis management for the benefit of DRIVER+ and its stakeholders. In DRIVER+, all activities related to Societal Impact Assessment (from the former SP8 and SP9) are part of SP91 as well. **SP92 Test-bed** will deliver a guidance methodology and guidance tool supporting the design, conduct and analysis of Trials and will develop a reference implementation of the Test-bed. It will

also create the scenario simulation capability to support execution of the Trials. **SP93 Solutions** will deliver the Portfolio of Solutions which is a database driven web site that documents all available DRIVER+ solutions, as well as solutions from external organisations. Adapting solutions to fit the needs addressed in Trials will be done in SP93. **SP94 Trials** will organize four series of Trials as well as the final demo. **SP95 Impact, Engagement and Sustainability**, is in charge of communication and dissemination, and also addresses issues related to improving sustainability, market aspects of solutions, and standardization.

The DRIVER+ Trials and the Final Demonstration will benefit from the DRIVER+ Test-bed, providing the technological infrastructure, the necessary supporting methodology and adequate support tools to prepare, conduct and evaluate the Trials. All results from the Trials will be stored and made available in the Portfolio of Solutions, being a central platform to present innovative solutions from consortium partners and third parties and to share experiences and best practices with respect to their application. In order to enhance the current European cooperation framework within the Crisis Management domain and to facilitate a shared understanding of Crisis Management across Europe, DRIVER+ will carry out a wide range of activities, whose most important will be to build and structure a dedicated Community of Practice in Crisis Management, thereby connecting and fostering the exchange on lessons learnt and best practices between Crisis Management practitioners as well as technological solution providers.

2.2. Motivation for the Creation of this Workshop

How to prepare for a crisis situation? This is one of the questions crisis managers are facing every day. For this preparation, they train and test different response procedures, decision making and (creative) problem solving, together with using operational systems and innovative crisis management solutions. Many of those solutions can be trained with and tested in a virtual reality, by using a simulated crisis situation instead of a physically staged or even real incident. The DRIVER+ Test-bed Infrastructure provides a data exchange interface for multiple systems to connect to (i.e. operational crisis management systems and simulators providing a virtual crisis) via standardised connections.

To produce a suitable virtual crisis, one could use different simulations, benefitting from the advantages of multiple simulators. A Test-bed Infrastructure for example might consist of one simulator calculating and showing the flow of water during a flood, another simulator that provides critical information (e.g. capacity, reachability) of hospitals, police stations, power stations etc. and a third simulator imitating relevant resources moving to and from incident sites. These three simulators need to work together using one shared time and coordination system and exchange information, as for example the water levels may influence the traffic flow, to present the crisis managers a consistent common simulation space.

DRIVER+ partners would like to standardise how these simulators work together, which information they exchange and what the technical basis of their interaction looks like. This standardisation would ease the cooperation between different simulators and therefore facilitate the quick creation of a common virtual training/test environment, which comes closer to its real-world equivalent. These standardised connectors are designed to be easy to implement, taking into account budget availability of civil emergency services and that some simulators are not designed to be interoperable by design (although some military simulators are interoperable by design). Being able to connect different simulators without



major integration efforts, improves the capability development process, positively contributes to the trialling of new and innovative solutions and improves the preparatory work especially for large-scale exercises.

Further information regarding the test-bed implementation can be found in the DRIVER+ Deliverable [D923.11 - Functional specification of the Test-bed infrastructure.](#)

2.3. The market environment

Inside the Crisis Management (CM) field, a lot of simulation companies are creating applications (called simulators) with specific domain expertise (e.g. flooding, forest fires, didactics, communication). However, the CM field often requires a combination of multiple simulators to train, test or trial a specific set of personnel or application. Currently, these companies are linking multiple simulators together in a case-by-case situation, based on the specific project requirements.

2.4. Existing standards and standard related activities and documents

The most important existing standards for the Project Plan are listed in the following table.

Number	Title
IEE 1516:2010	Modeling and Simulation (M&S) High Level Architecture (HLA) - Framework and rules
IEEE 1516.1:2010	Modeling and Simulation (M&S) High Level Architecture (HLA) - Federate interface specification
IEEE 1516.2:2010	Modeling and Simulation (M&S) High Level Architecture (HLA) - Object Model Template (OMT) specification
IEEE 1278.1:2012	IEEE Standard for Distributed Interactive Simulation - Application Protocols
IEEE 1278.2:2015	IEEE Standard for Distributed Interactive Simulation (DIS) - Communication Services and Profiles
IEEE 1278.3:1996	Recommended practice for distributed interactive simulation - Exercise management and feedback
IEEE 1278.4:1997	Recommended practice for distributed interactive simulation - Verification, validation, and accreditation
DDS	Data Distribution Service

These existing standards originated from the military field and deem to be very strict in upholding the interactions among the connected simulators; something that isn't easily applied to the crisis management field. Implementing these for connecting simulators takes up a lot of software development man-hours, usually requiring a development budget not feasible for civil Crisis Management (CM) organisations.

Other relevant existing standards for the Project Plan are listed below.



Number	Title
ISO/IEC 17203:2017	Open Virtualization Format (OVF) Specification
ISO/IEC 23005-5:2016	Information technology – Media context and control – Part 5: Data formats for interaction devices
ISO/IEC TR 9789:1994	Information technology – Guidelines for the organization and representation of data elements for data interchange – coding methods and principles
ISO/IEC 21778:2017	Information technology – The JSON data interchange syntax
ISO/IEC 19503:2005	Information technology - XML Metadata Interchange (XMI)
Apache Avro	http://avro.apache.org/

3. Workshop proposers and Workshop participants

The original proposer of the Workshop is XVR Simulation, Dutch partner of the DRIVER+ consortium. XVR Simulation is the world's leading developer of simulation technology with over 200 educators in 32 countries worldwide using XVR to train over 100,000 incident responders every year. XVR's main user groups are schools & training centres in the fire & rescue services, police and ambulance services.¹

Other consortium partners such as the Thales Group and TNO will contribute and therefore be part of the Workshop.

DIN, the German Institute for Standardisation, as a CEN national member will hold the workshops secretariat.

The workshop is open to any interested party or entity that is willing to support the aims of the project plan.

All registered participants at the Kick-off Meeting will be listed in an annex.

4. Workshop scope and objectives

This Workshop will develop a CEN Workshop Agreement (CWA), which will describe a technical framework for connecting simulators aiming to easily facilitate interoperability between multiple stand-alone simulators, in order to jointly create and maintain a Common Simulation Space. This includes a description of infrastructure and accompanied protocol parameters, common simulation message formats, and a set of services or tools facilitating the common simulation space functionalities.

This CWA does not have the aim to closely integrate connected simulators together. The general vision is, that simulators are created for one or more specific domain knowledge areas with their own granularity, boundaries and purposes.

¹ XVR Simulation website: <https://www.xvrsim.com/en/about/> (01/30/2019)



The target group of the CWA are Organisations involved in development of simulators aimed at the civil CM sector; CM technical simulator operators (i.e. end-users of simulators).

5. Workshop programme

5.1. Work plan

The overall timeframe for the envisaged CWA can be seen in Figure 1. This project plan can be comment by anyone in the given timeframe. The comments will be collected by the secretary. At the Kick-off meeting each of the received comments shall be discussed and considered.

Except from the Kick-Off meeting any planned meeting can be a virtual meeting. The timeframe for the workshop is limited to the DRIVER+ project runtime. The Elaboration of the Draft CWA is planned from May to end of November 2019. The finalization is planned for December 2019 and January 2020. It is aimed to publish the CWA by February 2020.

The CWA will be drafted and published in English.

	2019												2020	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
Preparation of Project Plan	■	■	■	■										
Public availability of Project Plan					■	■								
Kick-off Meeting							■							
Elaboration of Draft CWA							■	■	■	■	■			
Finalisation and Approval of CWA												■	■	
Publication of CWA														■

Figure 1 Gantt chart Workplan

5.2. Work already delivered

Potential content for the CWA is the technical documentation of the Common Information Space (CIS) and the Common Simulation Space (CSS) ² developed in the DRIVER+ project. The Technical documentation, aimed at simulation software developers and technically skilled operators of simulators, describe a standardised set of definitions and implementation methods for aspects of a joint simulated virtual world (e.g. coordinate system, concepts of time, entities and their (meta) data, identification of users, et cetera).

6. Workshop structure

6.1. Workshop Chairperson and Vice-Chair

The Workshop Chairperson has five main responsibilities. If necessary or if assigned to him/her, the Workshop Vice-Chair may take over these duties from the Chair.

² For more information see D923.11 - Functional specification of the Test-bed infrastructure



- Presides at Workshop plenary meetings
- Ensures Workshop delivers the agreement in line with its Project Plan
- Manages the consensus building process, decides when the Workshop participants have reached agreement on the final CWA, on the basis of the comments received
- Interface with CEN-CENELEC Management Centre (CCMC) and CEN Workshop Secretariat regarding strategic directions, problems arising, and external relationships
- Ensures information exchange with the Workshop Secretariat

6.2. Workshop Secretary and Vice-Secretary

The Workshop Secretary has five main responsibilities. If necessary or if assigned to him/her the Workshop Vice-Secretary may take over these duties from the Secretary.

- Formally register Workshop participants and maintain record of participating organisations and individuals
- Offer infrastructure and manage documents and their distribution through the electronic platform
- Prepare agenda and distribute information on meetings and meeting minutes/follow up actions
- Initiate and manage CWA approval process upon decision by the Chairperson
- Advise on CEN rules and bring any major problems encountered (if any) in the development of the CWA to the attention of CEN-CENELEC Management Centre (CCMC)

7. Resource requirements

Registration and participation at this CEN Workshop are free of charge, but each participant shall bear his/her own costs for travel, accommodation, and subsistence.

The administrative costs of the CEN Workshop will be covered by the DRIVER+ project which received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n° 607798. The copyright of the CWA will be with CEN.

8. Related activities, liaisons, etc.

Related technical committees:

- ISO/TC 292 – Security and resilience
- CEN/TC 391 – Societal and Citizen Security (Liaison with DRIVER+)

9. Contact points

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