



EDITORIAL

PULSE has reached its final phase of development! ... Since the last edition of the newsletter PULSE team concentrated on preparation and carrying out of the second trial and the processing and evaluation of results. As presented into the previous edition, the entire PULSE system has been tested in two realistic scenarios: An interactive tabletop exercise that took place in Italy and simulated the emergence and evolution of a serious viral disease in Europe, and a live exercise in Ireland where a serious incident was simulated, with multiple casualties caused by a crush during a concert organized in a stadium. These scenarios have essentially different typologies and course of events. They were deliberately chosen so to test the system in different environments of threat structures, timeframe and dynamics of the incident, types of effects and numbers of people affected, and services and resources needed to manage the incident. This way, the PULSE system proved its effectiveness, performance and benefits to both, the health services and society. The PULSE system could prove its flexibility and usability across a diverse spectrum of health actions and demonstrate the capability to serve as a standard across Europe. It was also evaluated with respect to its societal and ethical acceptance, compliance to legal and political settings, ethical restrictions and –to some extent- its economic value.

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PULSE MASS CASUALTY INCIDENT TRIAL

The **PULSE MCI Trial** - named exercise “Distant Rock” - was organized in **Cork, Ireland** on **15th of September, 2016**. The trial experiments were hosted by the **Health Service Executive Ireland (HSE)**. The stadium crush scenario was one of two scenarios selected to support the delivery of the PULSE prototype and help to build the “first frame” of the evolution of the synthetic simulated environment, on which the PULSE platform would eventually be evaluated by means of a mass casualty incident (MCI) trial. The stadium crush scenario was selected as a representative scenario which would lead to a MCI but would also cover specific crowd crush type incidents with dozens of casualties similar to other mass casualty events which have occurred in soccer stadiums throughout Europe. The scenario was designed to focus on various stages of a crowd crush incident: (1) pre-incident phase, (2) incident phase and (3) post-incident phase. This required that the actors involved in the response were expected to begin working collaboratively to monitor and establish preventive measures, and be ready for emergency response if an incident occurred in a stadium.

The aim of exercise was to demonstrate, test and evaluate the PULSE Platform in the context of a stadium crush scenario. In the scenario development process it was decided, on the basis of careful analysis, that it was more effective to carry out the demonstration and testing process at two levels:

- Level 1 – Demonstrate the capability of the platform feature or the tool being reviewed
- Level 2 – Demonstrate both the capability and the integration of the platform feature of the tool as the exercise progressed through each of the Use Cases.

PAST EVENTS

PULSE @ URGENT MED EQUITY 2016

Viorel Petcu, General Manager of Onest Solutions, attended the **XVII-th Romanian National Conference on Emergency Medicine: URGENT MED EQUITY 2016**, held in Brasov/Romania, 1-4 September 2016. He presented the **PULSE**’s objectives and achievements, the developed platform as well as the validation trials.

PULSE – PANDEM workshop

PULSE project was presented at PANDEM workshop in a joint activity held on September 29th in Brussels, Belgium. PULSE was represented by Peter Daly, who is also on the PANDEM advisory board, Paolo Pucci and Francesco Malmignati.



PULSE MCI TRIAL PREPARATION AND SETUP

The hub centre for the trial was set at the **Regional Co-ordination Centre** at the **Central Fire Station** in **Cork City**. A live two way video and data link was set up between the Regional Co-ordination Centre and the simulated crowd crush scene at the St John's Ambulance Headquarters in Cork City. Information was centralised in the Co-ordination Centre where a centre system for visualisation of information using mapping technology for a real-time operation view of the scene and overview of the casualties at the scene was set up.

In order to prepare participants and observers to have a good understanding of the PULSE project and their role in the PULSE MCI crowd crush scenario, three separate on-line video



briefings were prepared and uploaded to both the PULSE website and the IAEMO website. The video briefings included an introductory video explaining the PULSE project and its architecture together with a briefing of how the MCI crowd crush scenario would be conducted.

A TV News developing storyline was used as the primary exercise inject throughout the exercise. These injects met a number of objectives:

- **Initiating Inject**
– designed to kick off the exercise



PAST EVENTS

PULSE @ EUSEM 2016

Viorel Petcu, ONEST Solutions – Romania, has attended the **EUSEM 2016 Congress** Vienna, Austria, on October 4th, 2016. The **Xth EuSEM Congress** is organised by the European Society for Emergency Medicine (EuSEM), in association with the Austrian Association of Emergency Medicine (AAEM), the German Association for Emergency Medicine (DGINA) and the Swiss Society for Emergency and Disaster Medicine (SGNOR).

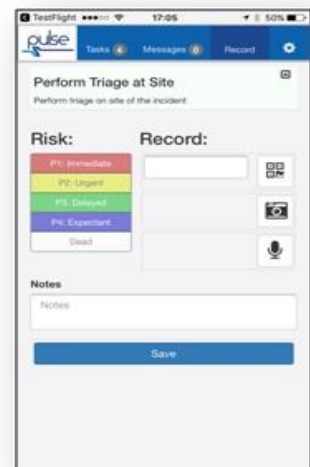
PULSE @ RSF 2016

Viorel Petcu and Mihai Palfi, Onest Solutions – Romania, presented **PULSE** at the **4th edition of the Romanian Security Fair** held at ROMEXPO Exhibitions and Conference Center, Bucharest, Romania on **20-22 October 2016**.

- **Informational Inject** – provide information to the participants and observers
- **Instructional Inject** – to give specific direction to participants
- **Energising Inject** - a long exercise needs to be re-energised from time to time to get the cooperation of the participants
- **Re-focusing Inject** – moving from one scene to the next needs to re-focus participants on the task in hand

Each audio visual inject was built on the previous inject and was linked with a live feed coming from the incident site. For the live section of the trial, an extensive system of moulage was used to simulate the casualties and this was supplemented by the use of a 200 person database which was used to demonstrate the capability of the PULSE platform to handle a high number of casualty reports in near real time; a fresh 200 person database was created to avoid data protection issues with real people but it included all data required by the electronic patient record system (ePCR) and by the Interpol Disaster Victim Identification System (DVI).

In order to facilitate the operation of the Smart Phone App as a data entry tool to the Pulse Platform, an individual QR code (abbreviated from Quick Response Code) was used; the QR code was the associated with the data from the exercise casualty data base.



TRIAL PARTICIPANTS

PULSE MCI trial has involved **55** participants, including some senior and experienced professionals with a wealth of knowledge and experience in the area of major medical emergencies; this was a significant benefit to the trial both in terms of the exercise itself and the validation process. The **PULSE MCI Trial** had participants from a range of response agencies including:

- Senior Staff Officers – Local Authorities
- Assistant/ Chief Fire Officers – Local Authorities
- Consultants in Public Health Medicine – HSE

- Inspector & Superintendent level - An Garda Síochána
- Assistant Chief Ambulance Officers/Management team - National Ambulance Service
- Members of the Voluntary Emergency Services (St John, Irish Red Cross, Civil Defence and Order of Malta)
- Senior Hospital Management team members

An Garda Síochána, the Health Service Executive and the Local Authorities are the agencies in Ireland charged with managing the response to emergency situations which arise either locally or regionally. They provide and operate Ireland's principal emergency services, which respond to emergencies on a daily basis. The Divisions and Regions of An Garda Síochána, the Health Service Executive Areas, and the principal Local Authorities are commonly referred to as the principal response agencies.

The participants were drawn from experienced practitioners in the HSE who would be very familiar with a different exercise aim whereby they themselves were being exercised and critiqued. In this case it is the PULSE Platform that was the subject of the exercise. Although it was clear that PULSE was aimed and demonstrated against a medical or casualty scenario it was necessary to ensure that the other emergency services such as the Police and Fire and Rescue were in a position to appreciate how the Pulse Platform could be applied in all types of emergencies.





PULSE MCI TRIAL ECHOES IN MEDIA

Tech trial responding to emergency takes place in Cork

RTE, Sept. 15, 2016

"A major trial of technology designed to help in the management of a major mass casualty emergency event took place in Cork earlier today. The "Distant Rock" exercise, will

test the new PULSE emergency response system which was developed as part of a three year EU-backed project aimed at improving emergency response. ... It will involve the use of new technology, including smartphone apps and twitter analysis, which will analyse twitter feeds from across a region and seek to identify early warning signals. Smart phones will be used by the emergency services to log, record and photograph casualties, with hospitals in the area receiving live updates from the scene..."



Mobile comms tested in simulated stadium crush in Cork

by John Kennedy - Siliconrepublic eJournal, 5 OCT 2016

siliconrepublic

"A European mobile platform for medical reaction during major emergencies and catastrophic events was put to the test in Cork during a simulated stadium crush. The idea behind PULSE is to provide tools for health services across Europe, to prepare and respond to major emergencies such as pandemics and mass casualty events. In an exercise called Distant Rock, which simulated a stadium crush in Cork, a number of mobile technologies and smart apps were tested. This included the use of smartphones for the first time to log, record and photo casualties prior to their transfer to hospital..."

Ireland's Emergency Crisis Response Tested

by Colm Smyth - Ireland's Technology Blog, Sept. 15, 2016

Ireland's Technology Blog
EVERYTHING TECHNOLOGY, MOBILE, TV, INTERNET AND MORE

"Ireland's ability to respond to an emergency crisis will be tested today with a simulated mass casualty trial exercise of a simulated stadium crush in Cork City... The distant rock exercise is the culmination of a three year EU project to bring technology and innovation to improve Europe's management of a major event. Award winning Irish software company Skytek, led the European wide PULSE consortium with exciting new 'apps' emerging that will radically improve how major catastrophic events can be managed..."



PUKSE SUMMARY & OUTLOOK

The necessity and usefulness of such a system, the demonstrated benefits and the usability of the system were rated very positive by the participants at both EVD and MCI Trials.

From the perspective of implementing such a system across Europe, the road ahead may be, of course, still long and difficult, particularly because of the heterogeneous nature of the resources and especially procedures involved in the management of major emergencies. From a scientific and technical point of view, the results are really convincing.

The **PULSE** platform offers support for the improvement of the European health services, both in the preparation for and in the response to, incidents with a large number of victims. It facilitates an efficient management of emergencies, harmonization of operational procedures, cross-border cooperation between emergency services and improved understanding of legal issues, ethical, and social impact that such a system may have on the public.

Continuous improvement of security measures at European level may limit the occurrence of major emergencies but, yet, it is still necessary to increase the preparedness and response capacity.

The PULSE project can serve as the basis for developing a coherent and effective European level framework for improved health service during major incidents with a large number of victims and/or within a wide geographical region.



PULSE at a glance

PULSE-Platform for European Medical Support During Major Emergencies

Web site:

<http://www.pulse-fp7.com/>

Project Coordinator:

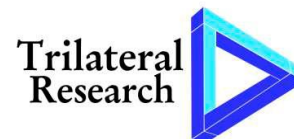
Dr. Sarah Bourke

sarah.bourke@skytek.com

Partners:



UNIVERSITÀ
CATTOLICA
del Sacro Cuore





The **PULSE** Project is a Collaborative Research Project under the European 7th Framework Programme – Theme SEC - 2013.4.1-4: "Development of decision support tools for improving preparedness and response of Health Services involved in emergency situations". You may find more information at:

<http://www.pulse-fp7.eu>