



Newsletter

Edition 6, December 2020

Welcome to the latest newsletter of EXERTER, an EU Funded H2020 project. EXERTER commenced in May 2018 and is a five year project which seeks to connect practitioners into a pan-European network of explosives specialists.

Message from the Project Coordinator

This year has been a very special one, and we hope that we can all get together soon to meet, discuss and share our experiences in face-to-face meetings. Until then, EXERTER just like the rest of you, are working with virtual means to reach out and trying our best to let you reach out to each other.

In November, EXERTER held a Virtual Conference on the theme Explosives in public transport, with very interesting experiences and input from both Spanish actors connected to the Madrid 2004 attack, and from research projects aiming to increase the capabilities to counter future attacks.

The virtual conference ended the work circulating around issues connected to public transport, and a new theme was introduced; the Person borne IED (PBIED) issue. Work around the specific challenges connected to that has begun with local discussions and workshops among actors across Europe, in addition EXERTER hosted a webinar by Interpol in December, which highlighted many important aspects of PBIED attacks. For 2021 we plan for continued virtual means to keep all of us connected, by discussions, webinars and conferences, while keeping our fingers crossed for a positive development.

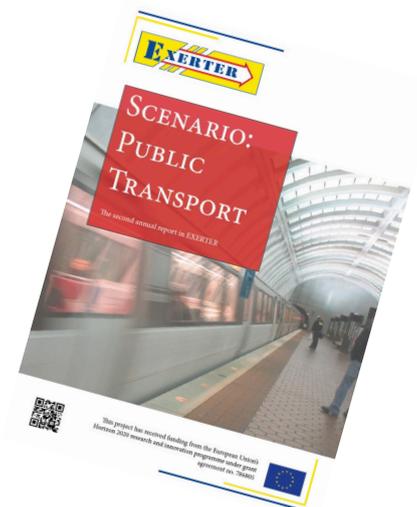
Please contact us if you would like more information, would like to get your message out or have something you would like to bring up for discussion within the EXERTER Network.

Happy holiday season, and stay safe. Anneli Ehlerding

EXERTER Annual Report

EXERTER have published the second Annual Report, titled 'Scenario: Public Transport' in December 2020. You should have received a copy with this newsletter, however if not please email and a copy will be forwarded to you.

The report focuses on the research completed in year two relating to an IED attack on a public transport network, across the four attack phases, summarising the key findings. We hope you find it interesting and if you have any questions please do not hesitate to email the Project Coordinator. Please feel free to share with you colleagues or wider network.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no.786805



For more information visit:
www.exerter-h2020.eu

EXERTER Virtual Conference

Due to the ongoing pandemic the EXERTER Annual Conference due to be held in Madrid in May 2020 had to be cancelled. Keen to present the work completed in Year 2 of the project it was decided to host a virtual conference in November 2020. 136 participants registered to attend the conference where those who attended heard first hand accounts from those involved in the train bombings in Madrid in 2004.

Presentations included first responders, investigators, and representatives from the transport authorities. Sharing their experiences, challenges and learning from the incident, participants had a opportunity to gain a better understanding of responding to an attack on a public transport network.

Three projects also presented, 'SUSQRA - Blast simulation and damage assessment', 'RISEN - Real-time on-site forensic trace qualification' and 'SYSTEM - SYnergy of integrated Sensors and Technologies for urban sEcured environMent'. All presented the research they are currently working on, with more information on SUSQRA in the following pages. More information on RISEN and SYSTEM will follow in future newsletters.

Finally there was a presentation on the EXERTER Year 3 scenario, which will focus on a PBIED/ Suicide Bomb Attack.

EXERTER would like to thank all who participated and those who presented.

EXERTER presents at MINETEX 2020

In September 2020, EXERTER presented at MINETEX 2020. MINETEX 2020 was held in Faro-Algarve, Portugal and organised by the EOD & CBRN Unit (CIEXSS) of the Special Police Unit of the Portuguese Public Security Police. It is a national forum of EOD technicians, whose goal is to train in new scenarios, share best practices and test the interoperability between technicians from different teams. The training also included the participation of EOD technicians of the National Police of Spain, which allowed further enrichment of the event.

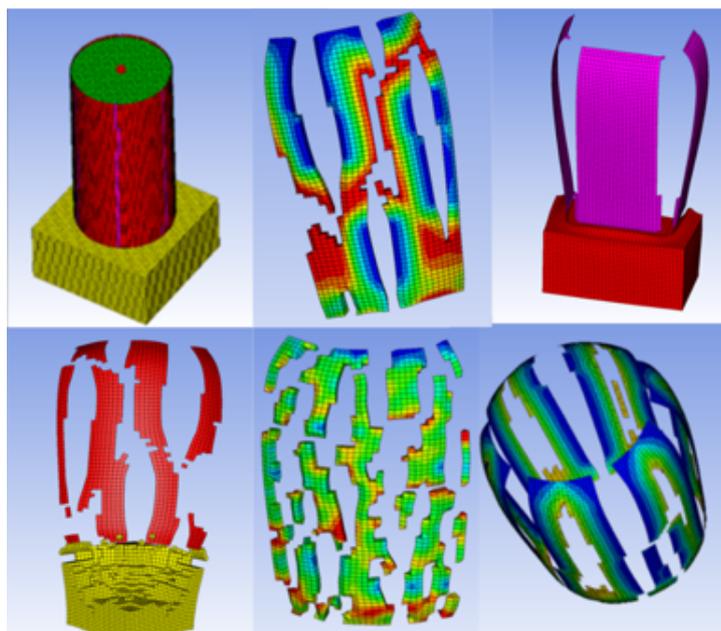


EXERTER were able to present an overview of the project, encourage participation in the wider EXERTER Network and present the findings from research completed during the first two years of EXERTER.



SUSQRA – Protection against improvised explosive devices

In recent years and decades, many terrorists used home-made explosives for their terror attacks in the EU. The components of these explosives can usually be obtained without great difficulty. Numerous instructions are available online and ready-made explosives of various types and sizes can be placed almost anywhere without causing much attention. Home-made bombs therefore represent a constant threat. However, the hazard potential of explosives can vary greatly. Police authorities must analyse this before major events such as Christmas markets or marathons in order to be able to protect the population adequately. If an attack is not prevented in time, it is the task of forensic experts to determine the extent of damage at the scene of the crime for evaluation in court.



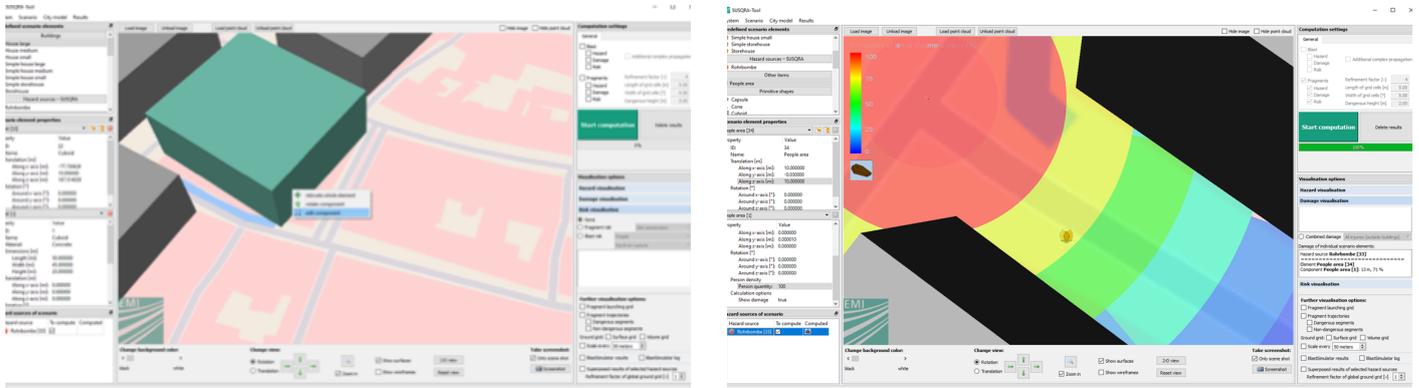
Examples of the numerical simulations conducted with Ansys Autodyn

No matter whether it is a city festival, a marathon run or a Christmas market: often, public events of any kind are targets of terrorist attacks, since they are accumulations of large crowds. Their adequate defence is one of the most difficult tasks of authorities and security forces. On the one hand, it has to ensure the safety of all citizens and their property, but, on the other hand, it must not spread unnecessary fear and cause discomforts such as time-consuming security checks.

The SUSQRA consortium (german »Schutz vor unkonventionellen Sprengvorrichtungen – Charakterisierung und quantitative Risikoanalyse « standing for »protection against unconventional explosive devices - characterization and quantitative risk analysis«), consists of the Federal Criminal Police Office BKA, TC Team Consult, the Centre for Security and Society CSS of the Albert-Ludwigs-University Freiburg, Numerics GmbH, the Franco-German research institute Saint-Louis ISL and, both scientifically participating and administratively coordinating, the Fraunhofer Ernst-Mach-Institut EMI. Within the research project SUSQRA, together, the consortium aims to develop a software tool for experts, which supports the analysis of safety hazards and thus helps to prevent bomb attacks carried out with IEDs (Improvised Explosive Device). Furthermore, it simplifies the forensic damage assessment of an (attempted) attack. As a result, the number of cost- and time-intensive reconstruction explosions necessary for the reconstruction of a terroristic event can be reduced and possible protective measures can be evaluated.

The development of the SUSQRA software tool brings together the respective expertise of the project partners. Fraunhofer EMI mainly contributes its experience in the analytical-empirical characterization of explosive effects and creates the actual software tool. Numerics focusses on numerical approaches and refines their own analytical-empirical tool Split-X, which will then, by interface, be accessible to the SUSQRA tool.

ISL provides its competences in experimental validation, while TC Team Consult and the Centre for Security and Society contribute by building up a pool of experts in the fields of social science and potential end-users. Thus, it is possible to develop and analyse the tool with practical feedback. Here, above all the practical expertise of the BKA is used. The German Federal Ministry of Education and Research (BMBF) supports the project SUSQRA. The project sponsor is the VDI Technologiezentrum GmbH.



Current Version of the SUSQRA-Tool

The focus of the consortium's work is to investigate the multitude of possible homemade explosives and their differences. Here the range is enormous and reaches from diverted beverage cans to pipe bombs. In order to determine the extent of damage, the effects of pressure waves and resulting fragments must be calculated. In order to determine the extent of damage, the scientists calculate the effects of the pressure wave and the resulting fragments. Especially the mass and the velocity of these fragments influence the damage potential. A special feature of the SUSQRA analysis tool: It takes into account not only round, but also complex angular IED shapes such as square and rectangular geometries. So far, there is very little systematic research knowledge available about these geometries.

Numerical simulations in particular help to carry out the specific risk assessment. In addition, however, actual blasting tests are continuously carried out to expand and verify the simulation results. This allows the scientists of the SUSQRA team to calculate and check which possible harmful fragments are generated by a detonation and which exit velocity and exit angle the fragments have. Based on this information, the consortium constructs precise algorithms, which can then be transferred to further similar IEDs, which, thus, must not be examined in detail. First comparisons of experiment and simulation already demonstrate that the algorithmic simulations largely conform to the damage extent of the actual blastings.



Experiments conducted during the Project

Not only police authorities benefit from the new expert program, but also event planners or city administrations receive support to examine various security concepts, for example at inner-city mass events such as a church congress or a marathon run. Depending on various variables, they can determine, for example, whether and where runners and spectators are safe, and even take into account the effect of possible protective measures (Such as security walls and fences) or evacuation radii. Furthermore, the tool can also be used to determine the damage prevented by police work, which must also be considered in court.

Networking & Events

EXERTER Events

EXERTER Stakeholder requirements national discussions - Dates to be confirmed

EXERTER Partners will host national discussion events in lieu of the annual conference. If you wish to take part please do not hesitate to contact the Project Coordinator, who can connect you with the appropriate EXERTER Partner hosting the discussions in your country.

Other Related Events

International Security Expo (ISE) 2020

The event will take place as a virtual conference this year, 30th November - 3rd December 2020. Details on how to connect can be found on, <https://www.internationalsecurityexpo.com/>

ISADE 2021 - 24-30 April 2021

The 13th International Symposium on the Analysis and Detection of Explosives is held in conjunction with the Scientific Workshops annual Trace Explosives Detection Workshop. It is held 24-30 April 2021 in Charlotte, North Carolina. www.isade2021.org

4th International Conference CBRNE – Research & Innovation

The conference takes place in Lille, France, 17-20 May, 2021 <https://cbrneconference.fr/>

If your project or organisation wish to promote a future conference, workshop or meeting please contact the EXERTER Project to have it included in future newsletters or the project website.

EXERTER End User and Expert Community

EXERTER End user and Expert Community (EEC) is important to the network, in order to give valuable input to scenarios, requirements, evaluations and upcoming threats.

It consists of practitioners, academia, research institutes, industry and policy makers. If you are interested in becoming a member of the EEC, or are aware of someone who would benefit in participating in EXERTER, please contact the Project Coordinator. Alternatively if you only wish to receive regular information and updates on the project you can get this through visiting the website and the project newsletter. Please contact the Project Coordinator to be added to the project mailing list.

Facts & Figures

Project duration:

01/06/2019 – 31/05/2023

Budget:

€ 3 498 868.75

Contact

If you wish to find out more, are interested in our End user and Expert community or wish to receive the EXERTER Newsletter with updates of the project, please contact us:

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Security of Explosives pan-European Specialists Network

Partners

