INTERNATIONAL UNION
OF RAILWAYS

PROIECTE DE CERCETARE LA UIC ÎN DOMENIUL SECURITĂȚII

Un deceniu de rezultate inovatoare și de practici ale științei deschise

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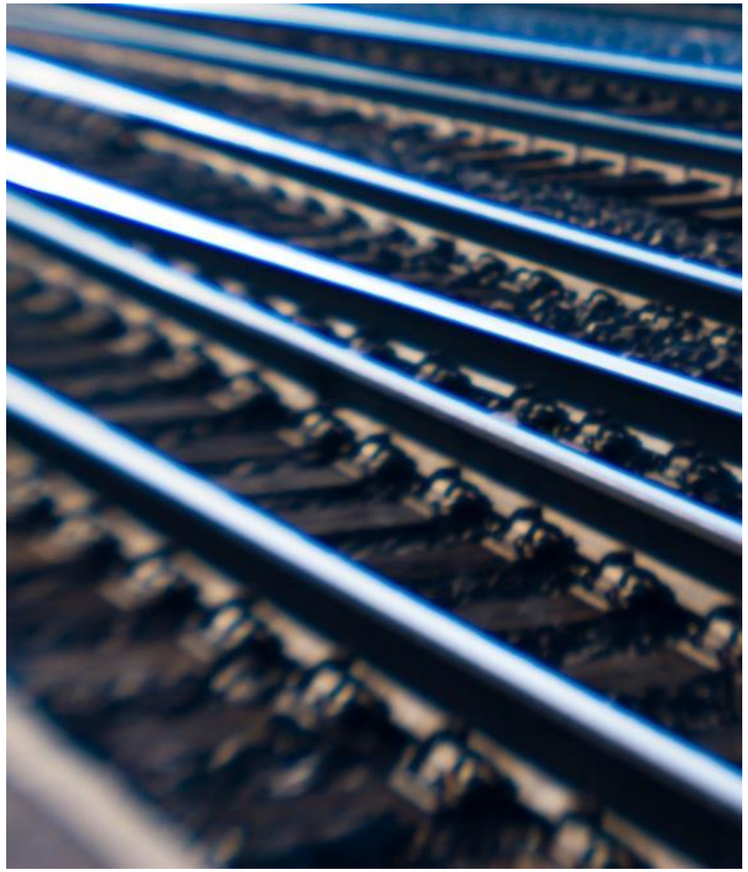
Senior Research Advisor – UIC Security Division

Workshop Smart Diaspora, 11.04.2023

https://www.youtube.com/watch?v=ml-oo5YFWEE

Overview



- Intro Video
- UIC and its Security activities
- EU-funded Security Research Projects
- Examples of open science practices
- Wrap-up & Challenges

Union Internationale des Chemins de fer

INTERNATIONAL UNION
OF RAILWAYS

Promotes the development of rail transport at world level

200 members in 95 countries

Platform for:

- Cooperation
- Research projects
- Dissemination
- Training
- Standards & recommendations

www.uic.org

Founded in 1922 in Paris


INTERNATIONAL UNION
OF RAILWAYS

Transport Security at UIC: Security Platform

Chaired by the Indian Railways Protection Force from 1st July 2022 for 2 years
Co-chaired by the French Railways from 1st July 2022 for 2 years
Steering Committee: WG Chairs, UIC regions (Colpofer in Europe), partners (CER, RAILPOL, UITP)

3 Permanent working groups

Strategy & Regulations
Chaired by SNCB (Belgium)

Security Technologies
Chaired by SZ (Czech Republic)

Human Factors
Chaired by VIA Rail (Canada)

2 Thematic, ad-hoc working groups

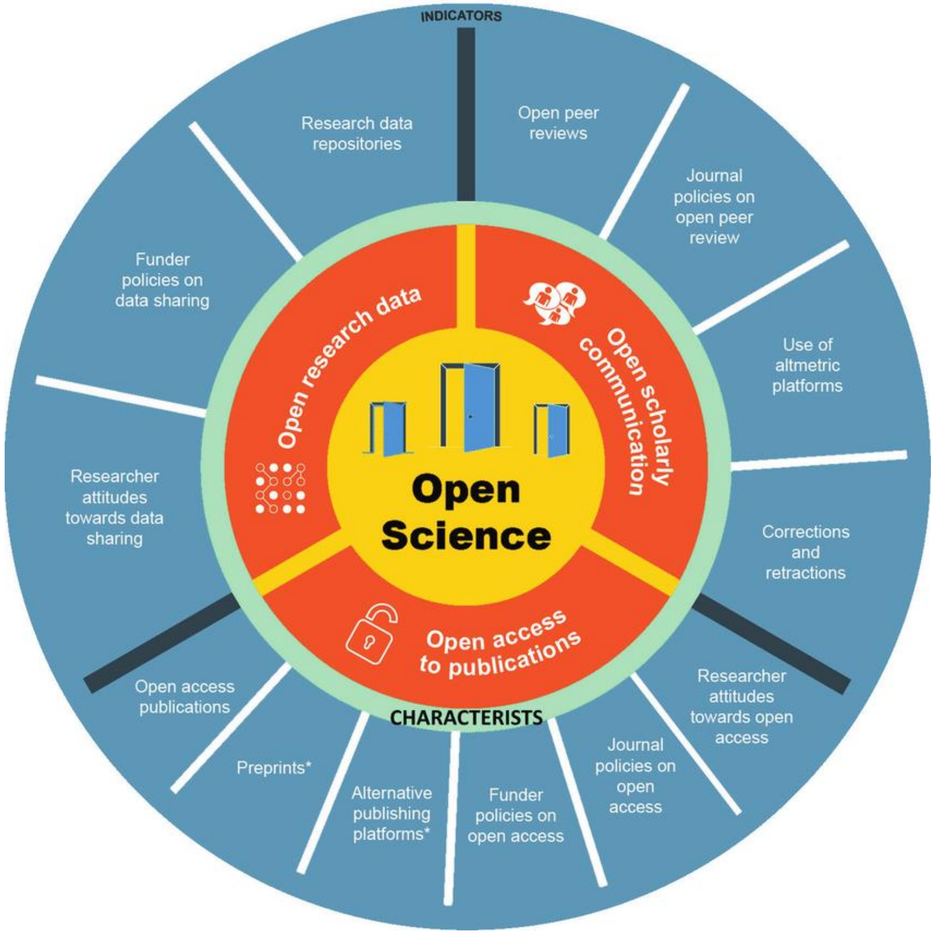
SIA - Sabotage, Intrusions, Attacks
Chaired by DB AG (Germany)

Crisis Management
Chaired by PKP S.A. (Poland)
Vice chaired by Indian Railways

Research at UIC

Foster research with and for the UIC members

- Defend and provide for the **needs** of members
- Enable members to **benefit from** progress made in the area of research (provide practical R&I results, evidence-based recommendations, etc.)
- Obtain **external (EU) funding** for R&I projects thus helping members to spend less



Security Research Projects: Key Figures

54 UIC projects since 2010	**16** **Security** projects since 2010	FP7 H2020 HE S2R ISFP	**11** projects as consortium partner **5** projects as coordinator	Including **2** EU success stories

Security Research Projects: Major Themes

Terrorism targeting railways

PROTECTRAIL, TETRIS project, SHERPA, proactive, IMPRESS

Trespassing and suicides

RESTRAIL, SAFER-LC

Graffiti vandalism

GRAFFOLUTION
Understand . Collaborate . Improve

Crisis Management

PREDICT

CI protection & resilience

CIPRNet, SAFETY4RAILS

Rail cybersecurity

SECRET PROJECT
SECURITY OF RAILWAYS AGAINST ELECTROMAGNETIC ATTACKS
CYRAIL, CYRUS

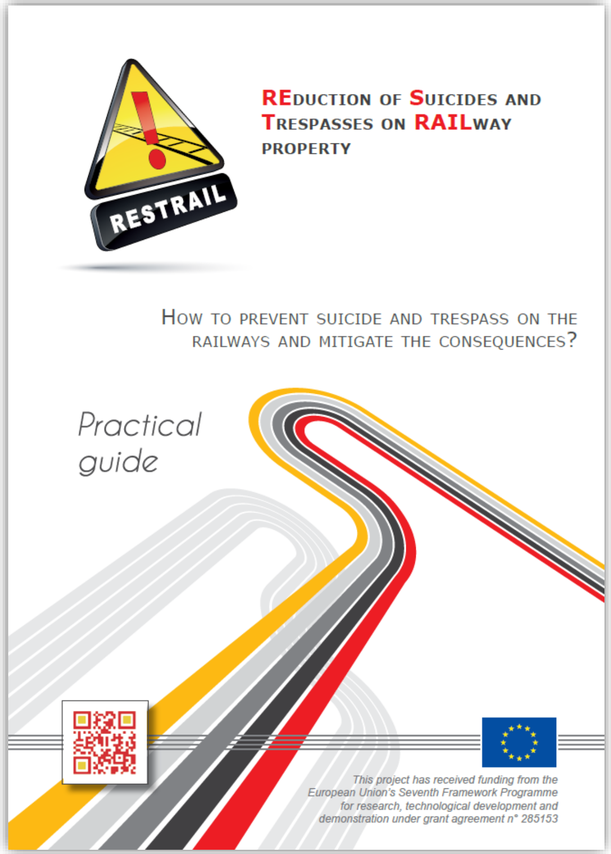
Border security

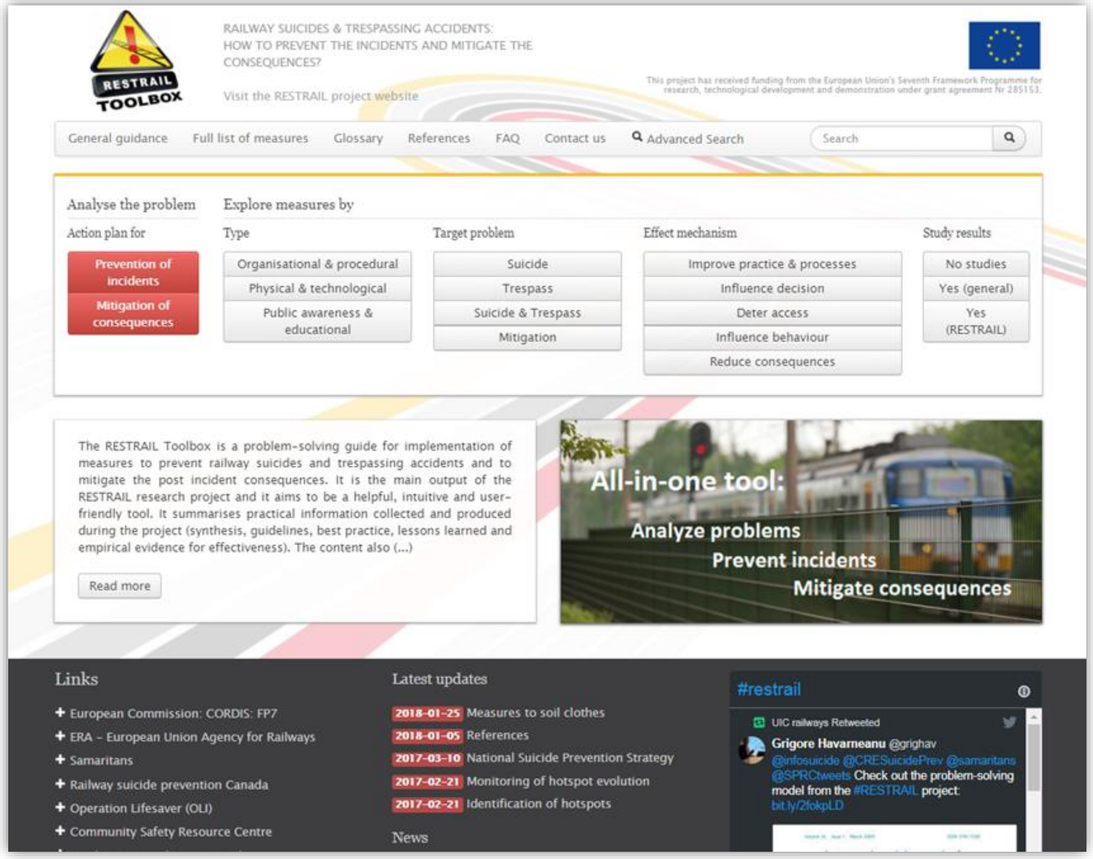
BODEGA, ODYSSEUS

Final project output: brochure & tool

Main results

- 70 countermeasures (grouped in 25 families)
- 11 field tests in 8 countries
- 10+ scientific peer-reviewed publications
- Recommendations in a practical guide and an online toolbox





www.restrail.eu/toolbox

8.5 Anti-trespass panels

Description
What does this measure refer to and what is its objective?

Recommendations
Best practice and lessons learned

Warning points
Expected difficulties and issues you should pay attention to

Observations
Other points that you should not forget

Study results
Data or other evidence supporting the measure's effectiveness

- This system was initially implemented and h
- The system was also implemented in Portug unknown.
- A pilot study conducted in 2014 in Belgium trespassing hotspot close to three schools a in combination with fences, warning signs a during the three months after the implemen months before installation. A second assess number of intrusions. Based on the pilot res Gaëtan Van Overmeiren.
- In the Netherlands the first implementation reductions between 30-90% depending on t about the number of suicides (some of whic
- Anti-trespass panels were tested by TCDD a part of RESTRAIL pilot tests conducted in 20
- Anti-trespass panels were tested in Sweden showed an overall 38% reduction in numbers +4% increase in a third, and less clear but ra report from Trafikverket).
- An exploratory study by SNCF is also ongoing at several locations in France (results unknown yet).
- In 2019 Metrolinx started with a pilot program where rubber ATP were placed at select high-risk level crossings across the GO rail network in Toronto, Canada (source).

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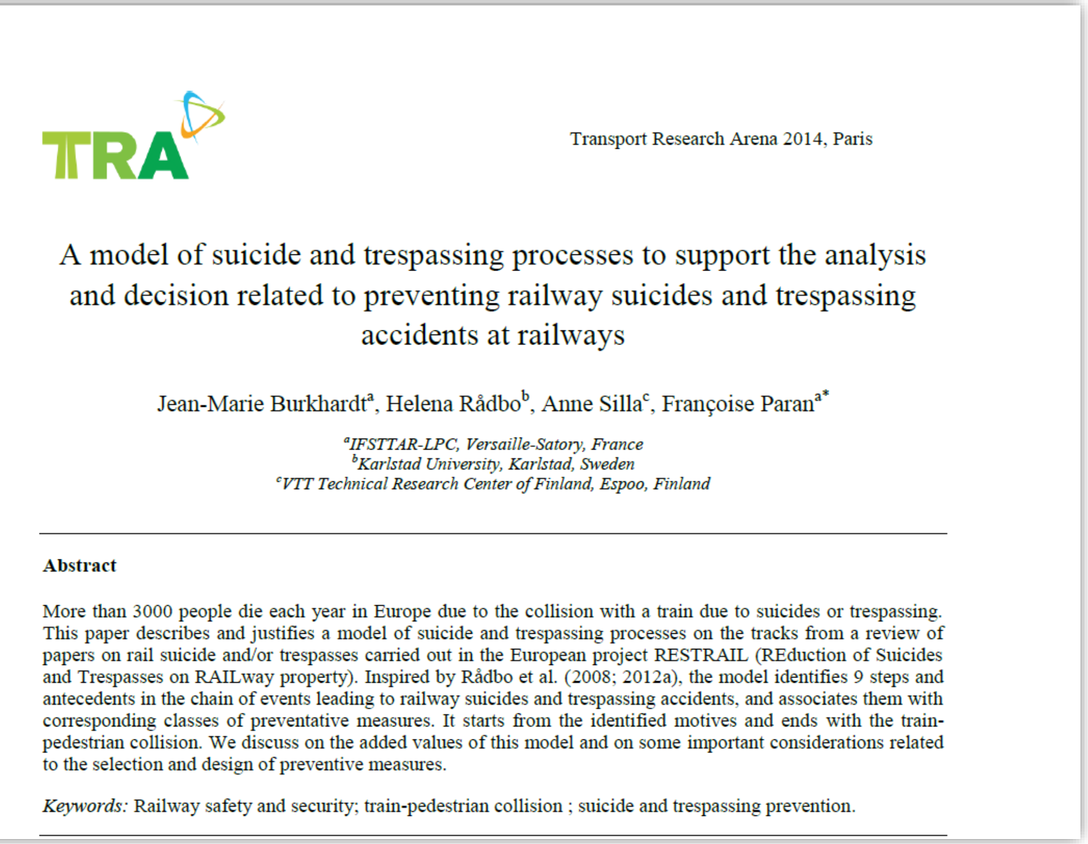
Conferences with peer-reviewed open access proceedings



TRA

Transport Research Arena 2014, Paris

A model of suicide and trespassing processes to support the analysis and decision related to preventing railway suicides and trespassing accidents at railways

Jean-Marie Burkhardt[a], Helena Rådbo[b], Anne Silla[c], Françoise Paran[a*]

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[b]*Karlstad University, Karlstad, Sweden*
[c]*VTT Technical Research Center of Finland, Espoo, Finland*

Abstract

More than 3000 people die each year in Europe due to the collision with a train due to suicides or trespassing. This paper describes and justifies a model of suicide and trespassing processes on the tracks from a review of papers on rail suicide and/or trespasses carried out in the European project RESTRAIL (REduction of Suicides and Trespasses on RAILway property). Inspired by Rådbo et al. (2008; 2012a), the model identifies 9 steps and antecedents in the chain of events leading to railway suicides and trespassing accidents, and associates them with corresponding classes of preventative measures. It starts from the identified motives and ends with the train-pedestrian collision. We discuss on the added values of this model and on some important considerations related to the selection and design of preventive measures.

Keywords: Railway safety and security; train-pedestrian collision ; suicide and trespassing prevention.

Eur. Transp. Res. Rev.
DOI 10.1007/s12544-016-0203-y

ORIGINAL PAPER

Lessons learned from the collaborative European project RESTRAIL: REduction of suicides and trespasses on RAILway property

Grigore M. Havârneanu[1] · Marie-Hélène Bonneau[1] · Jacques Colliard[1]

Received: 18 March 2015 / Accepted: 9 May 2016

Abstract
Background RESTRAIL was a three year EU FP7 research project which aimed to help reduce the occurrence of suicides and trespasses on railway property and the costly service disruption caused by these events. The project was coordinated by the International Union of Railways (UIC) and provided the rail industry and researchers worldwide with an analysis of the most cost-effective prevention and mitigation measures. The goal of this paper is to inform the railway and scientific community about the successful completion of the project and to present an overview of the main results and key innovations.
Method The project covered five relevant issues which significantly contributed to improve the prevention of railway suicide

practical and exploitable results from EU-funded research projects, since the scientific and applied outcomes of RESTRAIL are an example of good practice for the benefit of the entire railway community and society.

Keywords Safety · Security · Rail suicide · Trespass · Incident prevention · Consequence mitigation

1 Introduction

Suicides represent more than two thirds of all railway fatalities

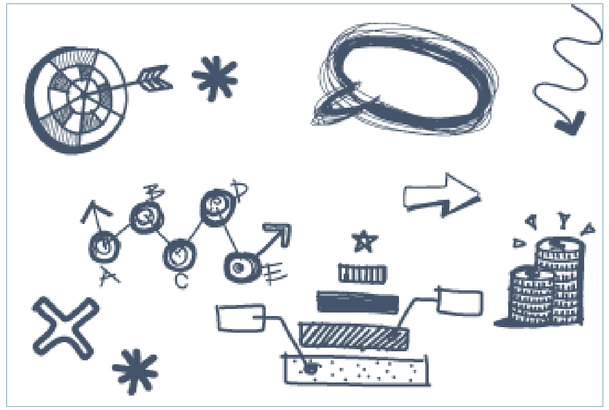
http://link.springer.com/article/10.1007/s12544-016-0203-y

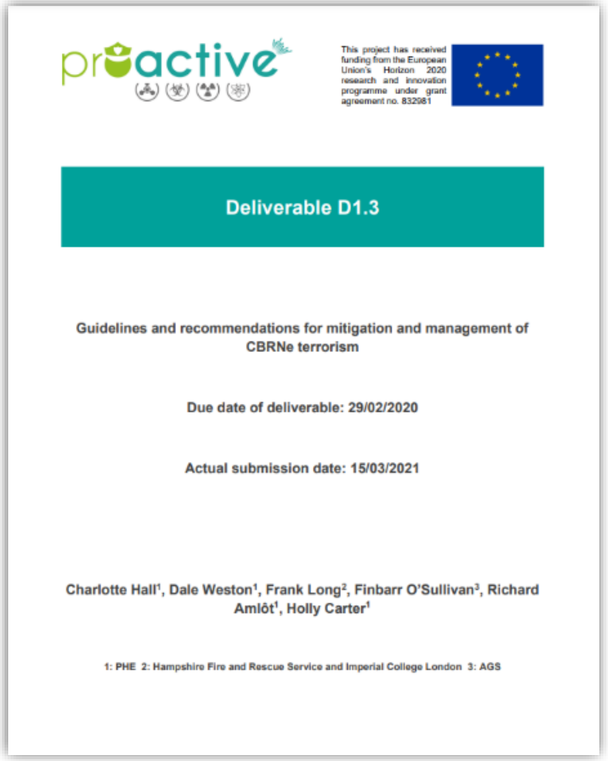
Turn project deliverables into policy papers

PReparedness against CBRNE threats through c**O**mmon **A**pproaches between security pra**CTI**tioners and the **V**ulnerabl**E** civil society

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

https://proactive-h2020.eu/





This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

Deliverable D1.3

Guidelines and recommendations for mitigation and management of CBRNe terrorism

Due date of deliverable: 29/02/2020

Actual submission date: 15/03/2021

Charlotte Hall[1], Dale Weston[1], Frank Long[2], Finbarr O'Sullivan[3], Richard Amlôt[1], Holly Carter[1]

1: PHE 2: Hampshire Fire and Rescue Service and Imperial College London 3: AGS

https://proactive-h2020.eu/wp-content/uploads/2021/10/COVINFORM-PROACTIVE-Whitepaper-Communication-in-times-of-crisis.pdf

Make scientific papers accessible for a target group

Applied Ergonomics 102 (2022) 103752

Contents lists available at ScienceDirect

Applied Ergonomics

journal homepage: www.elsevier.com/locate/apergo

Preparing railway stakeholders against CBRNe threats through better cooperation with security practitioners

Grigore M. Havârneanu [a,*], Laura Petersen [a], Andreas Arnold [b], Danielle Carbon [b], Thomas Görgen [b]

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ARTICLE INFO

Keywords:
Rail security
Capacity building
Emergency response
Transport
Terrorism

ABSTRACT

This paper presents partial results from the Horizon2020 PROACTIVE project, following a set of literature reviews and surveys conducted with first responder organisations and rail security experts. Qualitative and quantitative data from two surveys are being presented. The results provide an overview of the CBRNe (Chemical, Biological, Radiological, Nuclear and explosive) preparedness and response capabilities of railway stakeholders and how these relate to a wider context represented by CBRNe first responders. The results highlight a set of challenges as well as five core skills that railway staff need to develop or improve: 1) understand the specific characteristics of the CBRNe threat, 2) develop basic response measures, 3) cooperate with authorities and train with specialised first responders, 4) improve public awareness about this threat, and 5) optimise crisis communication. In line with these, project PROACTIVE will further help update rail crisis management plans with practical recommendations concerning the CBRNe threat.

https://doi.org/10.1016/j.apergo.2022.103752

Global Railway Review

How to better prepare the railway sector for CBRNe threats

Grigore Havarneanu, Senior Research Advisor at the International Union of Railways (UIC), looks at the challenges that railways face in dealing with Chemical, Biological, Radiological, Nuclear, and explosive (CBRNe) attacks and how the EU-funded PROACTIVE project can help railway staff to better face these threats.

PROACTIVE project rail photo from the Dortmund exercise. Credit: UIC

Railway premises and rolling stock are acknowledged as being soft targets for terrorism and have already experienced CBRNe (Chemical, Biological, Radiological, Nuclear, and explosive) attacks. The most iconic historical example of CBRNe is the 1995 Tokyo metro attacks where Sarin gas was used

https://www.globalrailwayreview.com/article/134740/how-to-better-prepare-the-railway-sector-for-cbrne-threats/

Co-create with & for the end-users (experts)

Safer Level Crossing by integrating and optimizing road-rail infrastructure management and design

https://safer-lc.eu/

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723205

Expert Design Workshop

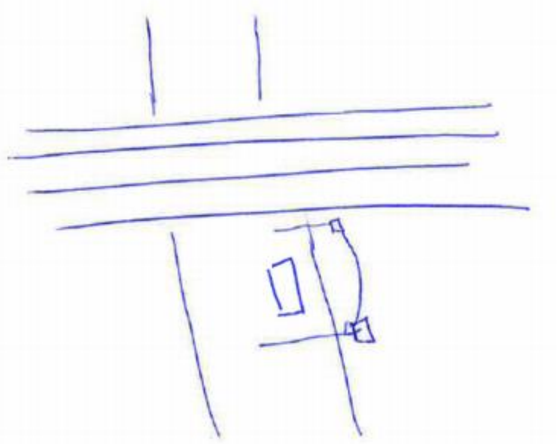
- 38 road and rail systems experts
- 12 countries
- 2 groups x 3 LC types
- Design-thinking methods

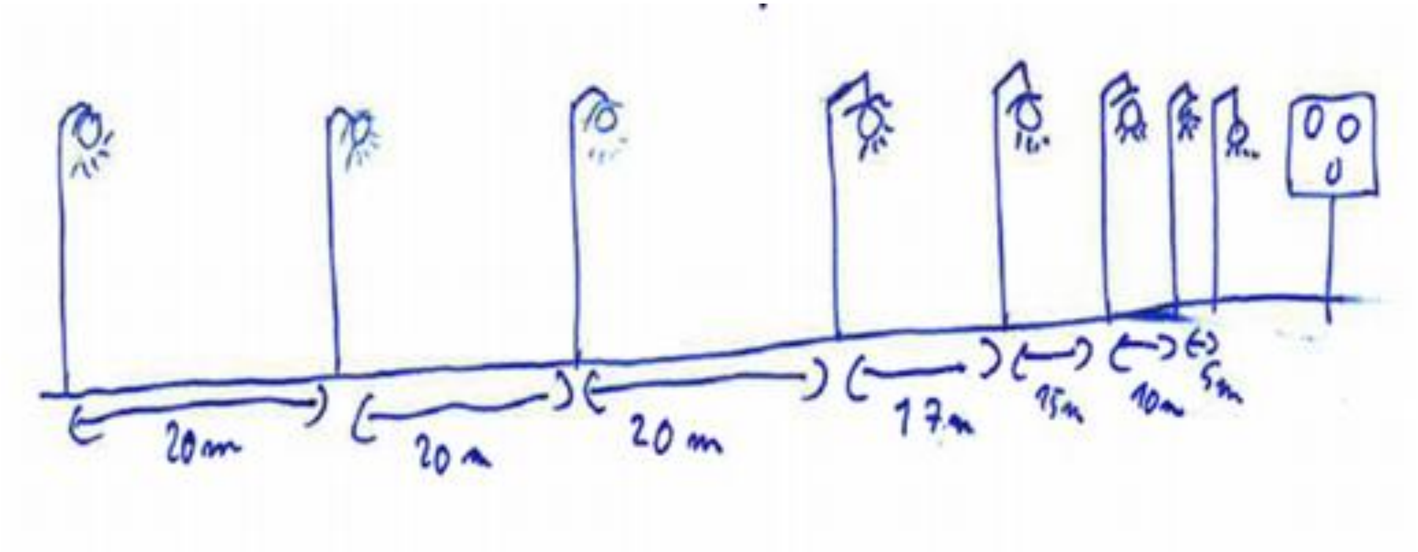
- 95 ideas for countermeasures
- expert ratings for 110 countermeasures on effectiveness, low-cost and level of innovation

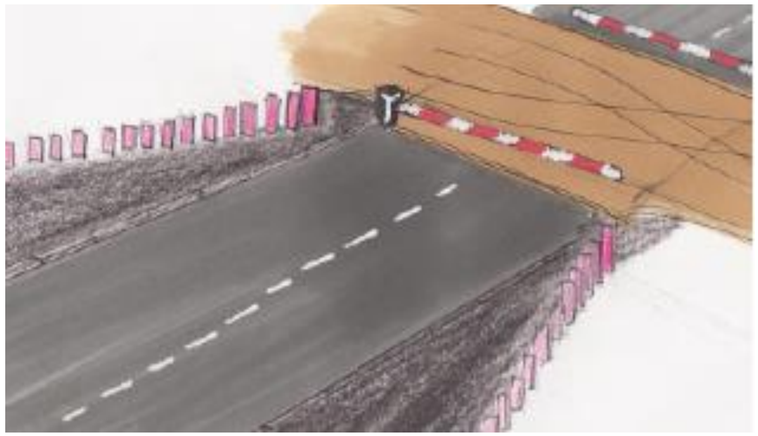
Co-create with & for the end-users (experts)

SAFER-LC

Human-centered low-cost measures at LCs







Co-create with & for the end-users (civil society)

50+ civil society stakeholders engaging with the project activities:

- Workshops
- Online surveys
- Interviews & focus groups
- Field exercises

https://www.youtube.com/@PROACTIVE_EU

Rail TTX: 6-7 April 2022, Paris

- 40 participants from 15 countries
- 5 tables with mixed groups
- Rail CBRNe scenario
- Gaps between first responders and vulnerable citizens

Additional pro-tips (what worked for us)

- Plan **public deliverables** from the proposal phase
- Plan **APCs** in the project dissemination budget
- Use **open online repositories** (e.g. ResearchGate)
- Communicate on **social media, newsletters**
- Complement scientific publications with **infographics, factsheets and videos**
- Engage with **end-users from the beginning**

CHALLENGES

- **Security domain: sensitive/restricted data**
- **Ethics & consent to get/use data: e.g. video**
- **Breaking the silos: collaborative & interdisciplinary research**

In a nutshell…

1. Final project **exploitable output**: brochure/guide + tool
2. Conferences which publish peer-reviewed open access **proceedings**
3. Turn project deliverables & scientific publications into **policy papers**
4. Make scientific papers **accessible** for a target audience
5. Co-design, **co-create with & for the end-users**
6. Plan **public deliverables** from the proposal phase
7. Include **APC fees** in dissemination buget
8. Use open online **repositories**
9. Communicate on **social media**, newsletters, etc.
10. Complement with **visuals**: infographics, factsheets and videos
11. End-user **engagement** from the beginning (real needs)

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Thank you for your kind attention.