



GLXS 2014



2014 Global Level Crossing
Safety and Trespass Prevention Symposium



University of Illinois at Urbana-Champaign



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Preventing railway suicide and trespass: A toolbox for evaluation and implementation of measures

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Background

- Train-person collisions (intentional / unintentional)

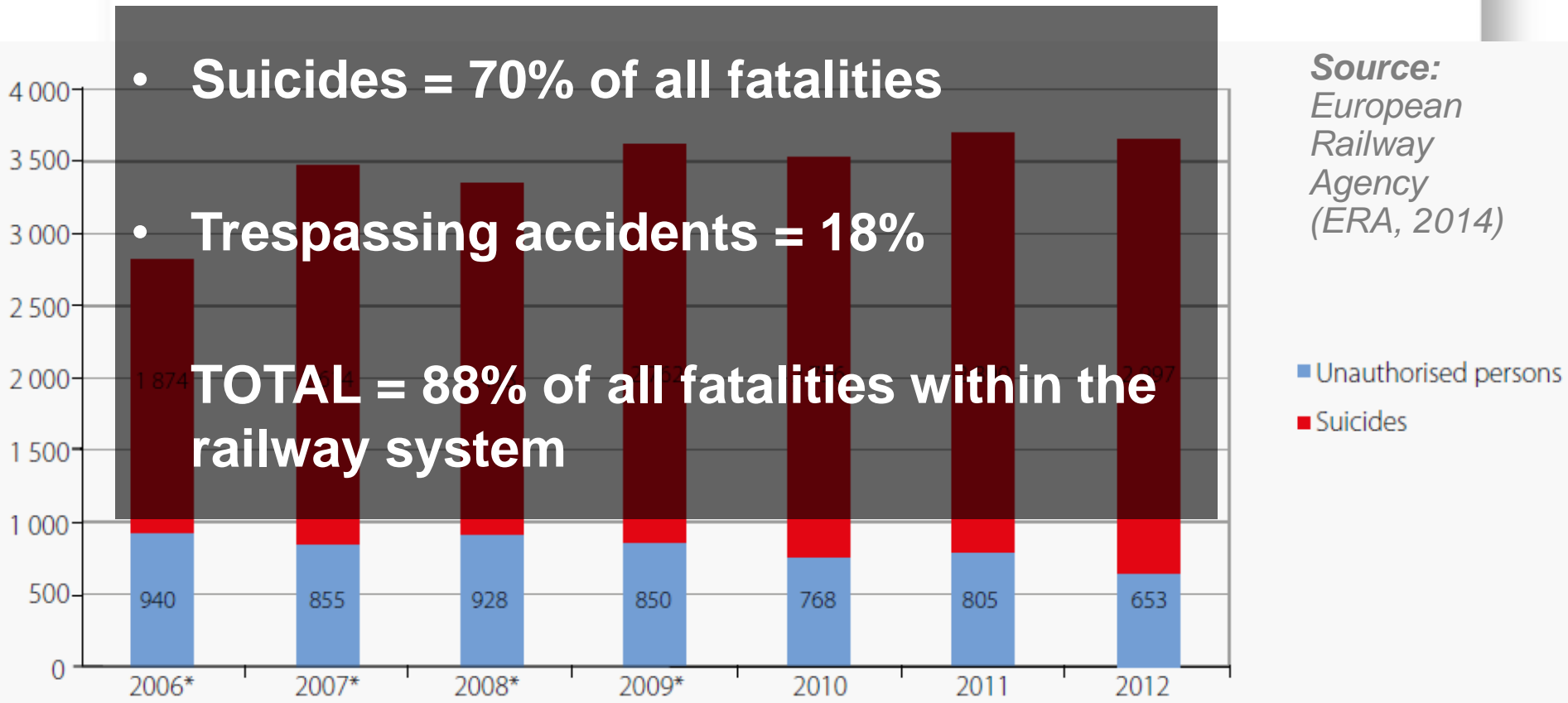


Figure 12: Unauthorised person fatalities and suicides on railway premises (EU-28 in 2006–2012) (14)



*This project is co-funded
by the European Commission with the FP7*

www.restrail.eu

REduction of **S**uicides and **T**respassing on the **RAIL**ways: A collaborative project



Consortium



17 partners from 12 countries

- Coordinator: UIC
- 6 UIC members (IMs, RUs)
- 4 research centres
- 3 universities
- 3 industries, SME



Objectives

To help reduce



**Suicides &
trespassing
accidents
(prevention)**



**Post-incident
consequences
(mitigation)**

To provide

**An analysis and identification of cost
effective measures**

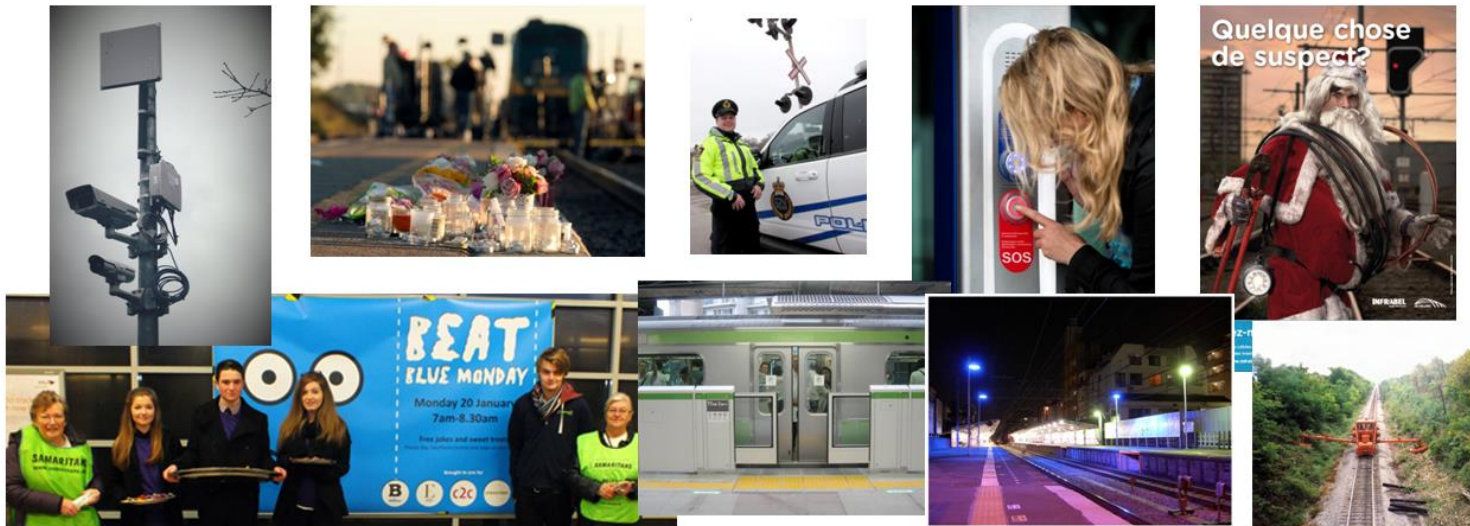
Recommendations and guidance





Method (Step1 – State-of-the-art)

- Literature reviews
- Collection of good practice from the railway industry
- 86 measures grouped in 38 families





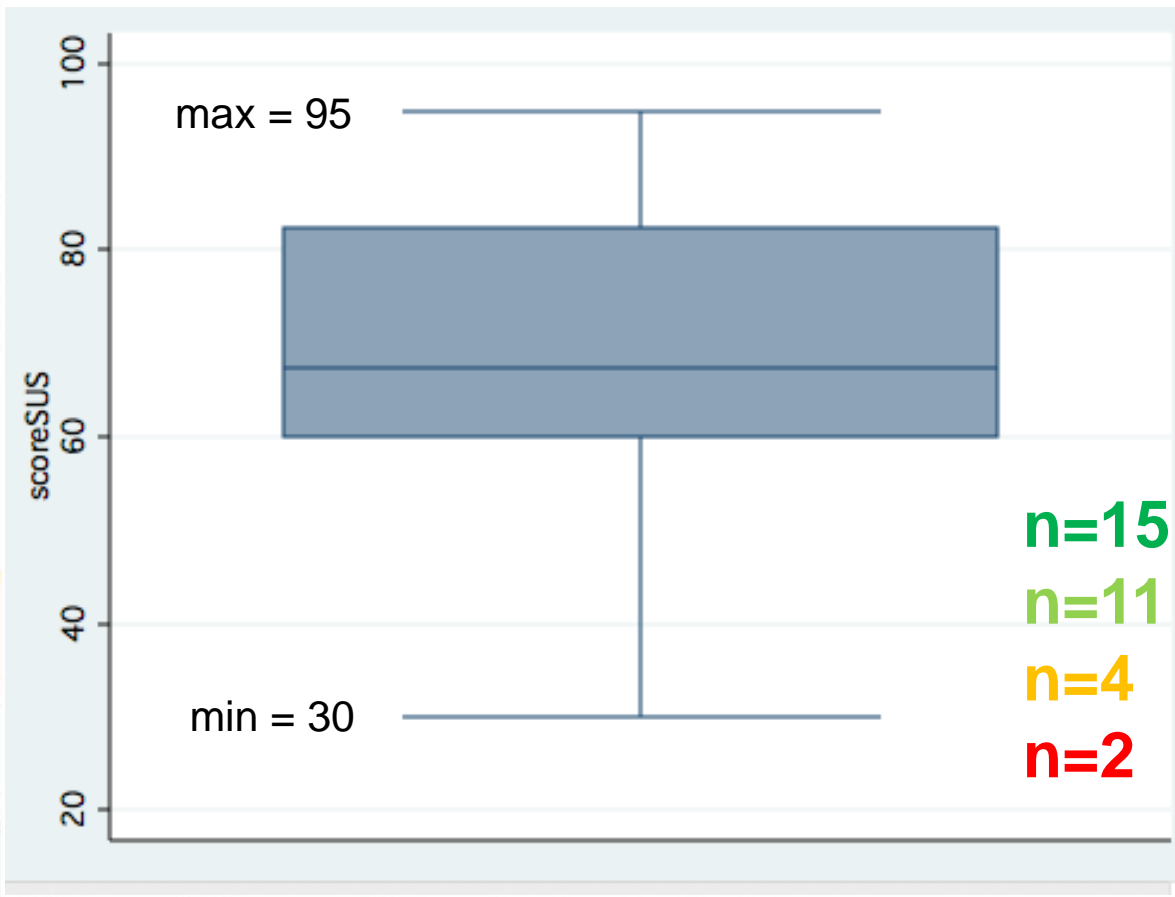
Method (Step2 – Assessment)

- Method and process to evaluate measures (July 2012) – Ryan & Kallberg (2013)
- Separate evaluations for suicide and trespass on 14 criteria (SUPREME Project, 2007)
- Based on the total scores, some measures were selected as *recommended* or *promising*



Method (Step3 – Draft versions and evaluation)

- Expert evaluation results (N=32): Brooke (1996)



n=15 acceptable
n=11 marginally high
n=4 marginally low
n=2 not acceptable



Content organisation

Recommendations.

Guidelines. Best practice.

Study results.

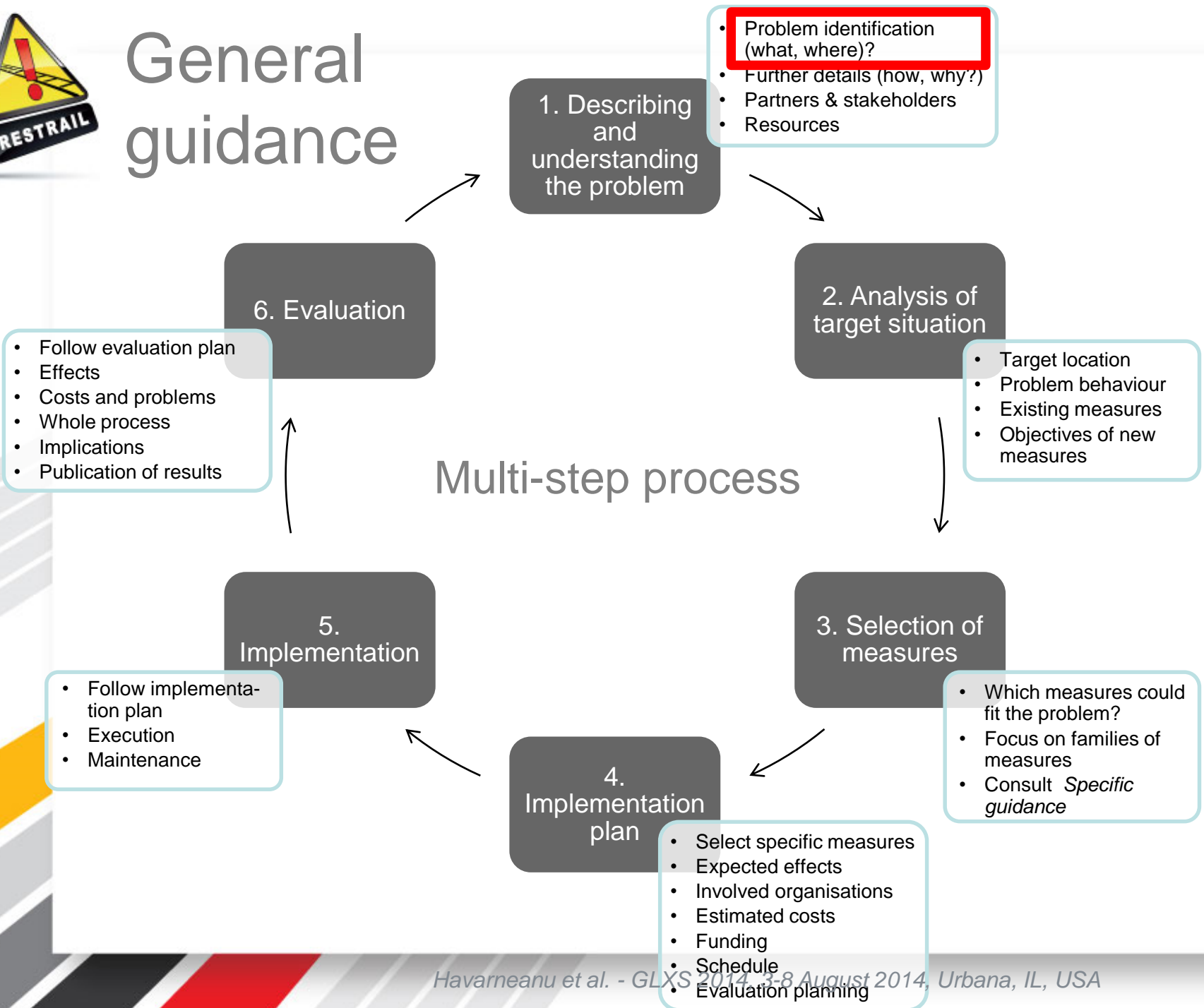
**General guidance
(how to analyse)**

**Specific guidance
(how to implement)**



General guidance

Multi-step process





Checklist example

ACTIONS	QUESTIONS TO BE ANSWERED	ISSUES TO BE CONSIDERED
Problem identification	What is the nature of the problem?	<ul style="list-style-type: none"> - suicides - attempted suicides - trespassing accidents - trespassing behaviour
	Which are the motives of trespassing?	<ul style="list-style-type: none"> - trespassing with suicide intent - shortcut, time saving - graffiti / vandalism - theft - leisure, walking around / loitering
	In which part(s) of the railway system does the problem occur?	<ul style="list-style-type: none"> - station (which platform, which part of the platform, etc.) - marshalling yard - railway line (open line) - level crossing - bridge - tunnel - some other location
	Where is the problem location?	<ul style="list-style-type: none"> - preliminary identification of the location - location marked in a map
	What are the characteristics of the surrounding areas?	<ul style="list-style-type: none"> - facilities attracting pedestrians - schools - mental hospitals - outdoor routes - stadiums - shopping centres
	What do the accident statistics tell about the problem in the area?	<ul style="list-style-type: none"> - available statistics of suicides, suicide attempts - available statistics of fatal and non-fatal trespassing accidents - number of events preferably for several years - do the statistics cover all targeted incidents or some are excluded (e.g. incidents with minor consequences)



Specific guidance

70 Specific measures
25 Families
3 Types



**Organisational
& procedural**



**Physical &
technological**



**P. awareness &
educational**

Indexed on several keywords



Specific guidance: content

Description

EXAMPLE:

Measure profile

Lighting linked to a movement sensor

Recommendations

Warning points

Observations

Study results

Gallery



Specific guidance: content

Description

EXAMPLE:

Measure profile

Lighting linked to a movement sensor

Recommendations

It refers to technologies to influence people at risk by lighting when motion is detected in a specific perimeter. Useful to provide a warning to people who move into an area that they should not enter, or behave in a way that places them at risk.

Warning points

Observations

The intention of influencing the person to modify their behaviour and move to a place of safety.

Study results

Gallery



Specific guidance: content

Description	Type of measure	Organisational and procedural Physical and technological Public awareness and educational
Measure profile		
Recommendations	Target problem	Suicide Trespass
Warning points	Effect mechanism	Improve practice and processes Influence decision Deter access Influence behaviour in track area Reduce consequences
Observations		
Study results		
Gallery	Family	Lighting devices to influence behaviour
	Evaluation studies	RESTRAIL Other None



Specific guidance: content

Description

Measure profile

Recommendations

- Check the laws on human integrity in your country before making the plans.
- The sensor needs to be able to react only to persons who are in its range.
- The effect will increase when combined with a follow-up measure as surveillance or sound warnings.
- May need support from staff to attend when alarms are operated.

Warning points

Observations

Study results

Gallery



Specific guidance: content

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- Blinding of train drivers by lights should be prevented.
- Be aware that light pollution can cause acceptance risks with neighbours and nature conservation organisations. Communicate before installing. Maybe not to be used in rural nature areas because of light pollution. For further details on how to reduce light pollution you may check: www.sustainablefairfax.org/content/view/321/27
- Impact of the spotlights for the people living in the direct environment could be an issue. For dispelling light sources there can be problems with national laws on human integrity.
- Effective only during night time.



Specific guidance: content

Description

Measure profile

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- It is expected that the effects are durable.

Study results

Gallery



Specific guidance: content

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- Anti-suicide lighting is used in The Netherlands on a broader scale. There have been positive results with a **40%** reduction when used at hotspots.
- South Korean authorities report that the suicide rate has dropped with more than **70%** at Mapo bridge in Seoul, where inspirational messages of hope light up as people walk by.
- In Japan, introduction of blue LED lights at 11 stations resulted in **84%** decrease in the number of suicides between 2000-2010 compared to other 60 stations without blue light (Matsubayashi et al., 2012).
- The installation of blue lights on platforms, even were they to have some effect in preventing railway suicides at night, would have a much smaller impact than previously estimated (Ichikawa, Inada, & Kumeji, 2014).



Specific guidance: content

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Example from
the Netherlands.
Source: ProRail



Example of the Duwamish bridge in USA (WA) equipped with blue LEDs, electronics, steel, train signaling system. The blue LED lights turn on as the trains are crossing the bridge.

Source: <http://dancorson.com/duwamish-bridge>

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Example of the Mapo bridge in Seoul, South Korea. Source: <http://www.pri.org/stories/2012-09-27/bridge-signs-used-south-korea-anti-suicide-efforts>



Search:

Advanced search

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General guidance

Analyse the problem

Prevention measures

Reduce suicides

Reduce trespass

Reduce both

Mitigation measures

Minimise the consequences

WELCOME TO THE RESTRAIL TOOLBOX
This tool is designed to help railway infrastructure (RI) and infrastructure managers (IMs) decision makers in three ways: (1) lead decision-makers through the process of selecting from the range of preventative and mitigation measures, (2) provide more detailed guidance on the implementation of those measures and (3) provide a framework for collecting and structuring information in order to feed an accessible and documented database on measures (...)

[Read more](#)

www.restrail.eu/toolbox



Links

- + [European Commission: CORDIS: FP7](#)
- + [ERA - European Railway Agency](#)
- + [Samaritans](#)
- + [Railway suicide prevention Canada](#)
- + [Operation Lifesaver \(OLI\)](#)

Latest updates

- 2014-07-10** [References](#)
- 2014-06-30** [Identification of hotspots](#)
- 2014-06-09** [Gatekeeper training for front line staff](#)
- 2014-06-09** [Information encouraging help seeking for people \(...\)](#)
- 2014-06-09** [Anti-trespass grids](#)
- 2014-06-09** [Fencing at platform ends](#)

Events

- 2011-11-09** [RESTRAIL - Kick-off Meeting](#)
- 2012-06-14** [RESTRAIL: Info Day](#)
- 2013-06-13** [RESTRAIL Mid-Term Conference](#)
- 2014-04-28** [RESTRAIL Final conference](#)

News

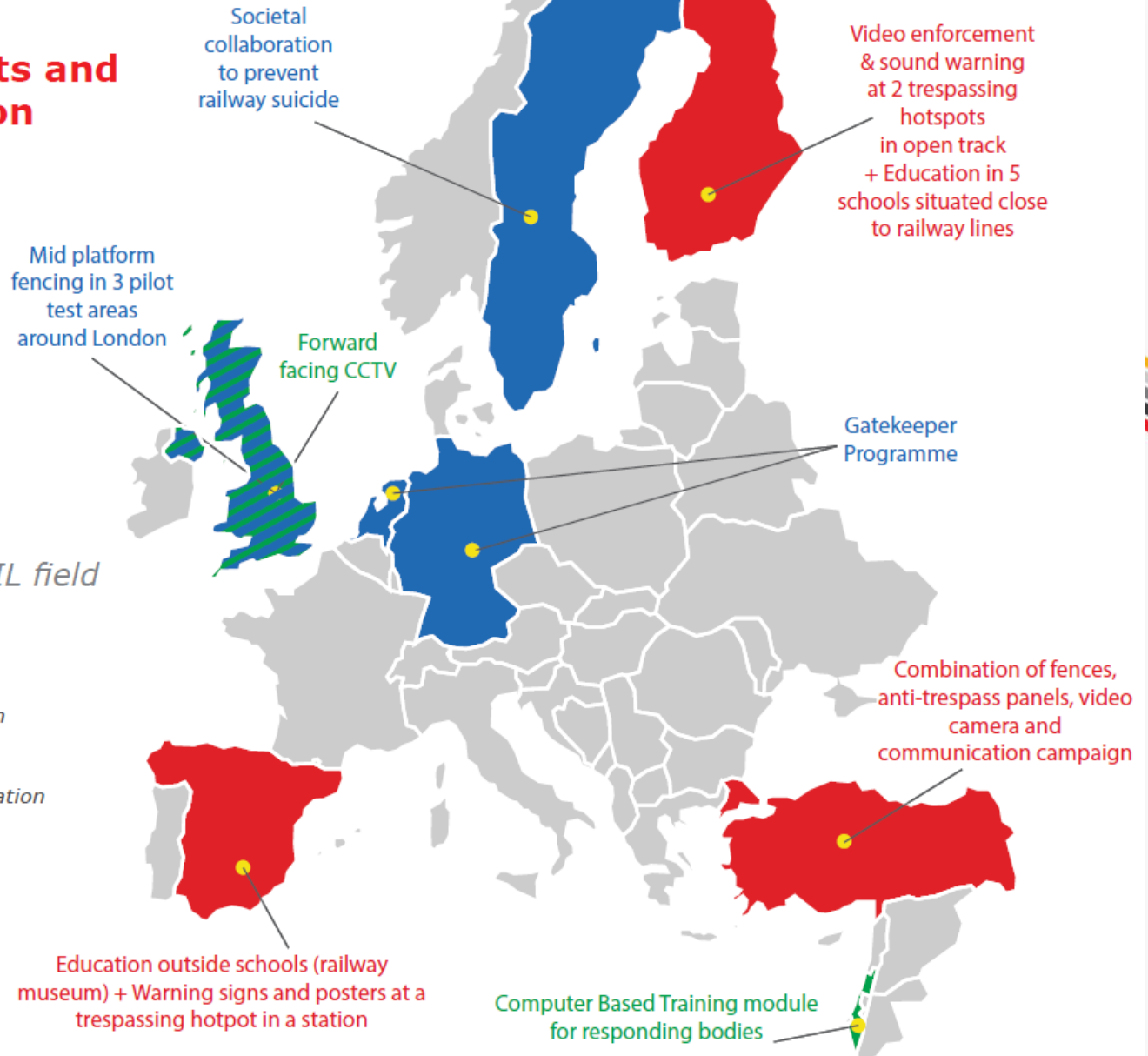
- 2014-07-15** [Results from the RESTRAIL project disseminated at \(...\) UIC eNews](#)



Field tests and evaluation

Map of RESTRAIL field tests

- Trespass prevention
- Suicide prevention
- Consequence mitigation





Further information

- Website www.restrail.eu
- Brochures, Newsletters
Conferences and Workshops
- Contact
havarneanu@uic.org
- Registration:
<http://www.restrail.eu/RESTRAIL-Final-Conference.html>

