



INTERNATIONAL UNION
OF RAILWAYS

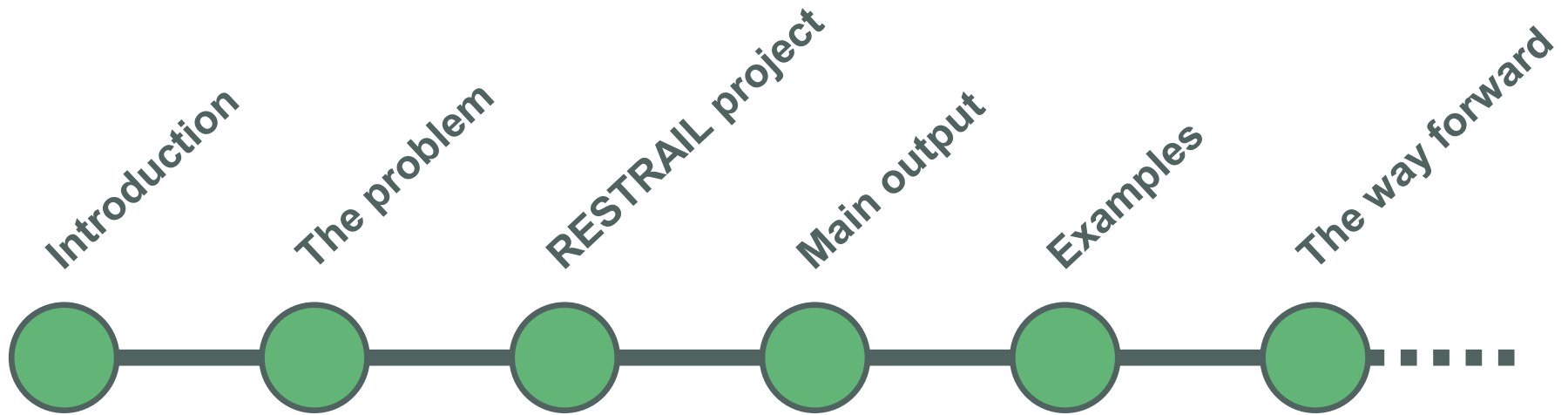
unity, solidarity, universality

Permanently coping with railway suicide and trespass for a safer, more secure and more competitive rail transport: Lessons from the RESTRAIL project

Grigore M. Havârneanu, PhD

*Research Advisor
Fundamental Values Department – Security Division*

Overview



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OF RAILWAYS



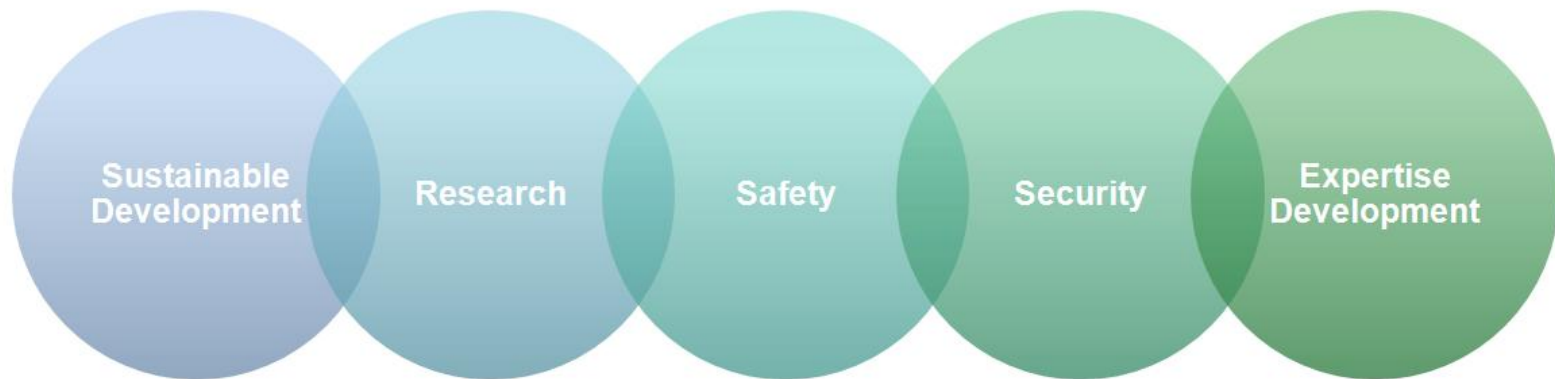
International Union of Railways (UIC)

- **Founded in 1922 in Paris**
- **More than 230 members worldwide**
- **Promotes the development of rail transport at global level**
- **Platform for:**
 - Cooperation
 - Research projects
 - Dissemination
 - Training
 - Standards & recommendations
- **www.uic.org**



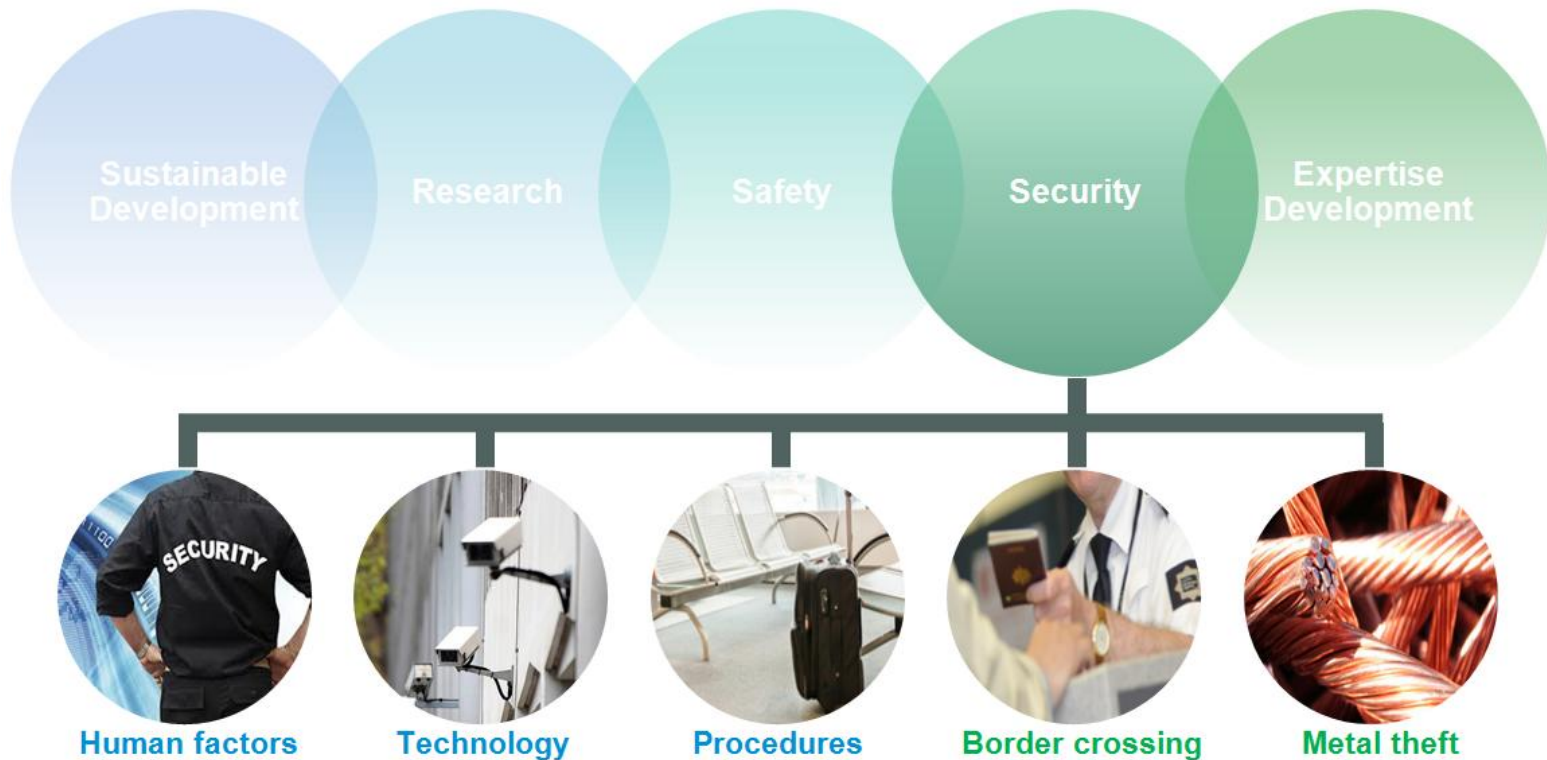
Inside UIC

➤ Fundamental values department

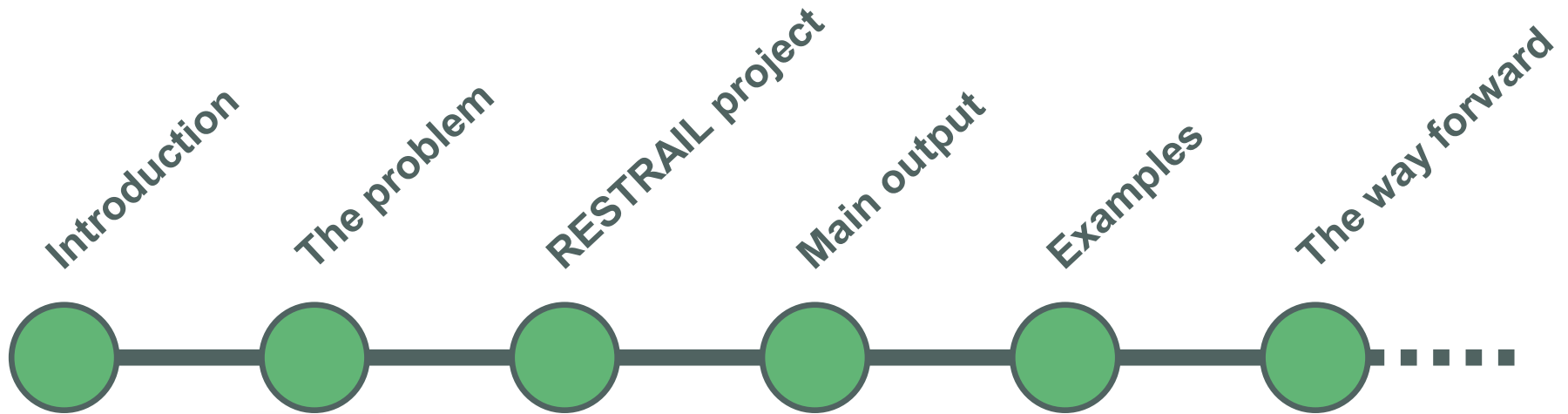


Security at UIC

> Global Security Platform and Steering Committee



Overview



Background

> Train-person collisions (intentional / unintentional)

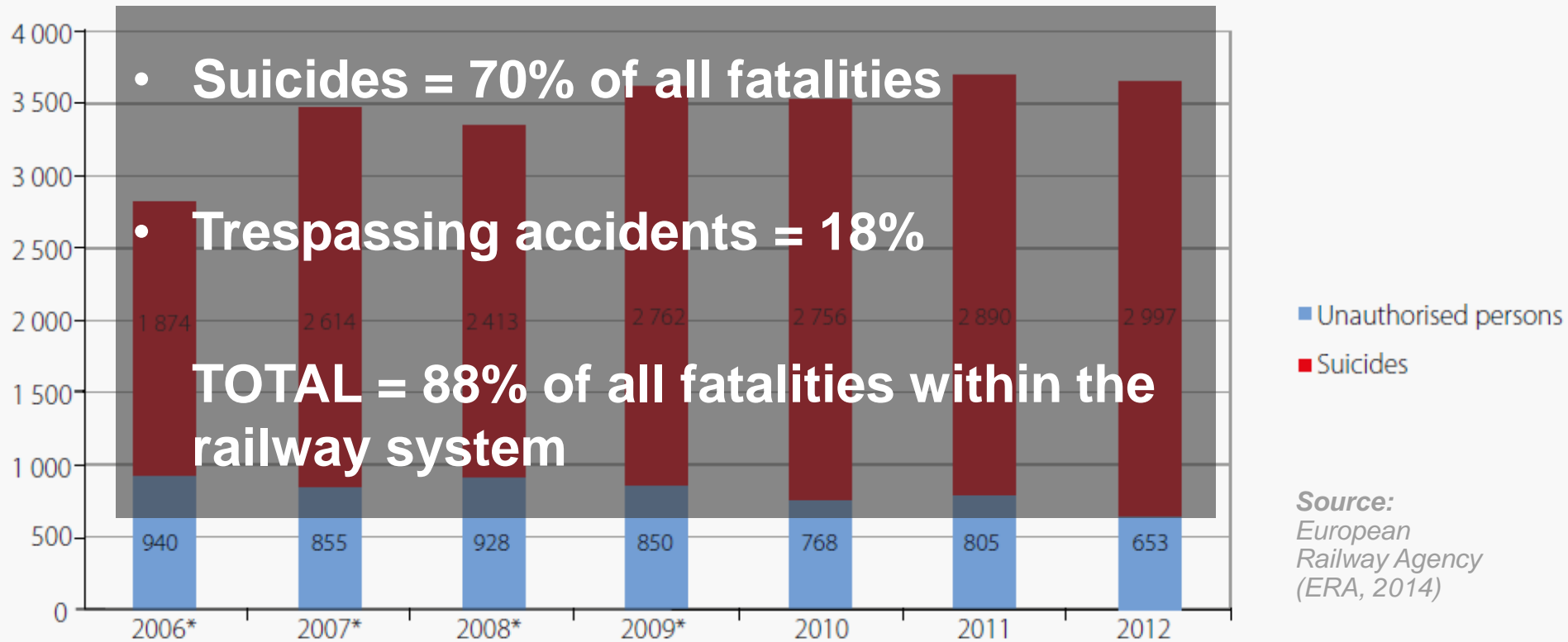


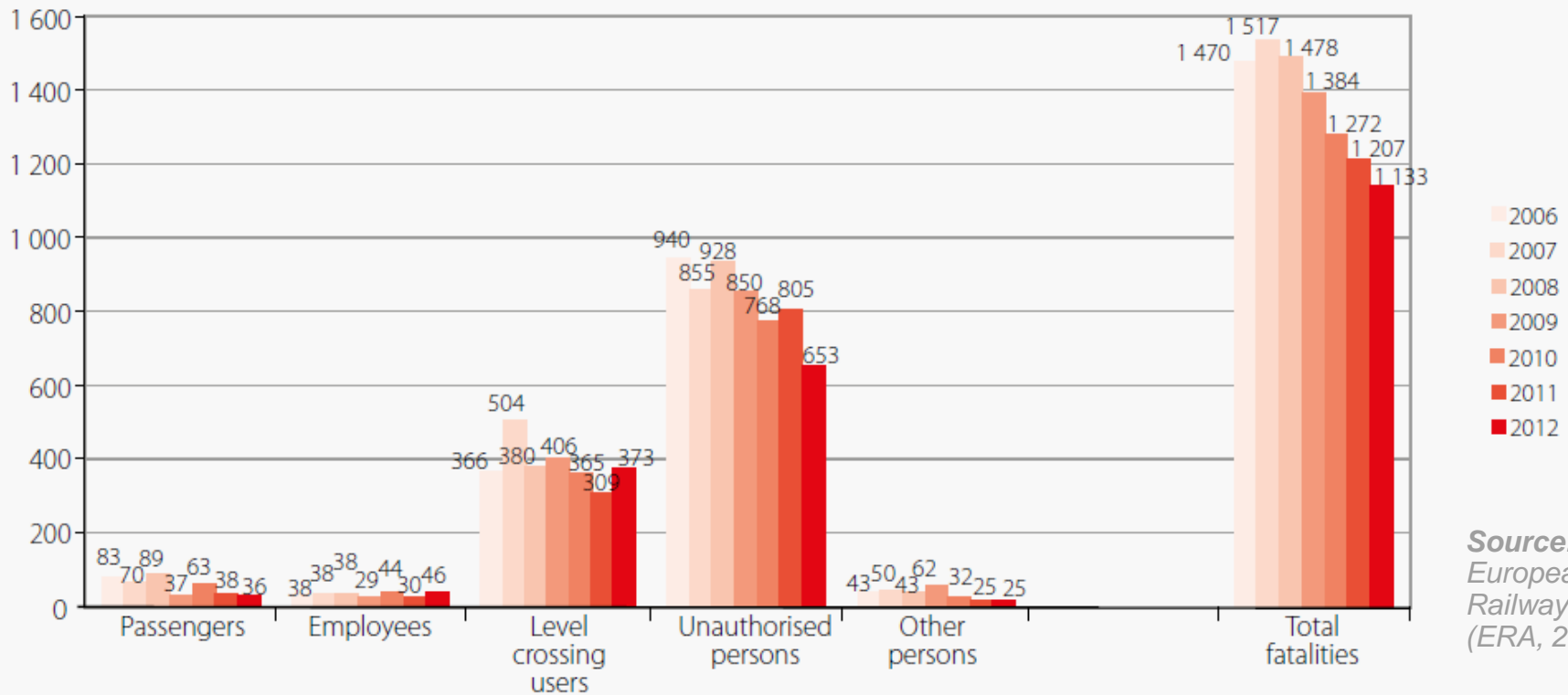
Figure 12: Unauthorised person fatalities and suicides on railway premises (EU-28 in 2006–2012) (14)

88%



Accidents to persons

➤ Trespassing accidents = 61% of all accidents to persons



Source:
European
Railway Agency
(ERA, 2014)

Figure 10: Number of fatalities per victim category (EU-28: 2006-2012)

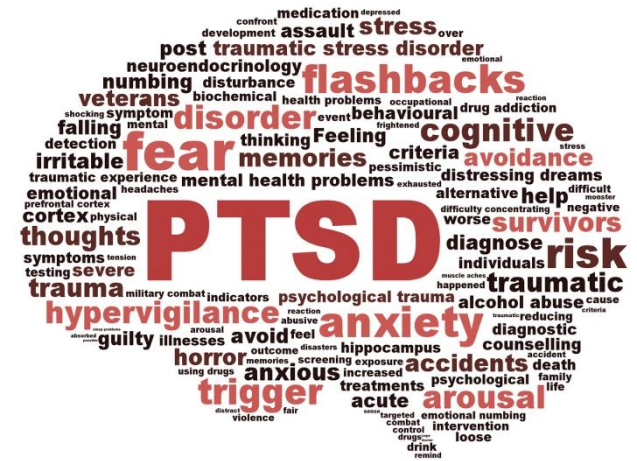
Consequences: psychological trauma

- > **Train drivers** (Briem et al., 2007; Farmer et al., 1992; Limosin et al., 2006)



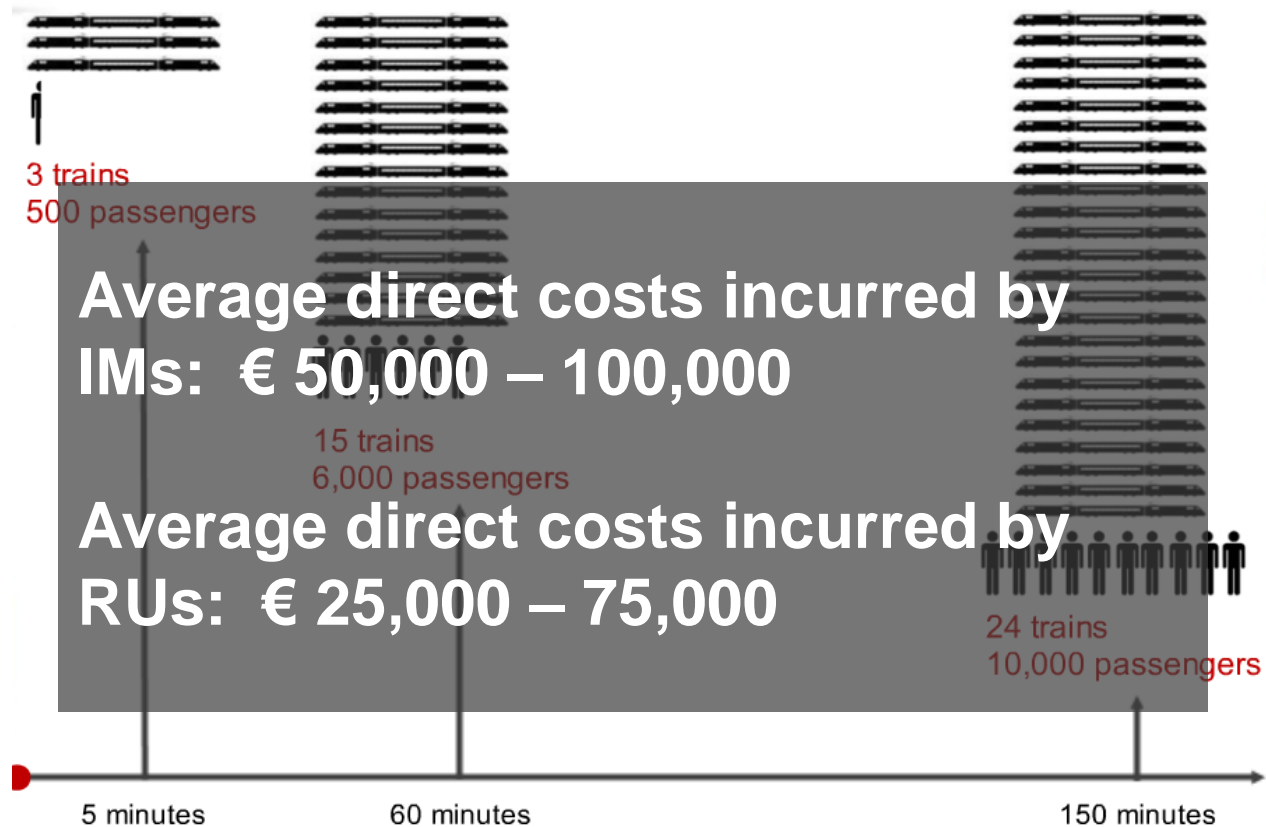
70% need a sick leave of 4.4 days
(Cothereau et al., 2004).

- > **Railway staff, rescue employees and eye witnesses** (Baumert et al., 2005; Mishara, 2007; Rådbo et al., 2005)



Consequences: quality of service (2)

- > Average shut-down time: 120-240 minutes



Consequences: passenger perception (3)

- The image of rail transport, attractiveness, feeling of security



- Both for suburban / commuter and high-speed contexts

What is trespass?

- > **Unauthorised (illegal) presence on the railway property (tracks, stations, trains...) & no injury intent**
 - Crossing the tracks in illegal places (Silla & Luoma, 2009)
 - Walking across or along the tracks (Lobb et al., 2001)
 - Loitering close to the tracks (Savage, 2007)
 - Lying or sitting on tracks to rest or to socialize (Pelletier, 1997)

- > **Error of perception, knowledge, judgement (Lobb et al., 2001, Ward & Wilde, 1995) OR deliberate rule violation (Freeman & Rakotonirainy, 2015)?**

- > **Not all trespassing behaviours result in casualties**

LC users when they violate the rules?

- Trespass between a LC and a nearby station platform



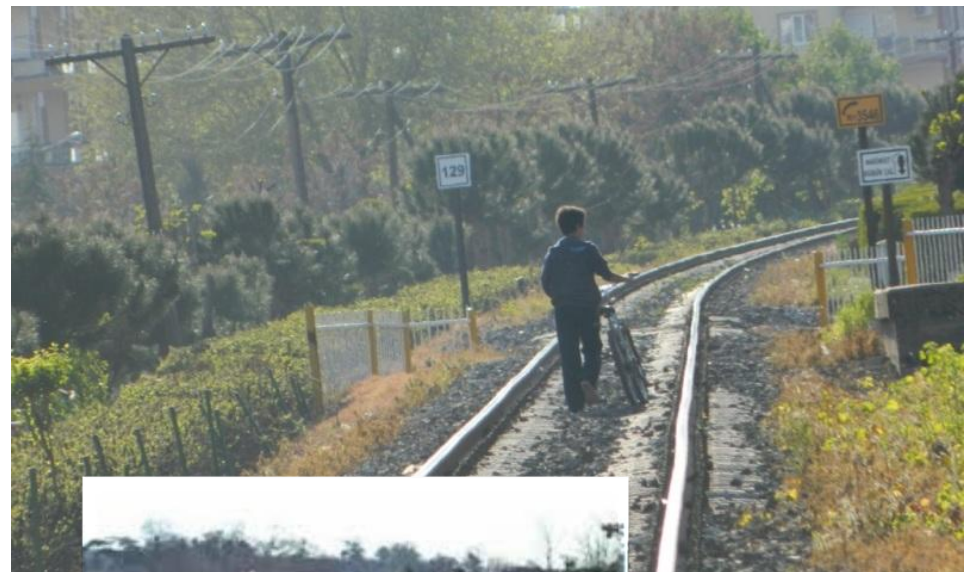
Why? Convenience

- **Shortcut (time saving, most attractive route)** (e.g. Lobb et al., 2001; Robinson, 2003; RSSB, 2011; Silla & Luoma, 2009)



Why? Unconsidered risks

- Children and teenagers (playing, socialising, hanging around)



Why? Underestimated risks

- Daring and adventurism, thrill-seeking (Nixon et al. 1985; Lerer & Matzopoulos, 1996) (e.g. “train surfing”, “chicken”)
- Sensation seeking (Freeman & Rakotonirainy, 2015)



Why? Underestimated risks

- Homeless people looking for shelter



Why? Leisure

- Recreational purposes (e.g. tourists taking a walk)



Why? Taking photos and shooting movies

> Amateur and professional photographers and filmmakers

(e.g. Camera assistant killed during *Midnight Rider* crash; fitness trainers killed on tracks while filming workout video)



Why? Escape from controlled areas

> Migrants



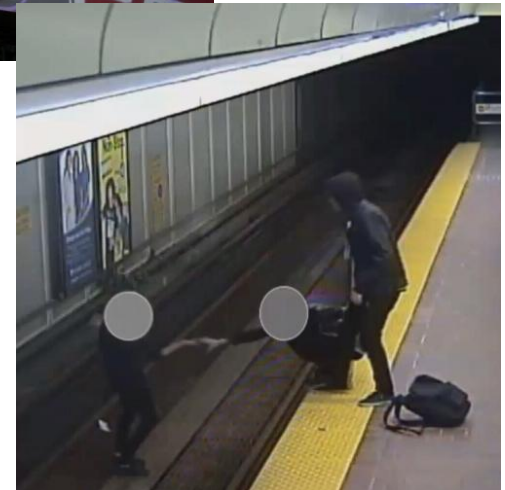
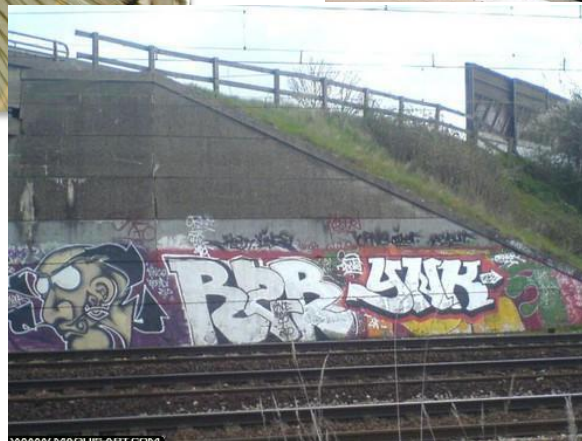
Why? Negative will (1)

- Fraud, fare-dodging
- Metal theft

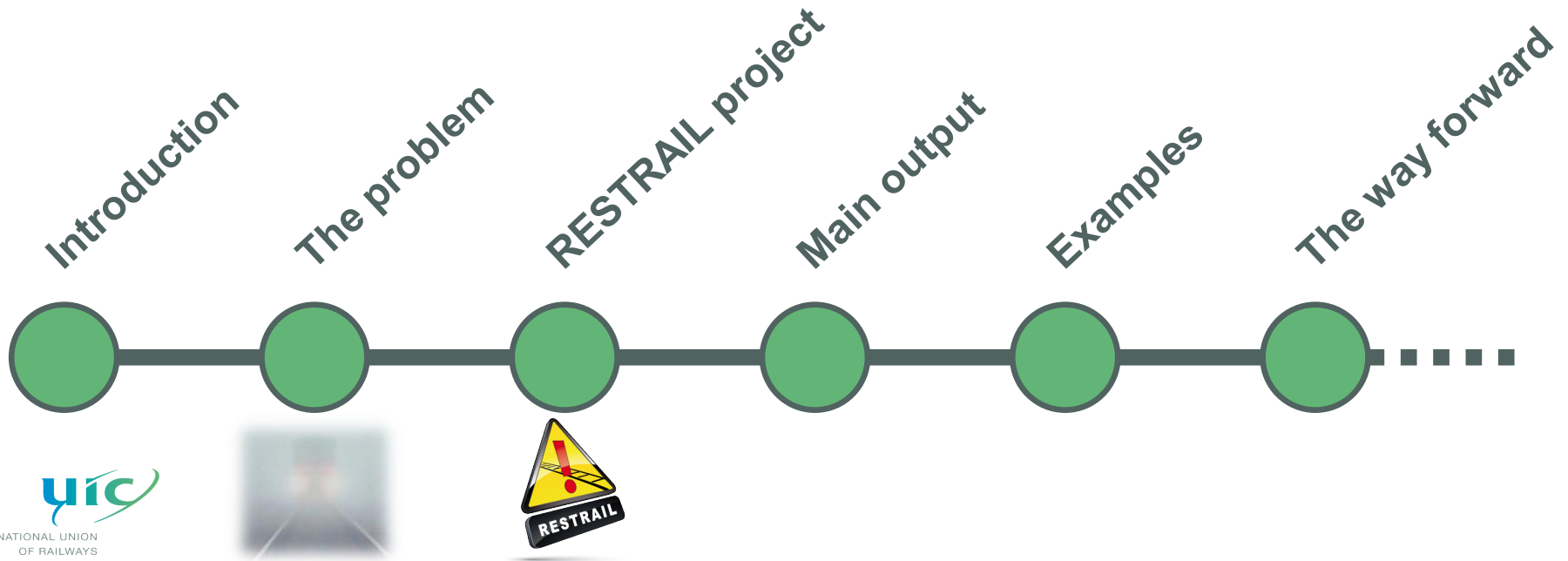


Why? Negative will (2)

- Vandalism, graffiti (Offler et al., 2009; Thompson et al., 2012)



Overview





This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 285153



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

www.restrail.eu

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



To provide

An analysis and identification of cost effective measures

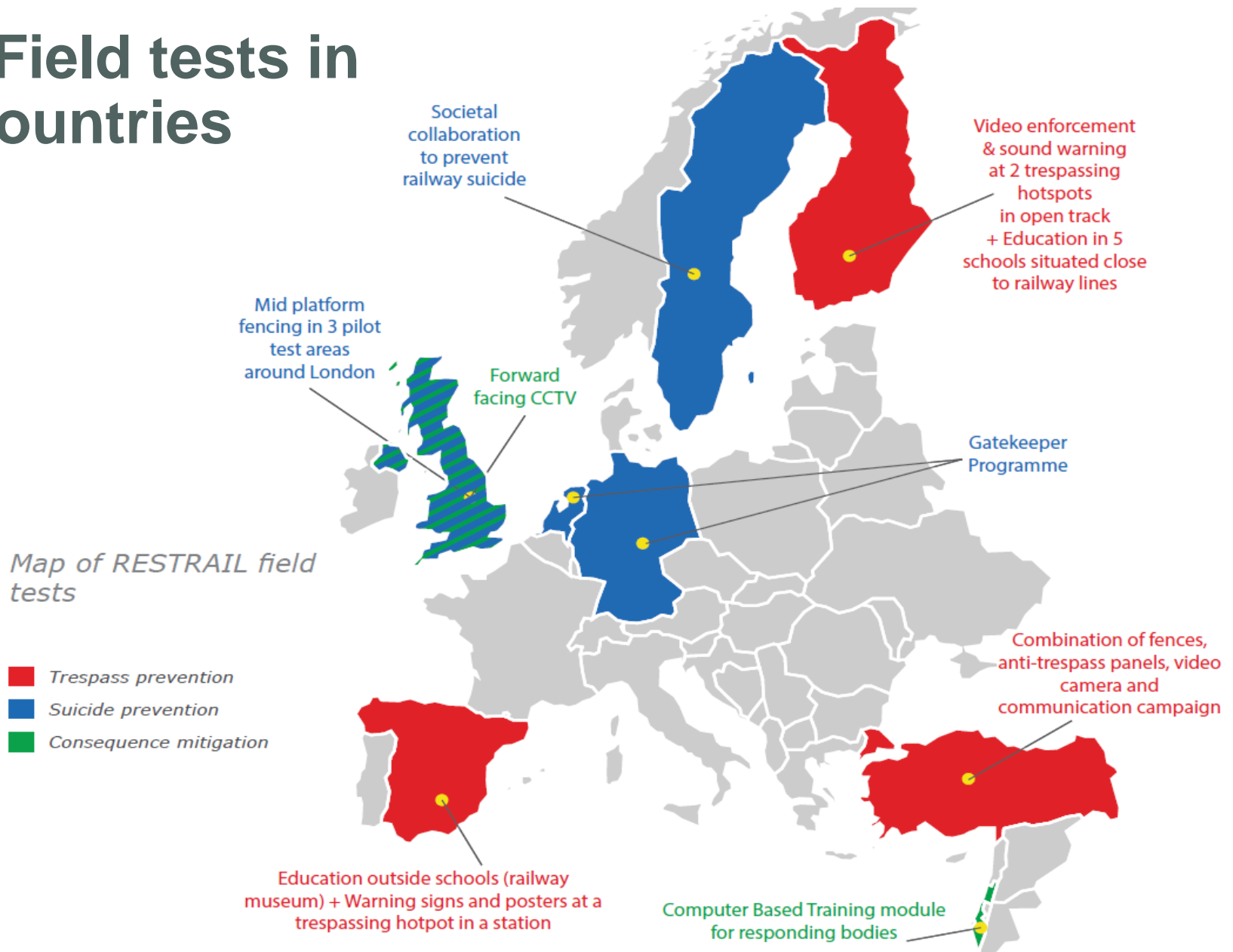
Recommendations and guidance

Methodology

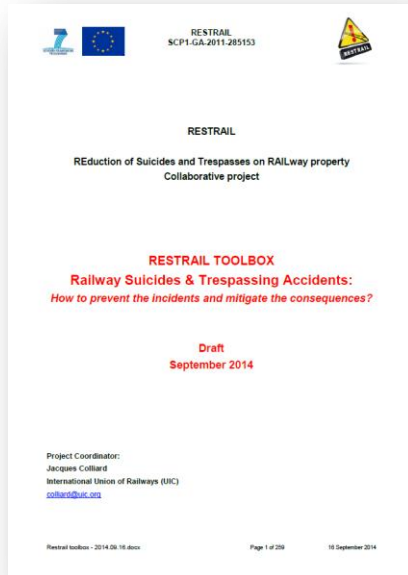
- > **Collection and analysis of data** related to railway suicides and trespassing accidents (WP1)
- > **Assessment of measures** to reduce railway suicides (WP2) and trespassing accidents (WP3)
- > **Mitigation of consequences** by improving procedures and decision making (WP4)
- > **Pilot field tests and evaluation** (WP5)



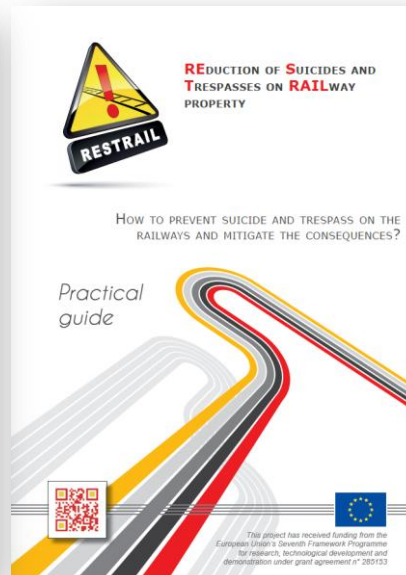
11 Field tests in 8 countries



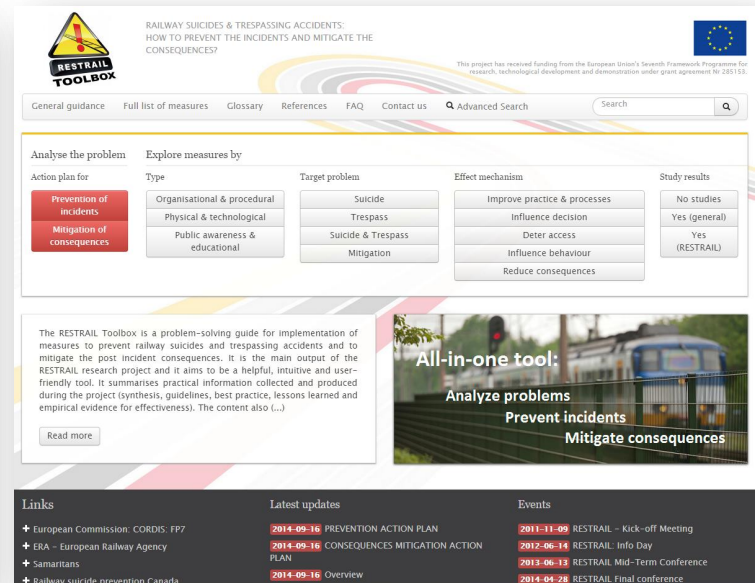
Final outcome: **the toolbox**



Paper version
(260 pages)

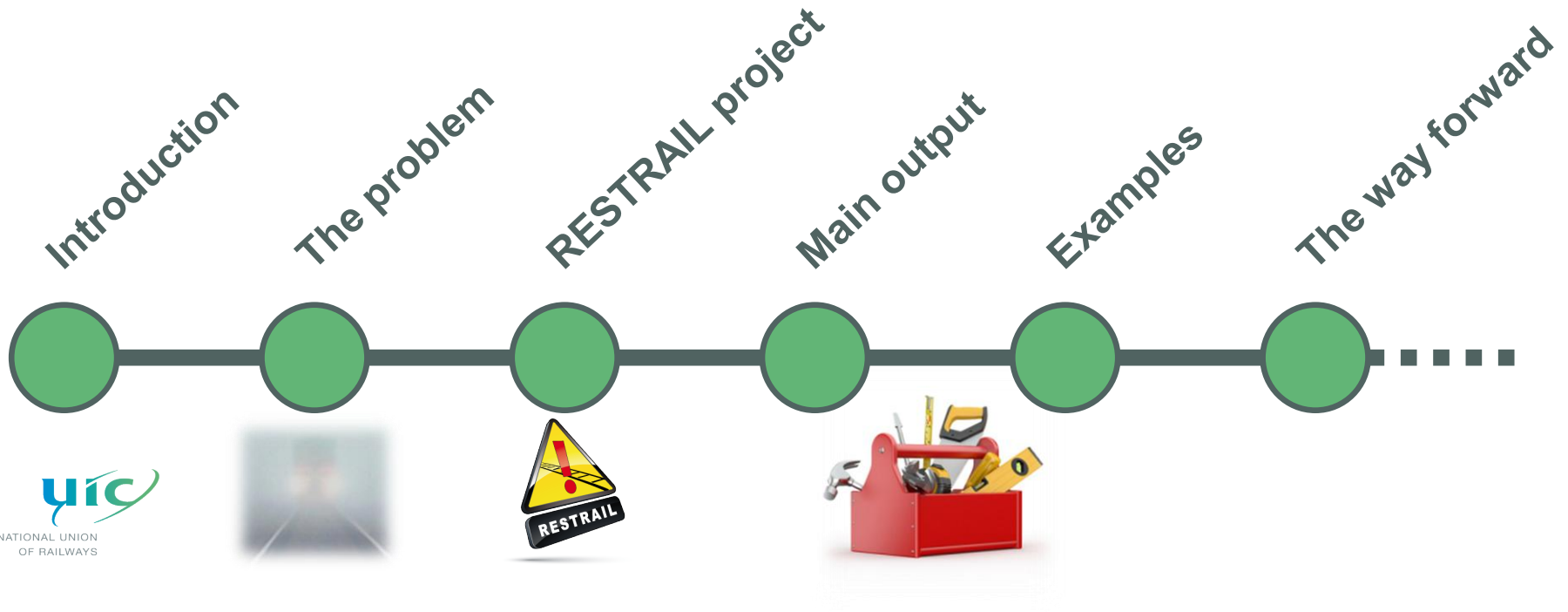


Practical guide
(44 pages)



Website
www.restrail.eu/toolbox

Overview





Analyse the problem

Action plan for

Prevention of incidents

Mitigation of consequences

Explore measures by

Type

Organisational & procedural

Physical & technological

Public awareness & educational

Target problem

Suicide

Trespass

Suicide & Trespass

Mitigation

Effect mechanism

Improve practice & processes

Influence decision

Deter access

Influence behaviour

Reduce consequences

Study results

No studies

Yes (general)

Yes
(RESTRAIL)

The RESTRAIL Toolbox is a problem-solving guide for implementation of measures to prevent railway suicides and trespassing accidents and to mitigate the post incident consequences. It is the main output of the RESTRAIL research project and it aims to be a helpful, intuitive and user-friendly tool. It summarises practical information collected and produced during the project (synthesis, guidelines, best practice, lessons learned and empirical evidence for effectiveness). The content also (...)

[Read more](#)



Links

- + [European Commission: CORDIS: FP7](#)
- + [ERA – European Railway Agency](#)
- + [Samaritans](#)
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- [2014-04-28](#) RESTRAIL Final conference



General guide

Analyse the

Action plan for

Prevent incidents

Mitigate consequences

Table of contents

- Background
- Who can use this Toolbox
- Assumptions about end-users
- Organisation of the Toolbox
- Evaluation and improvement
- Current and future versions
- How to use the Toolbox
- Terms of use and copyright

Please read the following introduction carefully before using the Toolbox.

Background

Railway suicides and trespassing accidents represent 88% of all fatalities occurring within the railway system, resulting in more fatalities than train derailments and collisions together (ERA, 2014). They lead to human and economic consequences with considerable impact on the whole society. Beyond the human loss, suicide and

The RESTRAIL research project and it aims to be a helpful, intuitive and user-friendly tool. It summarises practical information collected and produced during the project (such as the general guidelines, the lessons learned and empirical evidence for effectiveness). The content also (...)

RESTRAIL research project and it aims to be a helpful, intuitive and user-friendly tool. It summarises practical information collected and produced during the project (such as the general guidelines, the lessons learned and empirical evidence for effectiveness). The content also (...)

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4 – Other features

Analyse the problem

Action plan

Prevention of incidents

Mitigation of consequences

2

Explore measures by

Type

Target problem

Effect mechanism

Study results

Organisational & procedural

Physical & technological

Public awareness & education

3 – Specific guidance

70 measures cross-classified on 4 criteria

Speed limits

Trains

Suicide & Trespass Mitigation

Prevention of consequences

Influence decision

Deter access

Influence behaviour

Reduce consequences

No studies

Yes (general)

Yes (RAIL)

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Analyse the problem

Action plan

Prevention of incidents

Mitigation of consequences

2

Explore measures by

Type

Organisational & procedural
Physical & technological
Public awareness & educational

Target problem

Suicide
Trespass
Suicide & Trespass
Mitigation

Effect mechanism

Improve practice & processes
Influence decision
Deter access
Influence behaviour
Reduce consequences

Study results

No studies
Yes (general)
Yes (RESTRAIL)

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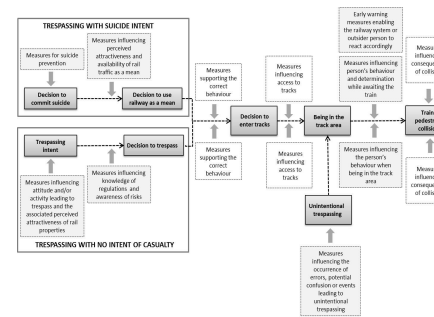
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General guidance

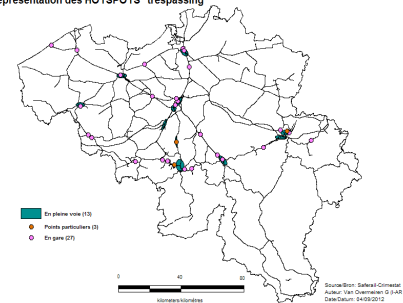
Structures the **problem analysis** supporting the **selection** of the optimal intervention(s) and providing **action plans**



Problem	Root cause	Measures
Problem description (what, where?)	Legal transfer	Produce behaviour
Follow incidents (how, why?)	Building experience	Design of task
Follow in chronological sequence	Measure	
Order specific measures	Resource effort	Resource organization
Resource needs	Priority	Responsibility
Responsible planning		

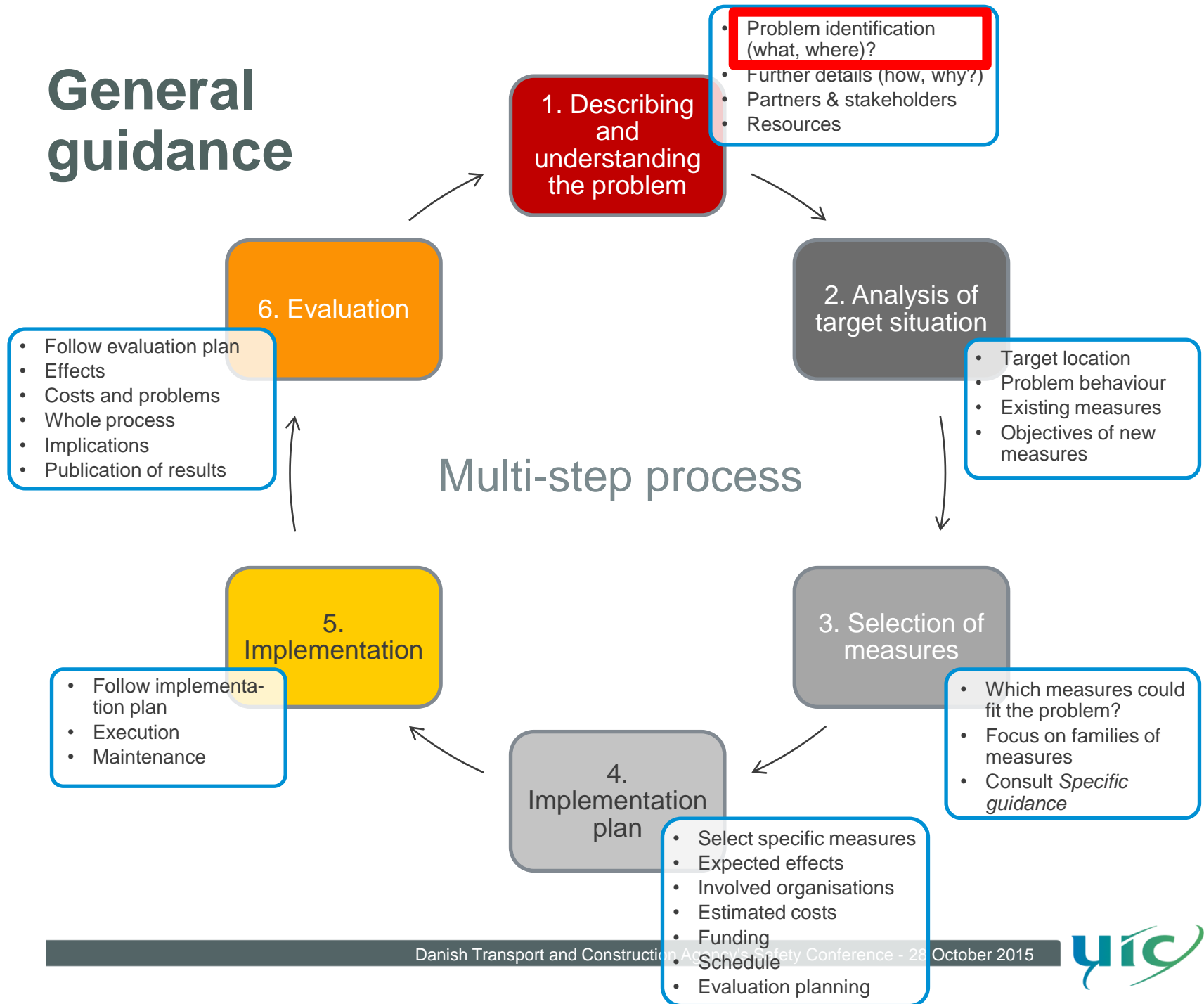


Représentation des HOTSPOTS "trespassing"

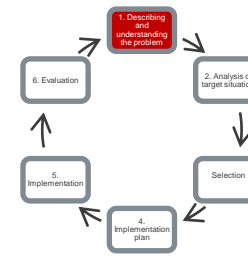


General guidance

Multi-step process

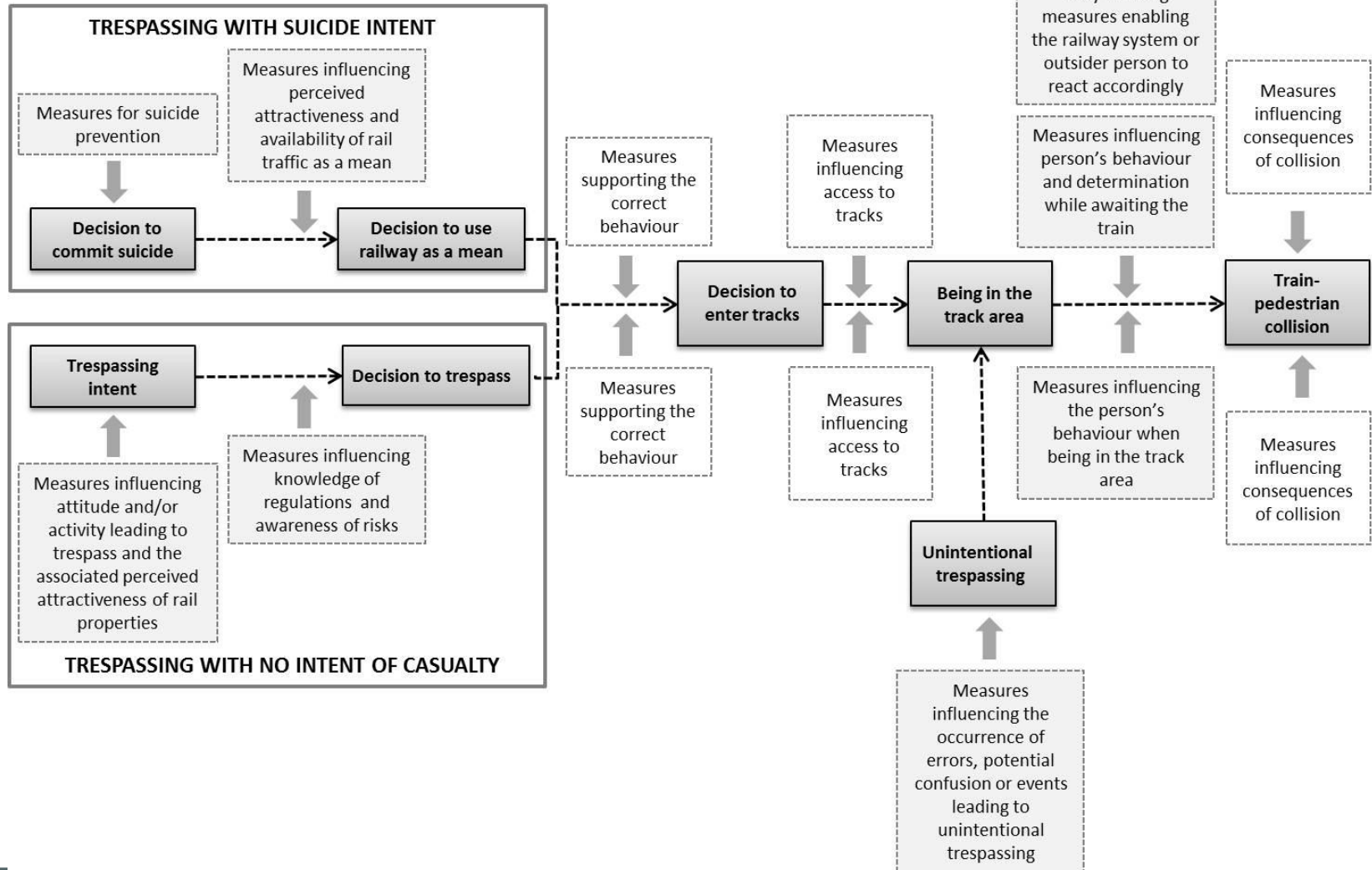
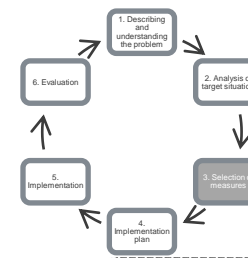


Checklist example



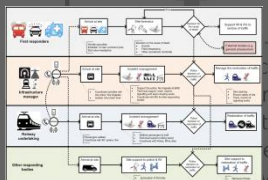
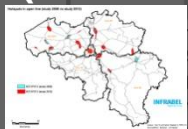
Actions	Questions to be answered	Issues to be considered
Identification of the problem	What is the nature of the problem?	<ul style="list-style-type: none"> ▪ suicides ▪ attempted suicides ▪ trespassing accidents ▪ trespassing behaviour
	Which are the motives of trespassing?	<ul style="list-style-type: 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

Selection of measures

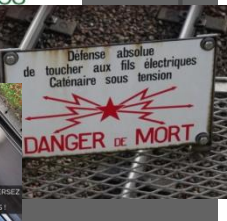


Chain of events

Improve practice & processes (transverse)



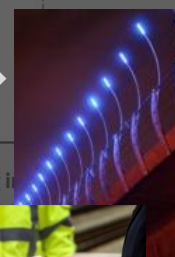
Influence decision



Deter access



Influence behaviour in track area



Reduce consequences





Analyse the problem

Action plan for

Prevention of incidents

Mitigation of consequences

Explore measures by

Type	Target problem	Effect mechanism	Study results
Organisational & procedural	Suicide & Trespass	Influence decision	No studies
Physical & technological	Suicide & Trespass Mitigation	Deter access	Yes (general)
Public awareness & education	Suicide & Trespass Mitigation	Influence behaviour	Yes (RETRAIL)
		Reduce consequences	

3 – Specific guidance
70 measures cross-classified on 4 criteria

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Explore measures by

Action plan for

Prevention of incidents

Mitigation of consequences

Type

Organisational & procedural

Physical & technological

Public awareness & educational

Target problem

Suicide

Trespass

Suicide & Trespass

Mitigation

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Study results

No studies

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ENGINEERING OR TECHNOLOGY SUCH AS
ON SYSTEMS, LIGHTING DEVICES, ETC.



8. Fences at stations

- 8.1 Intermediate fencing between tracks
- 8.2 Mid platform fencing
- 8.3 Fencing platform ends
- 8.4 Sliding doors at platforms
- 8.5 Anti-trespass grids
- 8.6 Symbolic deterrent fencing

9. Fences outside stations

- 9.1 Fencing at hotspots
- 9.2 Nets at bridges
- 9.3 Fencing off objects close to the tracks
- 9.4 Measures to soil clothes

10. Landscaping

- 10.1 Removal of vegetation to increase visibility

11. Detection and surveillance systems

- 11.1 Intelligent CCTV combined with sound warnings
- 11.2 Detection systems combined with sound warnings



12. Lighting devices to influence behaviour

- 12.1 Dispelling light source
- 12.2 Lighting linked to a movement sensor
- 12.3 Tracking spotlight linked to a movement sensor

13. Light to increase visibility at hotspots

- 13.1 Increased visibility by lighting at specific identified hotspots

14. Safety and emergency devices at stations

- 14.1 Emergency information at stations to ensure rapid intervention
- 14.2 Information encouraging help seeking for people with suicide intent



15.

relating to the incident location and access



16.

information, including third party
at
response actions

ing CCTV



THESE ARE MEASURES RELATED TO ENGINEERING OR TECHNOLOGY SUCH AS FENCING, LANDSCAPING, DETECTION SYSTEMS, LIGHTING DEVICES, ETC.

Physical and technological measures

8. Fences at stations	8.1 Intermediate fencing between tracks 8.2 Mid platform fencing 8.3 Fencing platform ends 8.4 Sliding doors at platforms 8.5 Anti-trespass grids 8.6 Symbolic deterrent fencing
9. Fences outside stations	9.1 Fencing at hotspots 9.2 Nets at bridges 9.3 Fencing off objects close to the tracks 9.4 Measures to soil clothes
10. Landscaping	10.1 Removal of vegetation to increase visibility
11. Detection and surveillance systems	11.1 Intelligent CCTV combined with sound warnings 11.2 Detection systems combined with sound warnings
12. Lighting devices to influence behaviour	12.1 Dispelling light source 12.2 Lighting linked to a movement sensor 12.3 Tracking spotlight linked to a movement sensor
13. Light to increase visibility at hotspots	13.1 Increased visibility by lighting at specific identified hotspots
14. Safety and emergency devices at stations	14.1 Emergency information at stations to ensure rapid intervention 14.2 Information encouraging help seeking for people with suicide intent
15. Incident management and information platform	15.1 Geo-data relating to the incident location and access points 15.2 Incident information, including third party involvement 15.3 Essential response actions
16. Forward facing CCTV	16.1 Forward facing CCTV

Specific guidance: content structure

Tracking spotlight linked to a movement sensor

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

Gallery

Attached documents

Type of measure:
Physical and technological

Target problem: **Suicide**

Effect mechanism:
Influence behaviour in track area

Evaluation studies: **Yes**

Select another measure in this family ▾

Dispelling light source

Lighting linked to a movement sensor

Tracking spotlight linked to a movement sensor

12.3 Tracking spotlight linked to a movement sensor

Description

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

This measure refers to technology to influence people at risk by motion sensitive lighting combined with movement tracking spotlights. This measure is used as a sudden lighting system with tracking of the person. Useful for situations in which technology can be used 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, with the intention of influencing the person to modify their behaviour and move to a place of safety.

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

12.3 Tracking spotlight linked to a movement sensor

🗨 Description

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

👍 Recommendations

Best practice and lessons learned

- Check the laws on human integrity in your country before making the plans.
- Check if you have a higher number of suicides during night time.
- 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.
- Make sure there are no obstacles within the range of the tracking light behind which persons can hide.

⚠ 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

12.3 Tracking spotlight linked to a movement sensor

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

- Blinding of train drivers by lights and interference with signal aspects 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: <http://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.

Observations

Other points that you should not forget

Study results

Data or other evidence supporting the measure's effectiveness

References (APA citation style)

Abbott, R., Young, S., Grant, G., Goward, P., Seager, P., Pugh, J., et al. (2003). Railway suicide, an investigation of individual and organisational consequences. Sheffield: Doncaster and South Humber Healthcare NHS Trust.

<http://trove.nla.gov.au/work/182156717?q&versionId=198465688>

Agalar, F., Cakmakci, M., & Kunt, M. (2000). Train-pedestrian accidents. *European Journal of Emergency Medicine*, 7(2), 131-133.

Akkaş, M., Ay, D., Metin Aksu, N., & Günalp, M. (2011). 10-Year Evaluation of Train Accidents. *Ulusal Travma Ve Acil Cerrahi Dergisi-Turkish Journal of Trauma & Emergency Surgery*, 17(5), 440-444.

Altamura, C., VanGastel, A., Pioli, R., Mannu, P., & Maes, M. (1999). Seasonal and circadian rhythms in suicide in Cagliari, Italy. *Journal of Affective Disorders*, 53(1), 77-85.

Andriessen, K. (2011). A media award for the responsible media portrayal of suicide in Flandern-Belgium: Rationale and qualitative evaluation. *Pogled - the View Acta Suicidologica Slovenica*, 1-2, 28-38.

Andriessen, K., & Krysiniska, K. (2011). Railway suicide in Belgium 1998-2009. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 26, 1-7. DOI: [10.1027/0227-5910/a000105](https://doi.org/10.1027/0227-5910/a000105)

Bangor Daily News (2014). Federal, state and local entities doing field research on railroad trespass detection system. <http://bangordailynews.com/pressrelease/...> (retrieved February 5, 2014)

Baumert, J., Erazo, N., & Ladwig, K. H. (2005). Ten-year incidence and time trends of railway suicides in Germany from 1991 to 2000. *European Journal of Public Health*, 16(2), 173-178.

Baumert, J., Erazo, N., Ruf, E., & Ladwig, K. H. (2008). Time trends in suicide mortality vary in choice of methods: an analysis of 145,865 fatal suicide cases in Germany 1991-2002. *Social Psychiatry Psychiatric Epidemiology*, 43, 913-919.

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(Matsubayashi et al.,

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(Ichikawa et al.,

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Study results

Data or other evidence supporting the measure's effectiveness

- In Japan, introduction of blue LED lighting reduced suicides between 2008 and 2012).
- The installation of blue LED lighting on platforms reduced suicides at night, would have a much larger impact (2014)
- Visible light of short wavelength (blue light) is a potential blue-light hazard. This blue light has the potential of constituting the retina or accumulating in the eye, indicating a blue light hazard within the railway environment. animal experiments. The relevance of blue light hazard is not very clear. In general, the probability of acute pathologic conditions is low (2014)
- Other literature suggests that once installed, it is more than a barrier or a blue light treatment.
- Anti-suicide lighting is used in The Netherlands. ProRail started to evaluate the effectiveness. incidents were counted, before and after the installation. there was a decrease of 30%, 80% at night. the limited data it is not yet possible to draw conclusions. evaluations will be made after a long-term study.

Glossary

ADIF: Administrador de Infraestructuras Ferroviarias (Spanish Infrastructure Manager)
ASTS: Ansaldo STS
ATOC: Association of Train Operating Companies
BTP: British Transport Police
CAEX: CAPital Expenditure
CAST: Campaign Awareness raising Strategy
CBA: Cost-Benefit Analysis
CBT: Computer Based Training
CCTV: Closed Circuit Television
CEA: Cost-Effectiveness Analysis
CIDAUT: Foundation for Transport and Energy Research and Development (Spanish: Fundación para la Investigación y el Desarrollo de los Transportes)
DB: German Railways (Deutsche Bahn AG)
EMS: Emergency Medical Services
ERA: European Railway Agency
FFCCTV: Forward Facing Closed Circuit Television
FFE: Spanish Railway Foundation (Spanish: Fundación de los Ferrocarriles Españoles)
FHPSD: Full-Height Platform Screen Door
FLIR: Forward looking infrared (camera)
GIS: Geographic Information System
GSM-R: Global System for Mobile Communications - Railway
HHPSD: Half-Height Platform Screen Door
HMGU: Helmholtz Zentrum München, GmbH (German Research Center for Environmental Health)
IFSTTAR: French institute of science and technology for transport, spatial planning, development and infrastructure management (Institut Français de Recherche pour l'Aménagement et des réseaux)
IK: Instytut Kolejnictwa of Poland
IMS: Infrastructure Managers
INFRABEL: Belgian infrastructure manager
IP: Important Point

12.3 Tracking spotlight linked to a movement sensor

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

Type of measure:

Physical and technological

Target problem: Suicide

Effect mechanism:

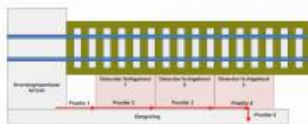
Influence behaviour in track area

Evaluation studies: Yes

Select another measure in this family ▼

Select another family ▼

Gallery



last update: 2014-09-22

Print

Other examples



Aidez-nous à combattre les vols de cuivre!
Les vols de câbles ont causé en 2013 plus de 50.000 minutes de retard des trains en Belgique.

APPELEZ LE 0800/30 230



10 Tips voor journalisten bij berichtgeving over **suicide**

Suicide is een serieus maatschappelijk probleem: met jaarlijks ongeveer 1500 doden en 14.000 zelfoplossingen die tot behandeling in een ziekenhuis leiden. In meer dan 90% van de gevallen is het geen onbetwiste keuze, maar een uitgang van een psychiatrische ziekte, vaak depressiviteit.

De afgelopen jaren is suicide steeds meer uit de taboeerfeer gekomen, onder andere door berichtgeving in de pers. Als daarbij goede achtergrondinformatie wordt geboden, kan dat helpen om suicides te voorkomen. Berichtgeving over concrete suicides kan echter ook gevaarlijk nieuws zijn. Mensen die op de rand verkeren kunnen hierdoor het idee krijgen dat suicide de enige oplossing is voor hun probleem. Diverse wetenschappelijke studies hebben aangetoond dat dit 'copycat-effect' een reëel risico vormt. Als aan dit kopiëergedrag wordt voorkomen.



- 2 **Geen details**
Geef geen beschrijving van de methode of het middel. Zo voorkom je dat je lezende op het idee brengt dat dit een effectieve manier is; je gaat erin dood en komt ermee in het nieuws.
- 4 **Voorkom simplificatie**
Beschrijf suicide nooit als oplossing van een probleem. Lag evenmin een direct verband met één enkele oorzaak of gebeurtenis. Suicides hebben vaak een lange voorgeschiedenis, waarbij meerdere factoren meespelen.
- 6 **Bied achtergrondinformatie**
Geef bij de algemene berichtgeving over suicide goede achtergrondinformatie. Noem bijvoorbeeld de landelijke hulplijn 113 Online.
- 8 **'BN-ers': kijk extra uit**
Wees bij de berichtgeving over een suicide van een bekende persoon extra voorzichtig en terughoudend. In dit geval kunnen artikelen en reportages namelijk een nog grotere impact hebben op solitaire mensen en leiden tot imitatiegedrag.
- 10 **Benoem dat hulp helpt**
In Nederland hebben jaarlijks naar schatting zo'n twaalf miljoen mensen suicidele gedachten. Meer dan 90% van hen weet zich te redden met hulp van hun omgeving of een professional. Hulp zoeken werkt dus echt. Door dit te benoemen help je het aantal suicides te verminderen!



Auteur: Wiljo Vries ©2012 In volle versie: Meerjans gemeentelijk dienst berichtgeving van het streeknet van Volkeggenhulpe; Meerjans Spoor voor achtergrondinformatie over dit document: www.kunnieadviesadvies.nl



Analyse the problem

Explore measures by

Action plan for

Prevention of incidents

Mitigation of consequences

Type

Organisational & procedural

Physical & technological

Public awareness & educational

Target problem

Suicide

Trespass

Suicide & Trespass

Mitigation

Effect mechanism

Improve practice & processes

Influence decision

Deter access

Influence behaviour

Reduce consequences

Study results

No studies

Yes (general)

Yes (RESTRAIL)

The RESTRAIL Toolbox is a problem-solving guide for implementation of measures to prevent railway suicides and trespassing accidents and to mitigate the post incident consequences. It is the main output of the RESTRAIL research project and it aims to be a helpful, intuitive and user-friendly tool. It summarises practical information collected and produced during the project (synthesis, guidelines, best practice, lessons learned and empirical evidence for effectiveness). The content also (...)

[Read more](#)



Links

- + [European Commission: CORDIS: FP7](#)
- + [ERA – European Railway Agency](#)
- + [Samaritans](#)
- + [Railway suicide prevention Canada](#)

Latest updates

- 2014-09-16** [PREVENTION ACTION PLAN](#)
- 2014-09-16** [CONSEQUENCES MITIGATION ACTION PLAN](#)
- 2014-09-16** [Overview](#)

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](#)



4 – Other features

Analyse the problem

Action plan for

Prevention of incidents

Mitigation of consequences

Explore measures by

Type

Organisational & procedural

Physical & technological

Public awareness & educational

Target problem

Suicide

Trespass

Suicide & Trespass

Mitigation

Effect mechanism

Improve practice & processes

Influence decision

Deter access

Influence behaviour

Reduce consequences

Study results

No studies

Yes (general)

Yes (RESTRAIL)

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[Read more](#)



Links

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[General guidance](#)

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Search



Analyse the problem

Action plan for

Prevention of incidents

Mitigation of consequences

Explore measures by

Type

Organisational & procedural

Physical & technological

Public awareness & educational

Target problem

Suicide

Trespass

Suicide & Trespass

Mitigation

Effect mechanism

Improve practice & processes

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Reduce consequences

Study results

No studies

Yes (general)

Yes (RESTRAIL)

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[Glossary](#)

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Search



Advanced search

Choose a group of keywords:

Type of measure

Target problem

Effect mechanism

Evaluation studies

Selected keywords:

Organisational and procedural

Trespass

Search results 4

Family

Risk assessment

This family of measures includes a number of different ways in which an organisation or the railway industry identifies risks in normal or special circumstances. This is an underpinning measure which supports decision-making and targeting of other measures. It is considered an organisational (...)

Learning from best practice

This family of measures includes different ways in which a railway organisation or decision-maker can improve their knowledge and skills regarding suicide and trespassing prevention. This is an underpinning measure which supports decision-making and targeting of other measures. It can also (...)

Collaboration between organisations

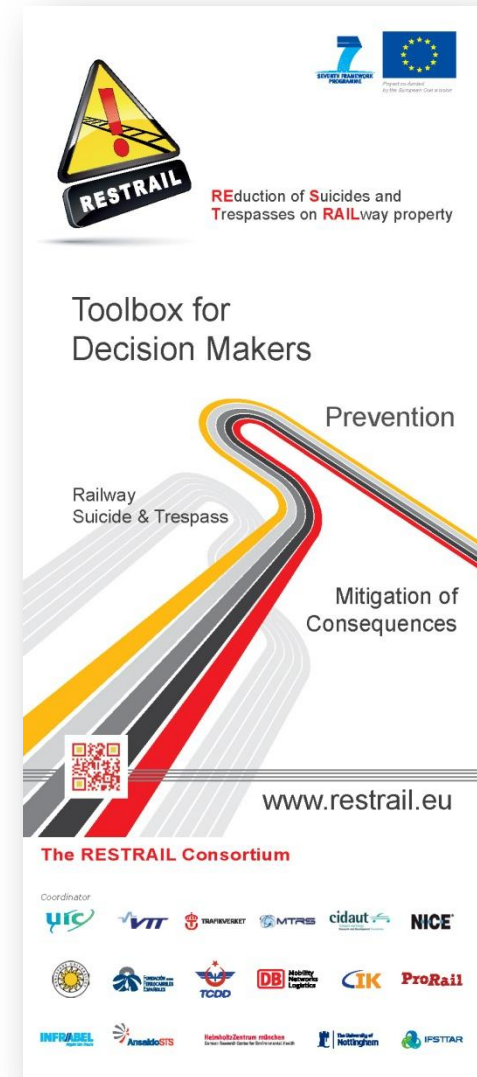
This family of measures includes national partnerships as well as local ones (e.g. linked to a specific route or geographical area) to produce better joint working between a range of organisations and agencies. These measures underpin or support the implementation of many other measures. The (...)

Patrols and enforcement

This family of measures consists of visible surveillance performed by special security patrols to deter access to high risk areas, to enforce the law and to intervene when potential incidents are identified. It is considered a dissuasive family because it is aimed to detect and discourage (...)

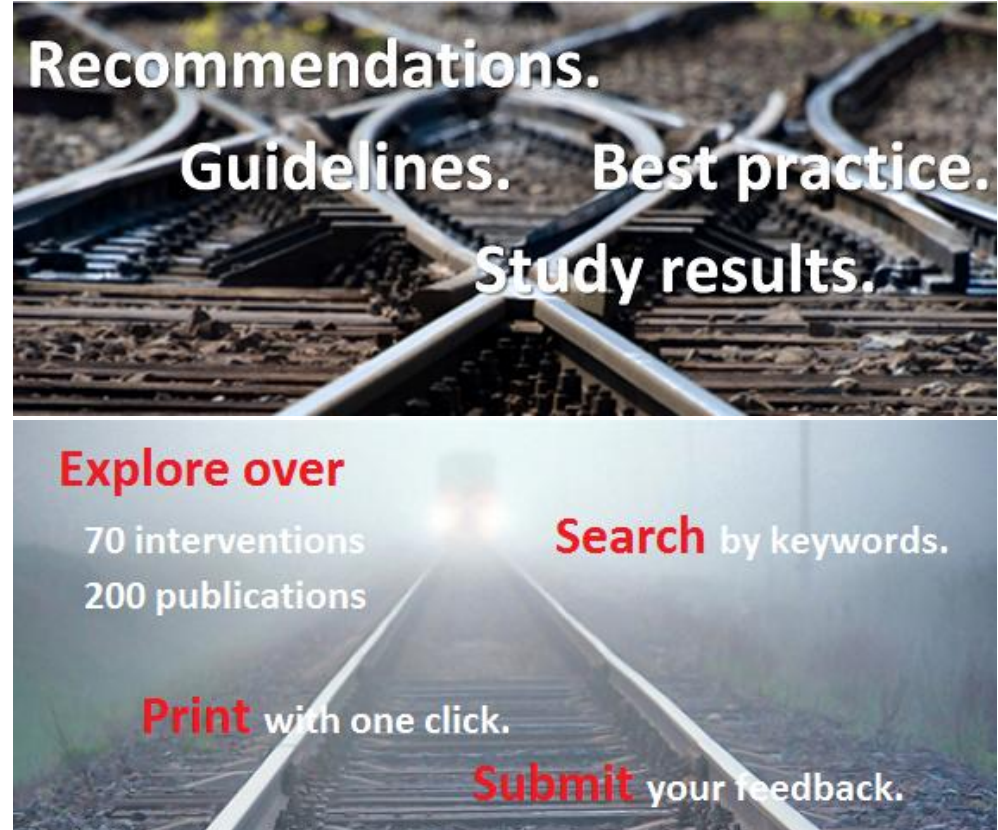
Toolbox strengths

- Systematic development
- Practical & scientific orientation
- Complex but user-friendly content
- Paper- & web-based format
- Advanced search based on keywords
- Easy referencing & printing
- Interface adjusts to any tablet or smartphone
- Feedback submission system

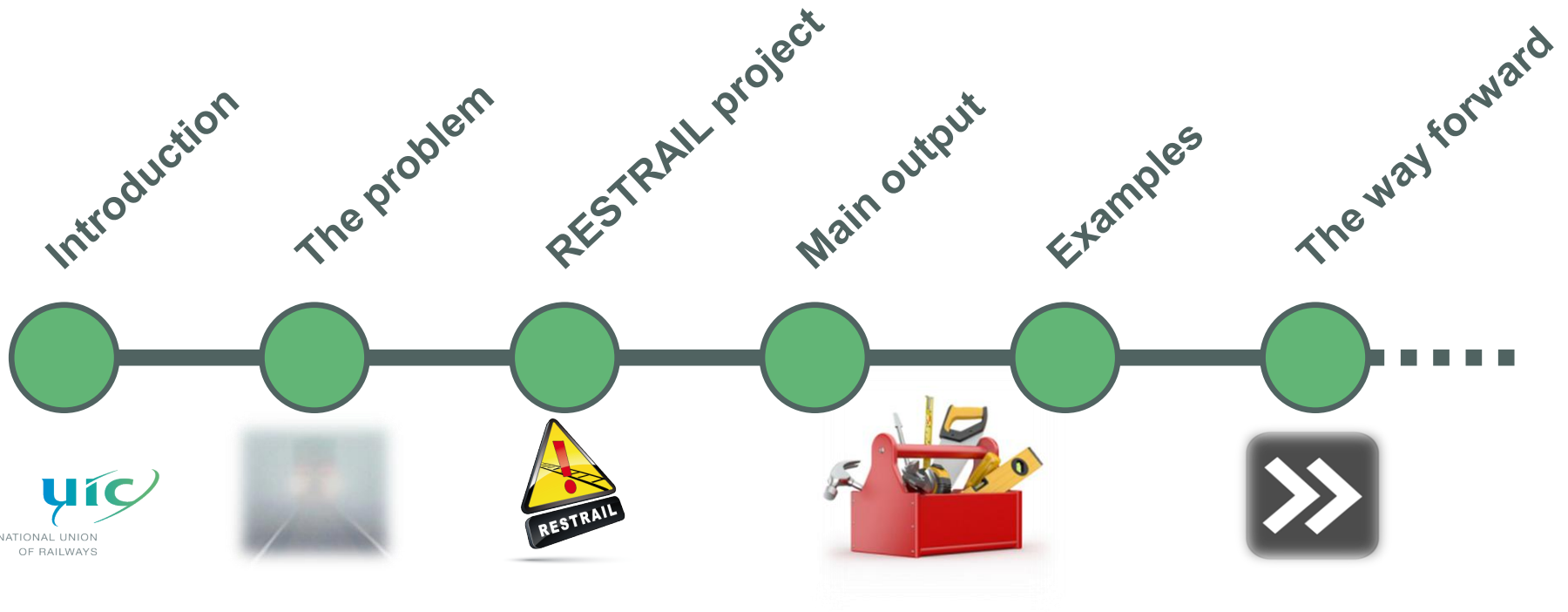


Issues to improve

- > **Imbalanced content**
 - Little information or weak evidence (for some of the measures)
- > **Combination of measures**
 - No clear guidance
- > **Galleries & attachments**
 - More examples
- > **Design**
 - More ergonomic, new features



Overview



Final conference (18 September 2014, Paris, UIC HQ)

- > 80 participants from EU, USA and Australia
- > RESTRAIL – success story
- > Overview of results & feedback
- > Discussion about the further exploitation of the results



Next steps

> International Union of Railways (UIC)

- Hosting, maintaining and updating the toolbox
- Organisation of workshops
- Dissemination



> RESTRAIL partners will continue working together

- More elaborated and long-term field tests
- Develop current measures & add new ones
- Develop the toolbox to include LCs

Major events since the end the of the project

- > **2014/11** – European Level Crossing Forum (Rome, Italy)
- > **2014/12** – Trafikverket workshop (Stockholm, Sweden)
- > **2015/09** – Workshop during the 5th International Rail Human Factors Conference (London, UK)
- > **2015/10** – Danish Transport and Construction Agency's Safety conference (Copenhagen, Denmark)
- > **2016/04** – Transport Research Arena Conference (Warsaw, Poland)
- > **2016/05** – World Congress of Railway Research (Milan, Italy)
- > ...and counting

New ongoing field trials

> Anti-trespass panels

- evaluated in France by SNCF in several locations (results expected in April 2017)
- evaluated in Belgium by INFRABEL in several locations

> Anti-suicide blue lights

- evaluated in Belgium by INFARBEL
- evaluated in Great Britain by Network Rail

> Intelligent detection systems

- video cameras + sound warning speakers evaluated in the Netherlands by ProRail
- thermal cameras evaluated in Belgium by INFRABEL

> Platform screen doors (PSD)

- several different types tested in the Stockholm metro system

RAILSEC proposal



COST is supported by
the EU Framework Programme
Horizon 2020

COST Association

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office@cost.eu | www.cost.eu

- > RAILSEC (“Knowledge and skills for railway security: Enhancing prevention of suicide and trespass”)
- > Submission under review



Way forward



- > **Formal continuation within the EU**
- > **ERA project 1.5 – Improving safety performance**
- > **Since April 2015 – Research programme on use of behavioural techniques to reduce fatality rates in suicide/unauthorised person categories**
- > **Periodic workshops on reporting and preventing suicides on railway premises**

Further inquiries

Website

www.restrail.eu

Toolbox

www.restrail.eu/toolbox

Private workspace

<https://ovidentia.uic.org>

Reduction of Suicides and Trespasses on RAILway property

SEVENTH FRAMEWORK PROGRAMME
Project co-funded by the European Commission

Search

Welcome in RESTRAIL project website
The aim of the RESTRAIL (Reduction of Suicides and Trespasses on RAILway property) project is to reduce:

- The occurrence of suicides and trespass on railway property and
- The service disruption and other consequences these events cause

by providing the rail industry with an analysis and identification of cost effective prevention and mitigation measures."

RESTRAIL brochure

Highlights
RESTRAIL: Info Day

RESTRAIL enews
European Research Project RESTRAIL "Reduction of (...)
RESTRAIL is a collaborative project selected by the European Commission as part of the 4th "transport" call for proposals under the 7th Framework Programme for Research and Development. RESTRAIL aims to reduce the occurrence of suicides and (...)

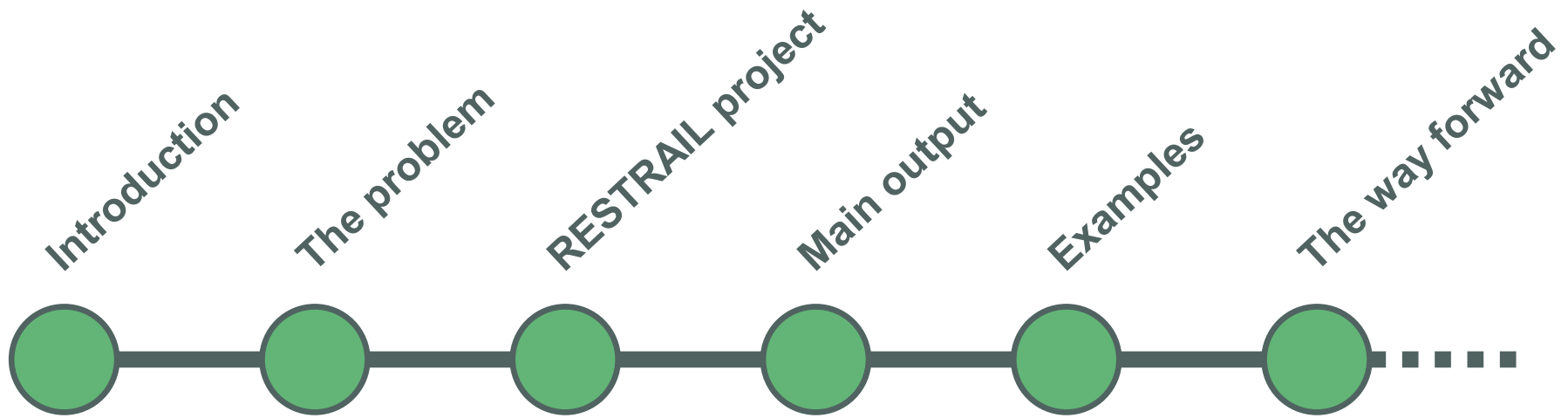
RESTRAIL project: Reduction of Suicides and (...)
RESTRAIL is a research project funded by the European Commission under the 7th Framework Programme for Research and Technological Development in the field of transport, published on 20 July 2010. According to European Rail Agency data, suicides (...)

About
Project structure
Schedule of meetings
Consortium
Advisory Board
Links
Contact
Members area

Coordinated by **UIC**

RSS 2.0 | Mobile version: iPhone, BlackBerry, Android, Others | Top of the page
Credits / website development: UIC Communications department
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■ ■ ■ Thank you for your kind attention!



Contact: havarneanu@uic.org