Project co-funded
by the European Commission

RESTRAIL

REduction of Suicides and
Trespasses on RAILway property

RESTRAIL Newsletter
APRIL 2014 - Nr 3

This Newsletter intends to keep you updated on the ongoing activities of the RESTRAIL project.

Welcome to the third Newsletter from the RESTRAIL project on Reduction of suicides and trespasses on railway property

RESTRAIL is a 3-year project that started on 1st October 2011 and is co-funded by the European Commission's FP7 Programme, SST.2011.4.1-2.: Mitigation measures and good practice to reduce human fatalities and disruption of services resulting from suicides and trespassing on railway property. It is coordinated by UIC (International Union of Railways).

Contents

Timeline of key events

RESTRAIL Kick-off meeting
Paris, UIC HQ
8 October 2011

13 June 2012
1st RESTRAIL Info day
Paris, UIC HQ

2nd RESTRAIL Info day
Paris, UIC HQ
12 December 2012

12 June 2013
RESTRAIL mid-term conference
Paris, UIC HQ

Dissemination actions

RESTRAIL mid-term conference

12 June 2013 - UIC HQ, Paris, France

The mid-term conference was held on Wednesday 12 June at the headquarters of UIC, the project coordinator. Around 70 participants from 18 countries across Europe, Asia and North America were present on this day, organised with a plenary session in the morning and three parallel workshops in the afternoon followed by a concluding session.

The morning session was marked by a series of keynote speeches followed by the presentation of the first RESTRAIL results by the project's work package leaders. The phase of analysing existing data and identifying prevention measures and mitigating consequences is completed and the field-scale pilot tests are being planned.

Three workshops were held in the afternoon: suicide prevention, trespass prevention and mitigation of consequences. The aim was to work on concrete cases in small groups in order to assess the first version of the toolbox and to discuss possible improvements. The RESTRAIL toolbox is a collection of recommendations, guidelines, best practice and lessons learned which support better decision making and optimise the implementation of prevention and mitigation measures.

These workshops enabled the collection of valuable feedback and information about the users' needs and expectations related to the toolbox at this important mid project phase.

Save the date

TRA 2014
RESTRAIL
Invited session
La Défense, France

17 April 2014

10-12 June 2014

Last RESTRAIL Progress Meeting
and field test visit
Aydin, Turkey

RESTRAIL
Final event
Paris, UIC HQ

18 Sept 2014

RESTRAIL project presented at the International Railway Safety Conference

6-11 October 2013, Vancouver, Canada

During a panel dedicated to suicide prevention, the RESTRAIL project as well as the Swedish RESTRAIL field test were described.

The presentation generated significant interest from the audience composed of various profiles of researchers, practitioners and railway safety professionals. They expressed their intention in following RESTRAIL's next outcomes and organised events.

RESTRAIL project presented at the annual INFRABEL seminar on rail suicide prevention

19 December 2013, Brussels, Belgium

A UIC team attended to the annual seminar on rail suicide prevention organised by INFRABEL - Belgium's infrastructure manager.

The main outcomes of RESTRAIL were revealed to an audience of 64 participants from different companies. These included representatives of rail operators, infrastructure managers, rail police and health associations.

RESTRAIL Toolbox presented at the Swedish Railway Safety Conference

12-13 March 2014, Örebro, Sweden

This event was organised by the Swedish Transport Administration's (Trafikverket) and united more than 200 participants: railway stakeholders, consulting companies, professors and police authorities. They found out about RESTRAIL and the new toolbox which has been developed in the project.

Completed activities

With only 6 months left until the end of the project, almost all tasks have been successfully completed. The first four Work Packages are already finished. During this the time project has covered at least three relevant issues which aid the prevention and mitigation practice.

In Work Package 1 we collated details across a wide range of countries of what is happening in terms of prevention, data on incidents and processes for investigation and the management of incidents, etc.

In Work Packages 2, 3 and 4 we developed and used an assessment methodology for the evaluation of cost-effective measures and we provided recommendations for further examination of selected preventative and mitigation measures.

AnsaldoSTS

Source: ProRail / Photographer: Marteen Kleingeld

Since June 2013, all the concluding deliverables have been submitted.

June 2013 - Functional specifications of interoperable communication interface – Line Restoration Model (Ansaldo STS)

The document provides a functional description of the Line Restoration Model (LRM) which was developed to reduce the line operation restoration time following suicide and fatal trespassing incidents. It describes the functional specification of interfaces and offline simulation for interoperable communication of Physical Security Information Management (PSIM) and LRM. The model's forecasts are of great value to the Traffic Management System (TMS) as they allow the rescheduling of regional and long distance rail traffic and provide passengers with information that allows them to decide whether to use alternative routes.

TRAFIKVERKET
SWEDISH TRANSPORT ADMINISTRATION

Source: ProRail / Photographer: Erik van 't Woud

July 2013 – Synthesis report and recommendations for the prevention of suicides (Trafikverket)

The aim is to provide a synthesis on the recommendations, common strategy and measures targeted to reduce suicides in the railway system. It also reports on the results of a first evaluation of the process and guidance document when applied in the context of a suicide case.

Source: UIC / Photographer: José Pires

December 2013 – Synthesis report and recommendations for the prevention of trespasses (UIC and IFSTTAR)

The aim is to report a synthesis on the recommendations, common strategy and measures targeted to reduce trespassing accidents and incidents in the railway system. It also reports on the results of a first evaluation of the process and guidance document when applied in the context of a trespassing case. Furthermore, the document includes an updated version of RESTRAIL Toolbox based on all the previous suggestions and feedback.

Source: ProRail / Photographer: Marteen Kleingeld

March 2014 – Recommendations relating to the toolkit and guidelines (MTRS3)

The purpose of this document is to define the promising means, methods, procedures and technologies that can be included in the guidance materials, to mitigate the consequences of suicide and fatal trespassing incidents. It includes the promising measures for mitigating the consequences and recommendations for the toolbox.

Ongoing activities

The current activities are focused on data collection from the field tests (Work Package 5) and improvement of the toolbox for decision makers (Work Package 6).

The next important deliverables to be submitted are:

Source: UIC / Photographer: José Pires

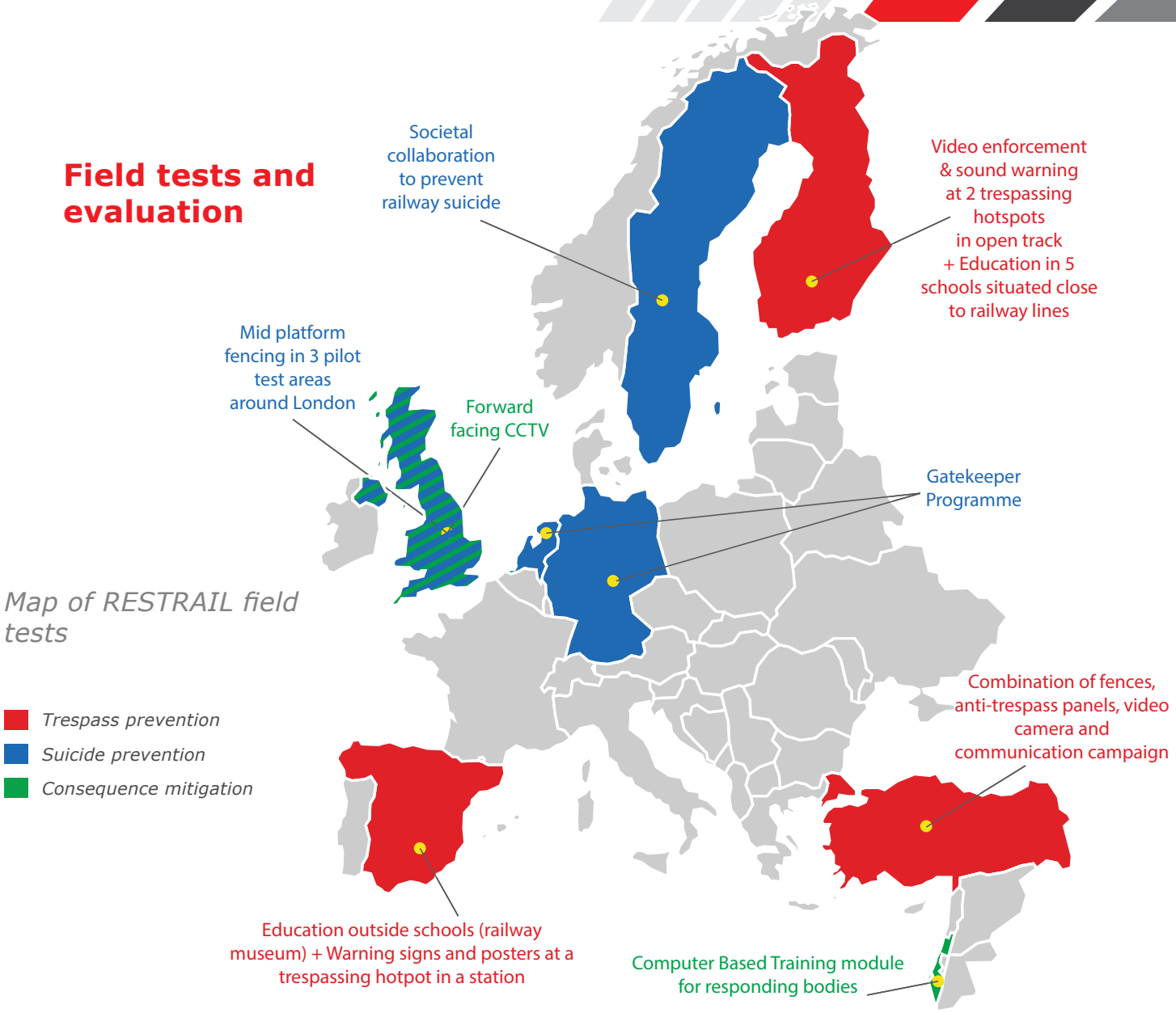
July 2014 - Selection of measures and their implementation in pilot tests planning and execution (D5.1)

This document will look for additional empirical support for a set of selected measures which are currently pilot tested.

September 2014 - Evaluation of measures, recommendations and guidelines for further implementation (D5.2)

This document will provide additional guidance materials and best practices which will be included in the toolbox. They will help IMs and RUs implement measures more effectively.

Field tests and evaluation



Map of RESTRAIL field tests

WP5 aims to assess a selection of the most promising measures and good practices in order to prevent suicides and trespasses on railway property.

The RESTRAIL WP5 partners have selected several measures to be implemented for field testing, by taking into account the prevention and mitigation measures recommended from the previous work packages and the needs of the corresponding stakeholders. They developed a series of field pilot tests in different locations (e.g. Finland, Spain, Sweden, Turkey, UK, Germany, the Netherlands, and Israel).

Each pilot test is conducted in accordance to a specific implementation plan in order to monitor the evaluation process and to provide additional empirical evidence for the effectiveness of measures. Some tests focus on measures to prevent suicides only, others on means to prevent trespassing, while others address the consequences of incidents.

Having implemented the measures, each partner is now focused on collecting data and comparing the pre and post-study situation evaluation with a view to provide additional support that the preventive measures recommended are effective and feasible. First preliminary results are expected in April.

Apart from the evaluation of the results obtained, some recommendations and guidelines are also being identified for the future application of evaluated measures drawing on the insight gained during the implementation of these pilot tests. These recommendations will soon be included in the RESTRAIL Toolbox.

In this newsletter we briefly show five of the ongoing RESTRAIL field tests.

Examples of some pilot tests

Country:
Spain

Measure:
Education outside schools (railway museum)

Target problem:
Trespass

Responsible partner:
Fundación de los Ferrocarriles Españoles

Brief description:
The measure applies various educational tools outside schools (playgrounds, neighbourhood centres, street games, railway museums etc.) and in schools to raise awareness about the dangers and consequences of railway trespassing and how to be safe in the railway environment.

Target group:
Primary school pupils (8-10 years) and teachers from schools in Alicante, Cataluña and Madrid.

Implementation site:
Railway Museums in Madrid and Cataluña. Three primary schools in Alicante.

Teachers´ workshops were held in Alicante and the Cataluña Railway Museum, reaching a total of twenty seven participants (January - March 2014).

More than 250 pupils participated in the workshops held between February and March 2014.

Objective:
The Railway Safety Education Programme aims to promote safe behaviour and habits in the railway environment in order to prevent pupils from taking short cuts across tracks, playing on the tracks and behaving unsafely at stations now and in the future. In addition, the programme sought to raise awareness of the importance of teaching railway safety at schools to further reinforce the safety message and sustainability of the measure.

Method:
Baseline information was collected prior to school group´s participation in the activity; then directly following the activity (in the same day) and where possible, a second follow up (a month later). Collected data includes reported intentions, behaviour, attitudes and knowledge.

The pupils´ workshop was held in conjunction with a guided visit around the railway museum (February – March 2014) and in primary schools during school hours. All the pupils received a certificate of participation to take home in order to share the railway safety message with their families.

Effects to be evaluated:
Changes in attitudes to safety, understanding and awareness of the risks and acquisition of personal skills. The evaluation methods include interviews with museum staff, Adif, questionnaire to be filled by teachers and pupils and activity monitoring form.

Country:
Finland

Measure:
Detection systems combined with sound warnings can be used to monitor the entrance of unauthorised persons to surveillance area with the intention of influencing the person to modify their behaviour. When such persons are detected, they are given a sound warning, spoken, automatic or live warning by loudspeakers. Such systems are suitable for situations in which people move into an area that they should not enter, or behave in a way that places them at risk.

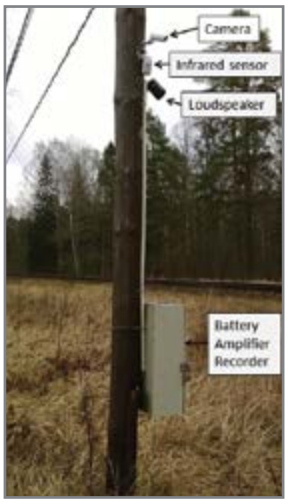
Target problem:
Trespass

Responsible partner:
VTT

Location:
The measure was implemented at two sites with frequent trespassing in Finland.

Overview:
Persons who are about to cross the railway or have just crossed the tracks are automatically detected by infrared sensor, which triggers a pre-recorded voice message: *Attention! You are illegally in railway area. Leave immediately!*

Location 1



The equipment in location 2

Objective:
The measure is intended to discourage pedestrians from crossing the railway in a particular place, and thereby reduce the exposure of people to collisions with rail vehicles.

System components:
Infrared sensor, micro-chip with pre-recorded sound warning, amplifier, loudspeaker and battery (providing power to the system). The test equipment included also a camera and recorder for the collection of evaluation data (photos of trespassers). For the collection of evaluation data trespassers were identified by a motion detector built in the recorder, whereas sound warning was triggered by the infrared sensor.

Evaluation:
Comparison of number of observed trespassers before and after the implementation of the measure, separately at the two pilot test sites.

Country:
United kingdom

Measure:
Mid-platform fencing to prevent suicide

Target problem:
Suicide

Responsible partner:
The University of Nottingham

Brief description:
Consists of the installation of a fence along the center line of a platform (usually an island platform) to split it in two parts, thus blocking access to the fast line where trains may not stop.

Implementation site:
Three pilot test areas around London consisting of a total of 52 stations, out of which 30 have some form of mid-platform fencing.

Objective:
Fencing on island platforms, preventing access to fast lines where trains are not scheduled to stop. The measure presents a barrier to prevent access to fast lines at targeted stations. The measure does not prevent access to slower lines. The measure therefore only targets those who choose fast lines and non-stopping trains.

Image courtesy of Network Rail

Method:
Comparison between stations with and without mid-platform fencing.

Data type:

1. Statistical data on incidents
2. Descriptive data on stations and the intervention
3. Interviews and observational data from detailed station visits

Evaluation:
Collation and analyses of these descriptive data will allow conclusions to be drawn on the potential effectiveness of this measure and the process of implementing the measure.

Country:
Sweden

Measure:
Societal collaboration to prevent suicide fatalities: this measure refers to collaboration between local authorities in the society. When there is a treat of suicide a collaborated emergency plan is activated that involves not only the infrastructure manager but also the societal stakeholders.

Target problem:
Suicide

Responsible partner:
TRAFIKVERKET
SWEDISH TRANSPORT ADMINISTRATION

Implementation site:
Skåne County in southern Sweden. Skåne County consists of 33 municipalities, with about 1.2 million inhabitants, and has elements that are both densely populated with high frequency of train services but also less populated areas. Malmö is the third largest town in Sweden, with two of the major rail lines from Sweden to the European continent going through.

Objective:
In this collaboration, the major measure is that the train traffic is adapted to prevent collisions. If an unauthorized person is detected in the railway system a temporary traffic shutdown ensures the safety of this person, but also the safety for the police and rescue services, the ones that are conducting the search and rescue.

Evaluation:
Analyses, interpretation and reporting of findings of the period June 2013 - December 2013.

Method:
The safety effects to be evaluated are the number of saved lives and how many persons that have been removed from the track area to save their life. This is done by going through the accident and incident data from the infrastructure manager, but also through interviews with the involved stakeholders. Some of the data that we will look into is the number of alarms, the number of persons removed safely from the area, the number of persons transported to the psychiatric care, number of persons killed.

Data type:
Statistical data:

- Number of alarms after camera alert
- Number of alarm trigged by the society
- Number of traffic shutdowns
- Number of "search & rescue"
- Number of speed reductions
- Number of suicide attempts
- Number of trespass
- Number of persons killed by train
- Comparison with previous years (5 years)
- Effect on delayed trains
- Estimated number of persons saved
- Interviews with the involved stakeholders

Source: UIC / Photographer: José Pires

Country:
Israel

Measure:
Computer Based Training (CBT) Module for Responding Bodies to mitigate the post-incident consequences

Target problem:
Mitigation

Responsible partner:
MTRS

Brief description:
This CBT (Computer Based Training) module is intended for law enforcement authorities, particularly the police and general prosecution, who are involved in managing suicides and fatal trespassing incidents on railway infrastructure, and specifically in decision making processes in the handling of these incidents.

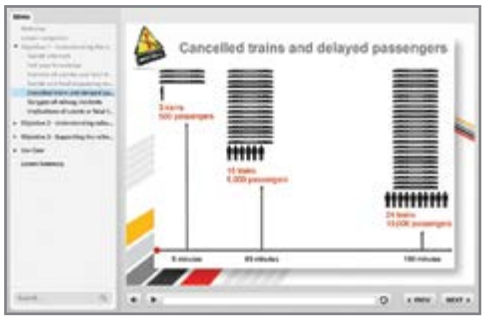
Target group:
Police organisations and law enforcement agencies, involved in incident investigation and on-site decision making.

Participants in the test sample:
Members of RAILPOL and Swedish police academy.

The course focuses on three topics which reflect the **objectives**:

1. Understand the problem, its scope and severity.
2. Understand incident response arrangements.
3. Provide support to resolve the incident as quickly as possible.

Evaluation:
Before and after assessment through an online survey.



RESTRAIL Toolbox: a guide to best practice

This guidance material is designed to:

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 implementation and efficiency across the rail community and beyond.

It summarises practical information produced during the project (synthesis, guidelines, best practices, lessons learned and empirical evidence for effectiveness). The content also makes links with scientific publications which support the recommended and promising measures, providing a wide list of references (research papers, research reports, reviews, etc.). Even though it is practically oriented, it has a scientific background, emphasising the evidence-based interventions.

The toolbox is an open-access tool available in paper format and online. The website (still under construction) will be organised in a dedicated workspace, easy to find, consult and update, even after the end of the project, under the responsibility of the UIC.

For the moment the online version is available at www.uic.org/toolbox.

The web-based toolbox will have several advantages:

- Better content organization because of keywords classification
- Better access to information through advanced search functions
- Glossary and reference lists included
- Last updates and news at a glance
- Easier to disseminate

The toolbox is available in paper format as well.

The paper version has repeatedly been an annex in some of the submitted deliverables. It has gradually become an independent document which is now 200 pages long.

It has been periodically updated, based on internal reviews, external feedback and newly published studies on the effectiveness of measures.

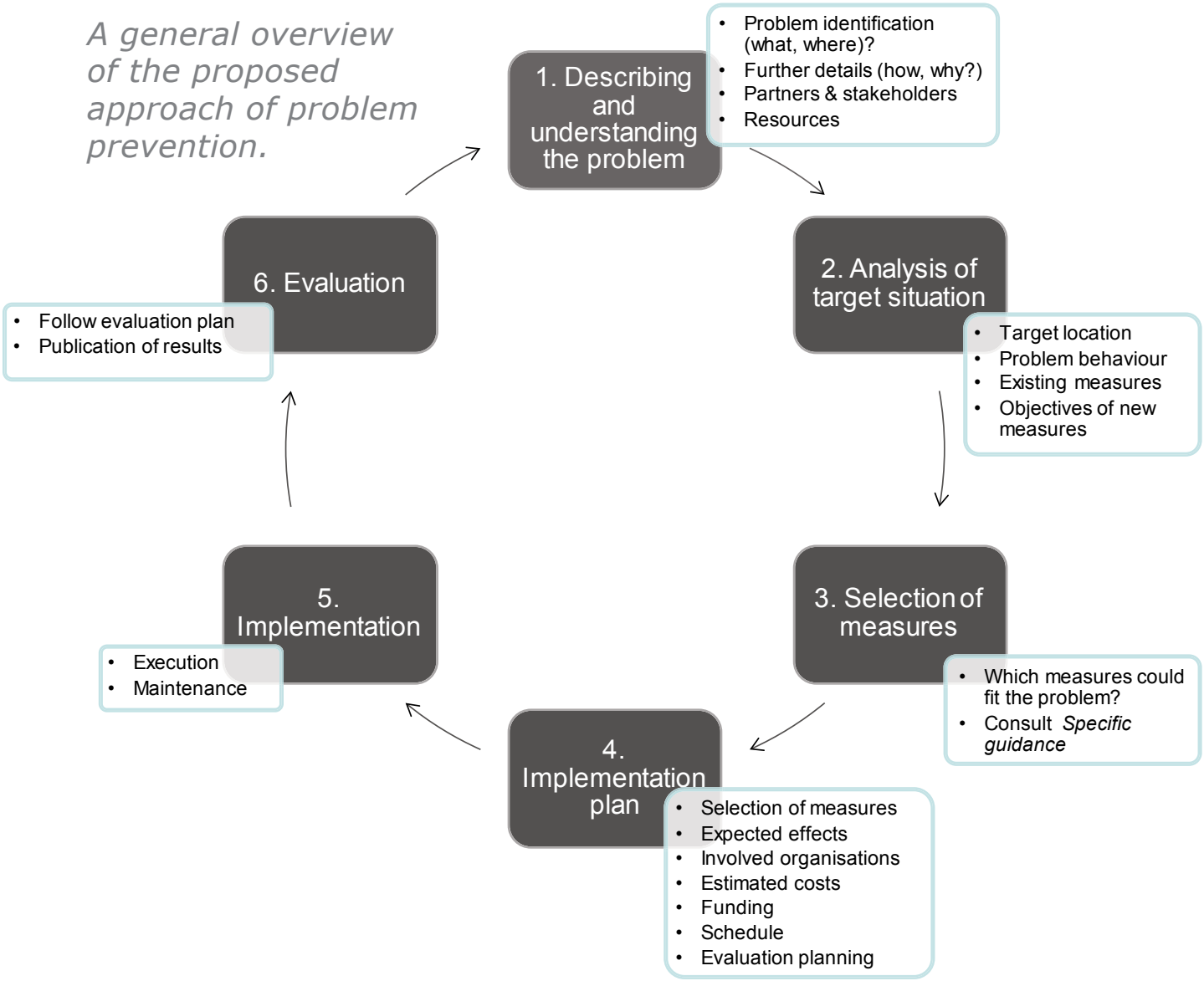
The fourth draft is currently under development.

General Guidance

The first part of the toolbox provides general guidance as a multistep approach for helping and structuring the analysis of a problematic situation. The question answered by the general guidance is how to analyse a problem and choose the optimal preventative or mitigation measure(s).

Consequently, this part of the toolbox may provide a general methodology for the inexperienced end-users who deal with a suicide or trespassing problem, as well as with post incident consequence mitigation difficulties. For the experienced end-users, it can be simply used as a checklist in the problem-solving process.

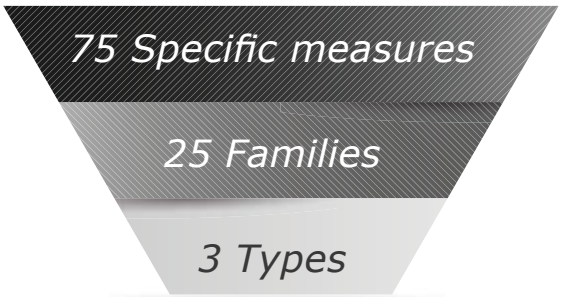
A general overview of the proposed approach of problem prevention.



The analysis starts with a structured understanding of the problematic situation. This consists of a process which integrates several steps, before any measure is actually implemented. This multistep approach is not a linear step-by-step process, although the steps taken in the guidance are shown as a perfect logical succession. It is rather a spiral, incremental approach, in which the interfaces between the steps in the process are recurrent, allowing an iterative analysis and decision process.

Specific Guidance

The latter part of the Toolbox includes the specific guidance which concerns details about the implementation of different preventative or mitigation measures. The question answered by the specific guidance is how to implement the selected measure(s) in order to minimise the shortcomings and enhance the expected effect. This part of the toolbox provides the end-user with a wide list of measures, implementation tips, examples, empirical evidence for effectiveness and other useful details which may be important during the implementation phase.



Source: SNCF

Organisational measures and processes

Source: ProRail
Photographer: Erik van't Woud

Engineering measures

Source: Kiwirail, New Zealand

Education and public awareness

Up to now, 75 different specific measures have been selected in the RESTRAIL toolbox as recommended solutions for prevention or mitigation, and some of these have been pilot tested during the project. For clarity and pragmatic purposes, these measures were grouped into a lower number of subsets (i.e. 25 families of measures) sharing common typologies or common effect mechanisms to influence suicidal and trespassing behaviours. The families were regrouped in 3 more general categories according to the general type of the measure: organisational measures and processes, engineering intervention (physical barriers and technological devices) and measures concerning education and public awareness.

Example from the specific guidance (Lighting linked to a movement sensor)

Description

This measure refers to technologies to influence people at risk by lighting when motion is detected in a specific perimeter. 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.

Measure profile

Type of measure	Organisational measures and processes Engineering Education and public awareness
Target problem	Suicide / Trespass
Effect mechanism	Improve practice and processes Influence decision Deter access Influence behaviour in track area Reduce consequences
Family	Lighting devices to influence behaviour
Evaluation studies	Restrail / Other / None

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 such as surveillance or sound warnings.
- May need support from staff to attend when alarms are operated.

Observations

- The effects are expected to be long-term.

Warning points

- 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.
- Impact of the spotlights for the people living in the direct environment could be an issue.

Study results

- 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.
- Example of the Mapo Bridge in Seoul, South Korea with inspirational messages of hope that light up as people walk by. Korean authorities report that the suicide rate has dropped by more than 70%.

Gallery



Railway tracks in the Netherlands, Mapo Bridge in Seoul (South Korea)

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