RESTRAIL

REduction of Suicides and Trespasses on RAILway property

Collaborative project

Evaluation of measures, recommendations and guidelines for further implementation

Pilot test #10

Enhancement of cooperation of the police and legal entities through Computer Based Training – MTRS3

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RESTRAIL Consortium

	List of Beneficiaries		
No	**Beneficiary organisation name**	**Beneficiary short name**	**Country**
1	Union Internationale des chemins de fer	**UIC**	**FR**
2	Teknologian Tutkimuskeskus VTT	VTT	FI
3	Trafikverket - TRV	TrV	SE
4	Institut français des sciences et technologies des transports, de l'aménagement et des réseaux	IFSTTAR	FR
5	MTRS3 Solutions and Services LTD	MTR	IL
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Acronym	Meaning
ADIF	ADministrador de Infraestructuras Ferroviarias
ERA	European Rail Agency
BTP	British Transport Police
CAEX	CAPital Expenditure
CBT	Computer Based Training
CCTV	Close-Circuit TeleVision
CN	Canadian National
DOW	Description Of Work
FFCCTV	Forward Facing Closed-Circuit TeleVision
GDL	German Drivers Leasing
HMTreasury	Her Majesty's Treasury
IM	Infrastructure Manager
IP	Important Point
IT	Information Technology
NPV	Net Present Value
OPEX	OPeration Expenditures
OTDR	On Train Data Recorder
PIER	Program in Interdisciplinary Education Research
2RProtect	Rail and Road Protect
RAILPOL	European Network of RAILway POLice Forces
RSSB	Rail Safety and Standards Board
RU	Railway Undertaking
SMIS	Safety Management Information System
SPSS	Statistical Package for the Social Sciences
STS	SysTemS
SWOV	Institute for Road Safety Research
TCRP	Transit Cooperative Research Programme
VAS	Visual Analogue Scale
VPC	Values of Preventing a Casualty
VT	Value of Time
CBA	Cost Benefit Analysis
CEA	Cost Effectiveness Analysis

1.1 Enhancement of cooperation of the police and legal entities through Computer Based Training – MTRS3

1.1.1 Overview of the piloted measure

A key issue for IMs who lead the rail industry's response to incidents, and also for RUs, is minimising service restoration time, whilst providing the police with necessary support to allow them to meet their investigation needs. The police, with the exception of the railway police, and also other specialists they involve on or off site, may not be familiar with the implications of managing fatalities or trespassing incidents on rail infrastructure for rail operations and safety. In many municipal or regional police forces, and in some Member States, the judicial entities (general prosecution, judge on call), have incident response decision making roles that critically affect traffic restoration time.

Discussions with several end users resulted in a recommendation to develop a computer based training (CBT) module for responding bodies handling railway suicides and fatal trespassing incidents under RESTRAIL umbrella. The CBT module, which has been developed and tested, is intended for decision makers dealing with railway incidents, primarily the police, and also other decision makers among the executive or judicial authorities. The purpose of this tool is to enhance cooperation between the IM and RU and the relevant entities among the bodies involved in the decision making process (e.g. police, the representative of the general prosecution and the judge on call). It is believed that improving these decision makers' understanding of the manner in which suicides and fatal trespassing incidents on rail infrastructure are handled will support more effective cooperation and help minimize service disruption.

The CBT is being developed in the form of an interactive tool, thus the trainee will not only follow the topics of the lesson step-by-step, but also answer multiple choice questions and benefit from other interactive methods that are embedded into the CBT tool. The module covers the following main topics:

(1) Understanding the problem, its scope and severity.

(2) Understanding railways' incident response arrangements.

(3) Supporting the railway with the quickest possible incident resolution.

(4) Case study.

(5) Lesson summary.

The duration of this CBT module is approximately 45 minutes. In order to activate it, the user needs a computer and standard browser (e.g., Chrome, Safari). It is also possible to activate the CBT as a web service using an LMS (Learning Management System) environment, via Internet connection and using a browser.

1.1.2 Methodology to evaluate the piloted measures

The evaluation of the CBT module will be qualitative – assessing the CBT's capacity to achieve these objectives.

The evaluation of the CBT is detailed in a CBT evaluation form (ref: RESTRAIL-WP5-MTR-TEC-004-0114-A-CBT Evaluation Form), which was integrated into an online survey service (www.surveymonkey.com). The evaluation form includes the following fields of evaluation:

(1) General questions – place of employment, and several questions regarding the individual's familiarity and experience with fatalities or trespassing incidents.

(2) Content and impact evaluation of the CBT module – clarity, relevancy, duration, effectiveness, impact and contribution.

1.1.3 Reported costs for measure

Reported costs for this measure are provided in the **Table 1.1-1**.

Table 1.1-1: Costs of measure: enhancement of cooperation of the police and legal entities through CBT

Cost element	Nature	value
Powerpoint development	Development of PowerPoint slides, including narration text, animation and video clips	
	Review of the material	
	Total	14 000 €
Transition of the powerpoint slides into e-learning software	Transition of the PowerPoint slides into e-learning software	
	Recording of narration	
	Review of the CBT	
	Total	4 000 €
Total costs		18 000 €

1.1.4 Evaluation results

Seven participants answered the CBT Evaluation Form questions – three belonging to infrastructure manager organisations, two from railway police, one from municipal police and one from a railway undertaking. Furthermore, some of the participants did not answer all the questions in the form. As the survey was conducted anonymously, we could not approach the participants to request that they provide the missing information. Despite our many requests, the number of participants was too small to produce a survey that adequately represents the industry and law enforcement bodies.

(1) General questions about suicides and fatal trespassing incidents

Seven people responded, although some did not answer all the questions.

- **Involvement in incidents.** Of the 7 respondents, 4 replied to this question. Three (75%) stated that they had been involved in suicide or fatal trespassing incidents, and one (25%) stated that he hadn't been involved.
- **Involvement in managing incidents.** Of the 7 respondents, 4 answered this question. Three (75%) stated that they had been involved in managing suicides and fatal trespassing incidents, and 1 (25%) had not.
- **Training in the management of and fatal trespassing incidents on railway infrastructure.** Of the 7 respondents, 4 replied to this question. Two (50%) confirmed that they had undergone training, and the remaining 2 (50%) indicated that they hadn't.
- **Awareness of influence on operation (shut-down time of the track, delayed and cancelled trains) due to suicides and fatal trespassing incidents.** Of the 7 respondents, 4 replied to this question. Two (50%) stated that they were extremely aware of the influence on operation, and the remaining 2 (50%) indicated that they were well aware of such an influence.
- **MOU of the participants' organization with railway IMs / RUs, or alternatively, with external responding bodies, regarding the handling of suicide and fatal trespassing incidents.** Of the 7 respondents, all 7 (100%) answered, indicating that there was indeed an MOU in place.

- **Specific procedure in for handling suicide and fatal trespassing incidents on the railway infrastructure.** Of the 7 respondents, 4 answered this question. Three (75%) confirmed that their organisation had such a procedure, and one (25%) replied that it didn't.

(2) Questions concerning the lesson content

Four people answered this questionnaire, although some did not answer all the questions.

- **Clarity of the lesson.** Of the 4 respondents, 2 replied to this question. One (50%) indicated that the lesson content was very clear, and the other (50%) – that it was clear.
- **Relevance of the content to the organisation.** Four participants replied to this question. Two (50%) stated that it was extremely relevant to their organisation, one (25%) answered that it was relevant, and the remaining participant (25%) indicated that it was slightly relevant.
- **Lesson duration in relation to the content.** Four participants answered this question. Three (75%) replied that the duration was reasonable, and one (25%) did not express an opinion.
- **Lesson effectiveness.** Four participants replied to this question. One (25%) stated that it was extremely effective, and 3 (75%) answered that it was effective.
- **Effectiveness of the CBT module.** Four participants answered this question. One (25%) indicated that it was extremely effective, and 3 (75%) answered that it was effective.
- **Accurate description in the lesson of the problem that IMs and RUs face.** Four participants replied to this question. One (25%) answered that the lesson described the problem extremely well, 2 respondents (50%) indicated that the lesson described the problem well, and the remaining respondent (25%) stated that the lesson described the problem slightly well.
- **Accurate description in the lesson of the problem that the participants' organisations face with respect to suicides and fatal trespassing incidents.** Four participants answered this question. One (25%) answered that the lesson described the problem his organisation faces extremely well, 2 respondents (50%) indicated that the lesson described the problem well, and the remaining respondent (25%) stated that the lesson described the problem moderately well.
- **Extent to which the lesson contributes to understanding how IMs and RUs manage suicides and fatal trespassing incidents.** Four participants responded to this question. One (25%) answered that the lesson contributed to a very large extent to the understanding, 2 respondents (50%) indicated that the lesson described the problem well, and the remaining respondent (25%) stated that it contributed to a large extent, and the remaining participant indicated that it contributed to a slight extent.
- **Extent to which the information provided is likely to contribute to the participants' organisations' response by shortening the rail shut-down time in the event of suicides and fatal trespassing incidents.** Four participants answered this question. One (25%) answered that the lesson will help shorten the rail shut-down time to a very large extent, 2 respondents (50%) indicated that it would help to a large extent, and the remaining respondent (25%) stated that it would help to a slight extent.
- **The extent to which the use case described in the lesson reflects an actual incident.** Four participants responded to this question. One (25%) stated that it reflected an actual incident extremely well, and 3 (75%) answered that it described it well.
- **Extent to which the use case provides tools that allow your organisation to assist IMs and RUs in managing and shortening the rail shut-down time in the event of suicides**

and fatal trespassing incidents. Four participants answered this question. One (25%) answered that the use case will help to a very large extent, 2 respondents (50%) indicated that it would help to a large extent, and the remaining respondent (25%) stated that it would help to a slight extent.

(3) Questions concerning the influence of the various measures in shortening the shut-down time in the event of suicides and fatal trespassing incidents, as expressed in the lesson.

- **Memorandum of understanding (MOU).** Four participants answered this question. One (25%) indicated that the MOU contributed to a very large extent, and 3 (75%) answered that it contributed to a large extent.
- **Incident response software and procedures.** Four participants responded to this question. Two (50%) stated that incident response software and procedures contributed to a very large extent to shortening the shut-down time, and the other 2 (50%) answered that they contributed to a large extent.
- **Predetermined incident & track access point using GIS web services.** Four participants answered this question. Three (75%) indicated that GIS web services contributed to a very large extent to shortening the shut-down time, and one (25%) replied that they contributed to a large extent.
- **Agreed lines of communication and communication means.** Four participants responded to this question. Three (75%) stated that lines of communication and communication means contributed to a very large extent to shortening the shut-down time, and one (25%) replied that they contributed to a large extent.
- **Training and exercises to develop and improve management skills and decision making competences.** Four participants responded to this question. Three (75%) replied training and exercises contributed to a very large extent to shortening the shut-down time, and one (25%) replied that they contributed to a large extent.
- **Forward facing CCTV (FFCCTV).** Four respondents answered this question, and they all (100%) agreed that FFCCTV contributed to a large extent to shortening the shut-down time resulting from suicides and fatal trespassing incidents on railway infrastructure.
- **On-train data recorder (OTDR).** Four respondents replied to this question, and all 4 (100%) agreed that OTDR contributed to a large extent to shortening the shut-down time resulting from suicides and fatal trespassing incidents on railway infrastructure.

The radar chart below summarises the influence of the various means described in the lesson (CBT module) on shortening the shut-down time resulting from suicides and fatal trespassing incidents on railway infrastructure. 1 represents a great deal of influence (‘to a very large extent’), and 5 represents no contribution (‘do not contribute at all’) (**Figure 1.1-1**).

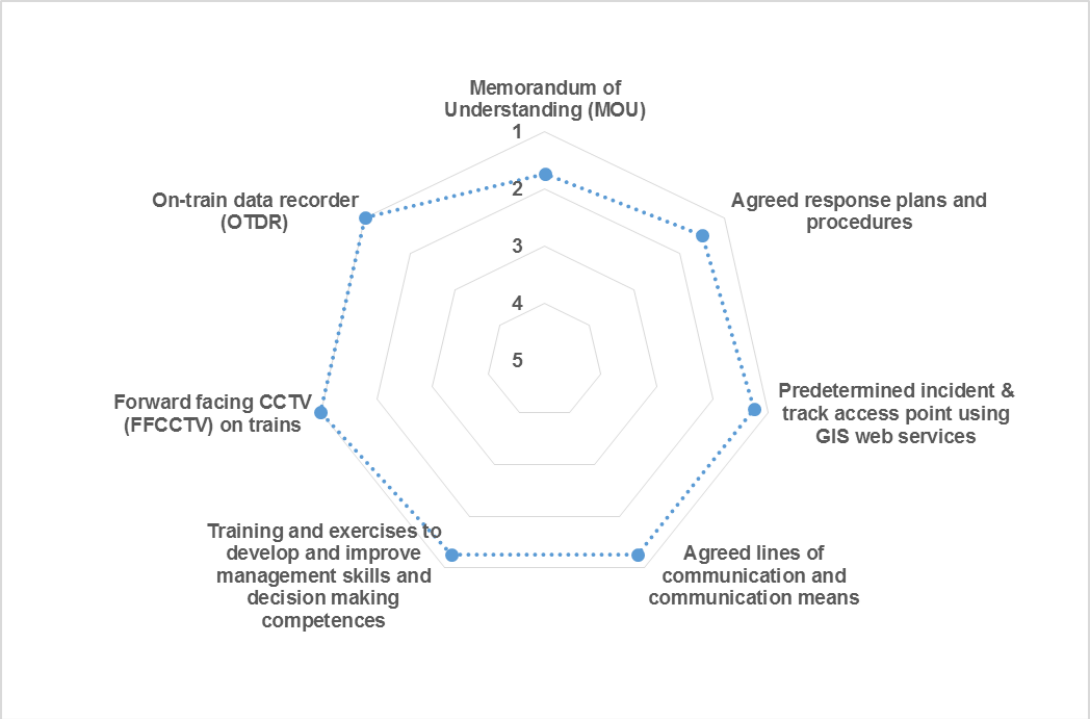

Figure 1.1-1: The influence of the various means in shortening shut-downtime in the event of suicides and fatal trespassing incidents

1.1.5 Applicability of results to different circumstances

Despite the small sample of respondents to the CBT module evaluation form, we believe that the results confirm that the module is relevant and useful for the populations it is intended for – decision makers, mainly among the police, IMs and RUs. The CBT module, within the framework of the pilot test, appears to contribute to these organisations by enabling them to better understand the problem and the tools required to mitigate the consequences of suicides and fatal trespassing incidents on railway infrastructure – namely, shortening the shut-down time.

To the best of our understanding, despite the small sample, the CBT module is highly applicable for decision makers among the police, IMs and RUs. It will remain so for at least as long as the organisations do not have an alternative and effective training mechanism to train position holders based on the RUs' valuable perspective, to manage suicides and fatal trespassing incidents through effective decision making.

1.1.6 Discussion

Within the framework of the limitations described above, the analysis of the various questions intended to evaluate the CBT based lesson that aims to improve the decision making processes during suicides and fatal trespassing incidents, arrives at the following two conclusions:

(1) The CBT module is effective in imparting the content to decision makers handling suicides and fatal trespassing incidents. We arrive at this conclusion based on the following survey results:

- High relevance (75%) of the lesson for RUs and police, and extremely high effectiveness (100%) of the lesson.

- Positive contribution (75% responded that it was high to very high) to the understanding of the manner in which such incidents are handled, and the manner in which it can assist to support RUs in managing these incidents and mitigating their consequences in terms of shortening shut-down time.
- Good compatibility between the use case and an actual incident and the tools described to manage incidents and mitigate their consequences.

(2) The means described in the lesson are perceived as valuable to reducing shut-down time as a result of suicides and fatal trespassing incidents.

- Means that have the capacity to document, such as FFCCTV and OTDR, are perceived by all (100%) the respondents as having a great deal of influence on the potential to reduce shut-down time resulting from suicides and fatal trespassing incidents.
- GIS web services assist all those involved in incident management. The geographical tools are perceived as contributing to an extremely large to very large extent to reducing shut-down time, since they assist the responding forces to arrive at the precise incident site and find the track entry point quickly.
- Incident response procedures and plans, training, communication means and MOUs are perceived by all (100%) respondents as having a great to very large influence on reducing shut-down time resulting from suicides and fatal trespassing incidents.

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