
European common standardized certification methodology for road safety experts

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ABSTRACT

The European Parliament and the European Council issued the Directive 2008/96/CE on road infrastructure safety management, foreseeing a series of safety controls, as well as guidelines for training and certification of road safety auditors. Due to EU rules, the directive is mandatory ONLY in the TEN-T road network, meaning the major European highways, while the highest number of fatalities occurs on the local and regional roads. To overcome this barrier, the PILOT4SAFETY project is applying the Directive's approach to some selected secondary roads in 5 regions of different EU States, in order to share good practices and define a common standardized certification methodology for road safety experts.

The pilot project is being developed in 5 different phases:

1) Development of a new Curriculum for the training of Road Safety personnel, mainly based on Road Safety Audit and Inspections of secondary roads, foreseeing a specific certification; 2) International agreement between the 5 participating States about the validity of the certification in each State; 3) Training of the future auditors and inspectors; 4) One Road Safety Audit and Road Safety Inspection in each State, performed by an international team of the trained auditors or inspectors; 5) Evaluation of the results and final recommendations for a European Common Certification Methodology.

The expected outcomes are:

a) The application of the same curricula for the training of auditors and inspectors of 5 EU Regions, based on the main results from EU Research; b) An agreement between the involved Regions about the reciprocal validity of the certification of the road safety personnel trained during the study; c) International agreement about common standards for training auditors and inspectors; d) Recommendations for a common certification procedure

Due to the high transferability of the project results, a relevant number of EU and non EU States will be able to use the recommendations for setting up their own certification system to ensure safety due to road infrastructure management. This paper illustrates the findings after 22 months out of 24 of the project's lifetime.

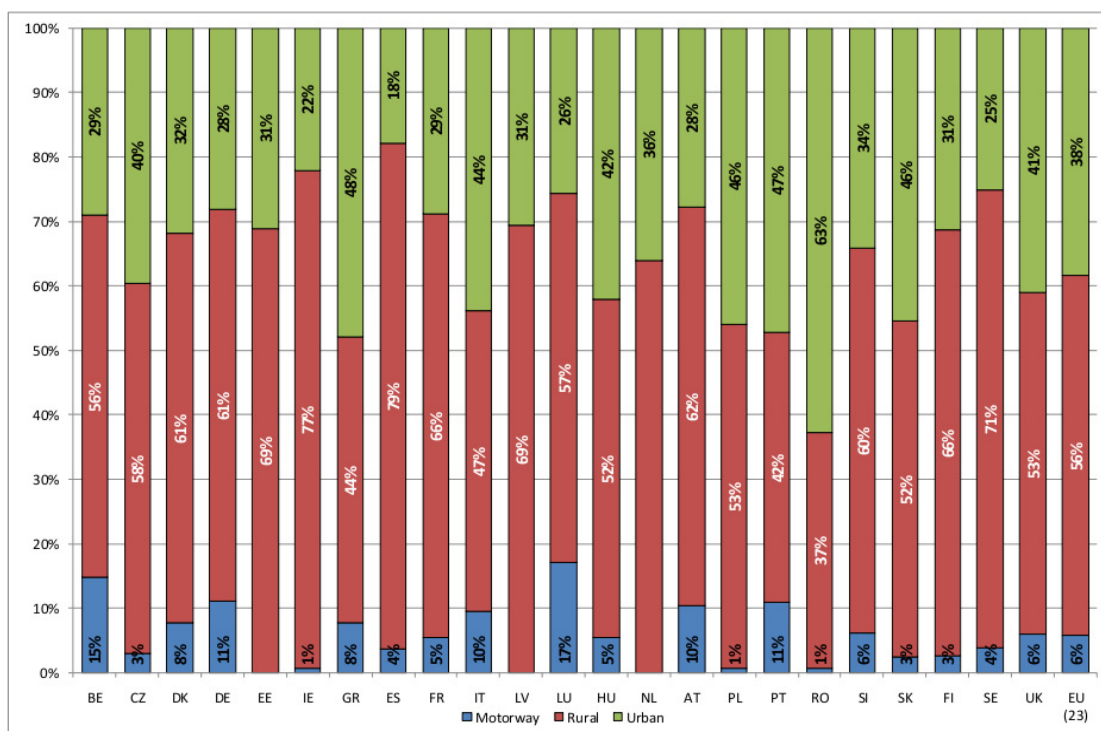
Keywords: Road infrastructure safety management; Road Safety Audit; Road Safety Inspection; Training; Standardization

INTRODUCTION

The European Parliament and Council on 19/11/2008 issued the Directive 2008/96/CE on road infrastructure safety management, which foresees a series of safety controls, as well as guidelines for training and certification of road safety auditors, professionals not yet present in all EU Member States, and whose education varies a lot throughout European regions.

When adopted by the Member States, Directive will apply only to TEN-T road network, which is “the road network identified in Section 2 of Annex I to Decision No 1692/96/EC”, consisting mainly of EU motorways and highways. In the European Union only 6% of road accident fatalities in 2008 died in accidents on motorways (see Figure 1), and 56% died in accidents on secondary roads¹.

¹ Secondary roads are defined as “2 lanes paved roads, outside the urban area”



Countries included: BE, CZ, DK, DE, EE, IE, GR, ES, FR, IT, LV, LU, HU, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK

Source: CARE Database
Date of Query: October 2010

Figure 1: Distribution of fatalities by type of road (source: European Road Safety Observatory 2010)

To improve road safety and road infrastructure safety management, the project PILOT4SAFETY, co-financed by the European Commission – DG Move, is applying the Directive’s approach on selected secondary roads in 5 EU regions, to share good practices and define common agreed training curricula and tools for qualification of road safety personnel.

MATERIALS AND METHODS

The project is only focused on Road Safety Audits (RSA) and Inspections (RSI) out of all the measures indicated by the Directive, as these two procedures greatly influence the infrastructure road safety factors; these preventive tools for projects and existing roads can be applied in the short term without any network analysis, but need an adequate training of the auditors and inspectors.

FEHRL (Forum of European National Highway Research Laboratories) is the project coordinator and the training supplier via its member Institutes. Generalitat Catalunya (Spain), Randers Municipality (Denmark), Astral Lazio (Italy), Region of Central Macedonia (Greece), and CDV (Czech Republic) participate directly with their inspectors and auditors in the training and the subsequent RSA and RSI, foreseeing a mutual exchange of engineers.

Prefecture of Pieria (Greece), the Walloon region and the Brussels-Capital region (Belgium) also joined the initiative by participating to the training. Further European regions have expressed their interest to join the initiative and an exchange of experiences has been established with another EU funded project (BALTRIS) focused on road safety in the Baltic regions.

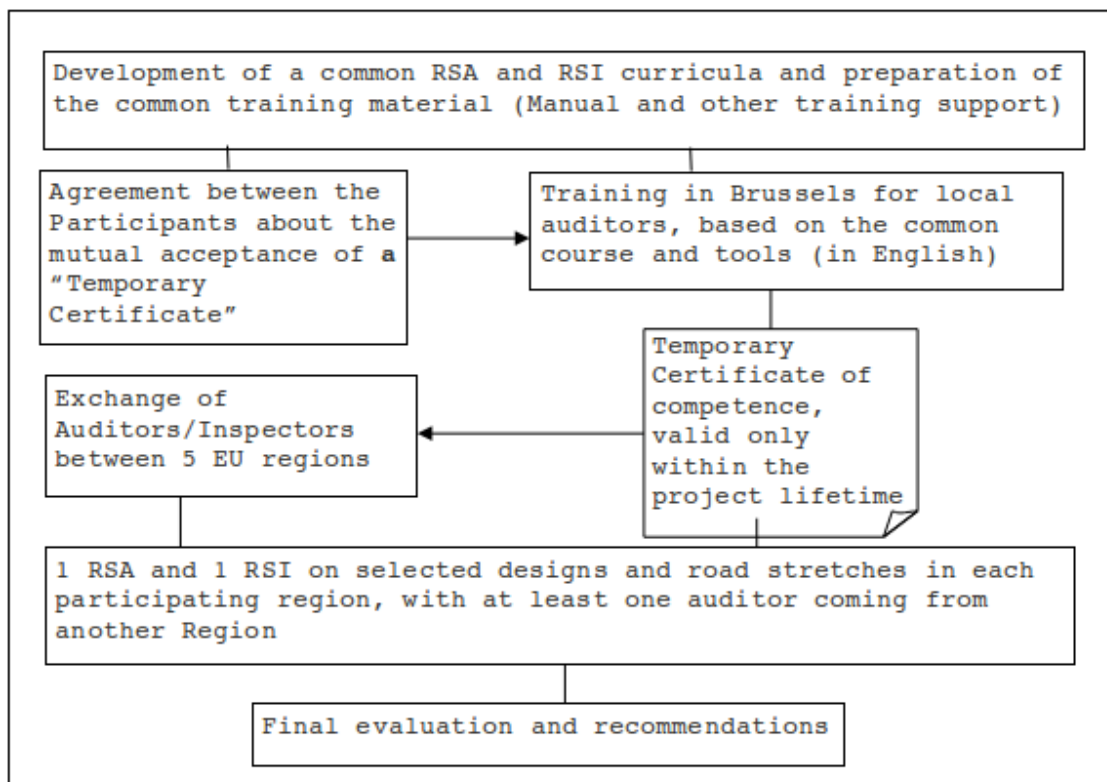


Figure 2: Scheme of the PILO4SAFETY approach

EXPECTED RESULTS

The expected results are:

- to develop curricula and specific tools for the auditing and inspections of secondary roads in EU Regions tailor made to the needs of regional/local road authorities,
- to reach an agreement between the involved Regions about the acceptance of a common training curricula and the exchange of safety experts,
- to carry out one Road Safety Audit and one Road Safety Inspection respectively on a design and on an existing road in each participating Region: each safety team includes at least one safety expert from another Region.

The final report will contain a template for an international certification, developed taking into account the project's results.

Using the Directive as a template for safety application on regional roads will allow the road managers to easily extend the application field of the Directive to a larger part of their network, including secondary roads. This will lead to more homogeneous national and EU road safety practices and an extended safety approach to the overall national road network.

THE COMMON CURRICULA

A common standardized approach has been adopted in each project phase: the first draft of the Curriculum was prepared by FEHRL, together with 3 of its members. It contained a structured list of items related to basics of road infrastructure safety, RSA, and RSI with details about the number of training hours for each item for a total of 160 hours.

After an internal discussion and a specific survey, an updated version of the curriculum was issued for partner's approval. The final version adopted takes into account the needs of the different regional road authorities expressed during this consultation process.

It is to be underlined that both the RSA and RSI Curricula foresee the possibility for the trainees to give feedbacks on the course plan, as well as some specific minor changes in the topics. As the expectations of each single Road Authority have been taken into consideration, the curriculum plan remained as flexible as possible, maintaining the same common approach. More than 16 hours of training has been dedicated to a presentation given by the trainees dealing with the road safety procedures in their regions.

THE “SAFETY PREVENTION MANUAL FOR SECONDARY ROADS”

A “Safety prevention manual for secondary roads” has been developed taking into account the main existing manuals and the findings of e previous EU funded research projects.

The manual focuses on RSA and RSI, but the mentioned Directive 2008/96/CE considers as well the following road safety procedures:

- Road safety impact assessment (RSIA or RIA) (strategic comparative analysis of the impact of a new road or a substantial modification to the existing network on the safety performance of the road network),
- Road safety audit for the design stages of roads (RSA) (independent detailed systematic and technical safety check relating to the design characteristics of a road infrastructure project and covering all stages from planning to early operation),
- Safety ranking and management of the road network in operation (incl. management of high risks road sections) (method to identify, analyse and rank sections of the road network which have been in operation for more than three years and upon which a large number of fatal accidents in proportion to the traffic flow have occurred)
- Road safety inspections for existing roads (RSI) (an ordinary periodical verification of the characteristics and defects that require maintenance work for reasons of safety).

As a basis for training of international safety personnel coming from several EU countries, a clear definition of the relevant procedures and a clear understanding of how these procedures complement each other to an overall road infrastructure safety management has been reputed necessary and therefore inserted in the Manual.

The analyses made and reported during the project activities have shown that the practices are not really standardized and that there are various interpretations on how to conduct them. There is also no standardized definition, even if there is a kind of common understanding of what a Road Safety Inspection and Road Safety Audit should be.

A comprehensive definition of RSI has therefore been drafted (based on the different elements underlined in the two previous chapters) by the partners and adopted for the project (table 1).

Table 1. Consolidated definition of RSI as adopted by PILOT4SAFETY

***Road Safety Inspection** is a preventive safety management tool implemented by road authorities/operators as part of a global Road Safety Management. It is a systematic field study organized sufficiently frequently on all existing roads or sections of roads to safeguard adequate safety levels. It is carried out by trained road safety experts to identify hazardous conditions, deficiencies that may lead to serious accidents. RSI results in a formal report on detected road hazards and safety issues*

This definition is the result of the analysis of some relevant references and reflects the common understanding of the RSI procedure. However, the definition also raises some very important questions, like the inspection frequency, the use or not of accident data, the independency of the inspection team, the report layout and content. At present the project

activities (RSI on the field) are facing these issues and they will be addressed in the Evaluation Report at the end of the project.

While the directive (art. 2) defines RSA as “an independent detailed systematic and technical safety check relating to the design characteristics of a road infrastructure project and covering all stages from planning to early operation”, the Pilot4Safety partners have harmonized the concept and adopted the following definition (table 2).

Table 2. Consolidated definition of RSA as adopted by PILOT4SAFETY

The Road Safety Audit describes a systematic and independent examination of a project designed to highlight potential security issues at the earliest possible stage of planning and construction, to reduce or eliminate these problems and limit the risk that could be submitted different types of users.

Highlighting of the earliest possible stage is an important issue, because it is commonly recognized that the earlier the stage, the higher the number of the audit recommendations accepted by the road managers.

The different types of users are mentioned to underline that the audit should take into consideration also the vulnerable road users (VRU) like pedestrians, cyclists and disabled people.

Specific measures for the safety of these user groups are under analysis by ongoing EU funded projects; some of them are dealing also with road equipments, such as motorcyclists friendly road restraint barriers.

Since RSI has got a strong relationship and a lot of similarities with RSA, the similarities and differences of both procedures have been analyzed and explained in the manual, through schemes like the one in figure 3:

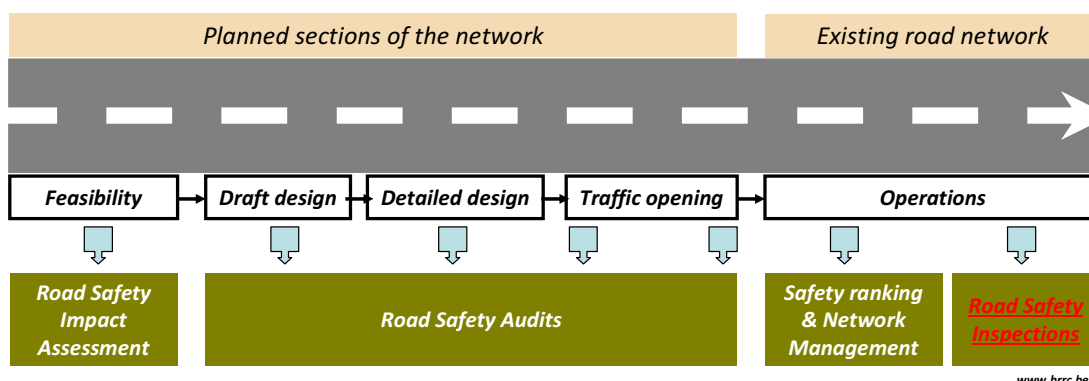


Figure 3: The Road Safety Inspection as part of the Road Safety Management (source: BRRC)

INTERNATIONAL AGREEMENT

A preliminary version of the International Agreement for the mutual acceptance of the foreign Auditors and Inspectors by each participating Road Authority has been sent to the respective legal representatives. After having collected the comments and negotiated the amendments, 7 originals (1 for each partner plus one for the European Commission) have been circulated for the signature. The overall process took 3 months, without any particular bureaucratic issue.

INTERNATIONAL TRAINING IN BRUSSELS

The training was designed with a modular concept: preliminary part to present the road safety basics; 2 modules to progressively detail the RSA or RSI procedures and a final practical part to check and consolidate the acquired knowledge.

RSA training Plan

Preliminary part - Topics
<ul style="list-style-type: none">• Accident analysis and statistics, Accident causation and risk assessment• Principles of road safety engineering• Characteristics and requirements of different (secondary) road users• Characteristics of different secondary road types• Characteristics of different intersection types• Road Safety Engineering Measures and design standards• Fundamental Safety Elements• Typical safety deficiencies + safety treatments
Basics about RSA
<ul style="list-style-type: none">• What is a road safety audit?• Why do we need a road safety audit?• Sharing participants past experiences in audits• Benefits and costs of RSA• Legal aspects (Directive 2008/96/EC)• Participants and responsibilities in RSA• Data requirements
The audit process
<ul style="list-style-type: none">• RSA procedures and stages• Checklist: reason - choice - structure - use• Tools and methods (e.g. RSA software, simulation)
Practical part
<ul style="list-style-type: none">• Exercise: "Different audit stages"• Site visits / Checking Plans• Findings + Reporting• Evaluation and discussion on the exercises• Final discussion and evaluation (feedback questionnaire)

Figure 4: The four modules of the RSA training plan (source: Pilot4SAFETY project)

Two members belonging to the road safety personnel from each participating Region were trained during 4 weeks (one week per month), at the FEHRL Brussels office for a total of 160 hours. As the network characteristics and design standards within the participating regions differ in a lot of details, the training mainly focused on general road safety principles

The road managers were advised in advance about the need of a certain level of familiarity with the English language and some of them provided specific English courses to their selected safety personnel.

The course was very well accepted and particularly the presentations given by the trainees about the local road safety procedures in their region, including the characteristics of the regional road network and typical safety issues, were a real success; in fact the trainees had the opportunity to have an actual exchange of experiences and all of them participated with enthusiasm in several discussions raised during such presentations.

The general impression was that 160 hours of training, even including several exercises and some practice on the roads, could be too much, if a pre-selection is made like in this project, and that a cut of about 30% or more is possible: the final evaluation report, scheduled on May 2012, will give more details.

ACTUAL RSA AND RSI ON THE FIELD WITH A FOREIGN MEMBER IN THE TEAM

Each partner selected, at the beginning of the project, an ongoing project (new road or rehabilitation of an existing one) for an actual RSA, as well as a road stretch for the execution of one Road Safety Inspection. Such selections were presented and discussed during a specific meeting with the aim of having the most possible variety of roads and designs. 5RSA and 5 RSI were performed in Czech Republic, Denmark, Greece, Italy and Spain.

The international character of the audit team did not cause any serious problems; therefore the expected RSA quality is not decreased. The only two critical points identified – the different language and lack of knowledge of national standards and guidelines of host country, were easy to overcome by discussion between the host and visiting auditors. The presence of visiting auditor was perceived mainly as an advantage both by the colleagues and the road administration

The benefits of a mixed audit team are linked to the expertise and external point of view it adds into the road safety audit process, particularly by the exchange of the knowledge, transfer of experience from abroad and uninfluenced view of topics and independent perspectives.

CONCLUSION

The following conclusions should be considered as preliminary; the final conclusions will be issued on June 2012 and will be available in the Pilot4Safety website, together with the other project deliverables; such conclusion will be integrated by the comments of the Reference Group, composed by 9 international stakeholders that are following the development of the project.

A Common European standardized training and certification methodology is achievable, the different local needs are taken into consideration and the methodology is divided in a general part and a specific one related to the local road safety issues. The discussion related to the international curricula did not raise any particular problems between the international partners, due to a good common understanding of the RSA and RSI basic concepts; the amendments to the final version were only related to minor issues.

The large numbers of existing road safety handbooks, manuals and guidelines have obliged the partners to make a choice during the preparation of the training tool: the approach was towards an easy and practical manual, mainly related to the rural roads, summarizing the main findings of the previous European projects and some selected parts from other road infrastructure safety guidelines. The resulting final handbook will respond to all the needs expressed at the beginning of the pilot project.

The training in English implies an additional pre-selection of the technicians coming from different countries, based on the linguistic skills. This is a problem referring to all situations where the participants to the training schemes come from regions where different languages are spoken. This should be a road authority's concern; however the recent experience has shown that the language barrier, in case of specific technical issues, can be overcome if addressed in advance.

The common training in Brussels has been evaluated as a fruitful experience by the majority of the trainees, particularly for the exchange of experience between road safety personnel coming from different countries. However, once an European common standardized certification methodology is achieved, courses can be carried out locally in the regional language and there will be translated versions of the training handbook and other material.

This pilot initiative should set the basis for a larger one, involving more European regions, to ensure a fine tuning of the main findings and to launch the common European procedure.

Reactions from some Member States on the effectiveness of the action, and the importance of extending the EU Directive to national/regional road networks have been very positive. In the time a significant increase of rural road safety level is expected by the focused training of road safety professionals.

The exchange of best practise could be further promoted if a European platform for the training of road safety experts is provided. Review of national practices

It is strongly recommended that the review of national practices regarding the training of inspectors/auditors and conducting RSI/RSA is carried out in form of a research programme. The results of such analysis will enable to effectively implement the European training on RSA/RSI.

Such an institute would be useful to organize courses and do the training centrally. It could present a central contact point for coordinating and managing all actions regarding European road safety expert certificates. This institute could also collect a kind of “lessons learned” during the training courses, with the aim of achieving step by step greater harmonization.

Focus on trainers should be emphasized, in order to introduce an international educational programme focused on the trainers, who then will be able to run national training courses with international certificate: the follow up of Pilot4Safety is now dealing with this important issue.

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