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## **Education and training options in Road Infrastructure Safety Management**



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### Keywords:

Road Infrastructure Safety Management; Training; Training programme; Target group.

### Abstract:

Training and education in road infrastructure management should be deeply connected to a well-defined target group. A designing process based on target group gives a good structure with educational parts including practical tasks, interaction and discussion – plus a future network of expertise for all participants enabling fruitful cooperation between safety sectors. Hopefully we have the possibility to make an impact and state the importance of traffic safety as one of the main issues in a well-functioning society. To give politicians and decision makers enough information to encourage improvements is necessary. Only when we cooperate at its best, we can make a difference, decreasing the number of fatalities and serious injuries in traffic.

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## Content

Introduction.....	5
1. Education and training in road infrastructure safety management .....	5
1.1. Importance.....	5
1.2. Current situation .....	6
1.3. Experience from the BALTRIS project .....	6
1.4. Recommendations .....	7
2. Target group in education and training.....	8
2.1 Stakeholders in road infrastructure safety management .....	8
2.2 Personal development .....	8
2.3 Societal and health development.....	9
2.4 Recommendations regarding target groups .....	10
References.....	12





## Introduction

To reach the goal of Vision Zero and an improved road infrastructure safety, we constantly need to develop and update our road infrastructure safety management tools. Education and training is a vital part of a well-functioning system, where we work to save life, health and money. Lifelong training is a key to be informed and able to apply the best practice possible at each given time. However, it is essential to define the target group for education and training since each training has an important message to deliver. A targeted education and training enables us to positively affect national economy throughout Europe.

This report gives a general overview of the current situation of education and training in road infrastructure safety in the first part, naming the importance and some recommendations based on experiences from the BALTRIS project. The second part focuses the target groups in education and training in road infrastructure safety management, setting out some important points in recommendations about how to reach future participants of trainings.

## 1. Education and training in road infrastructure safety management

There is a wide range of trainings in the traffic safety field. They are attached to different pillars of road infrastructure safety management; road safety audit, road safety inspection, road network safety management and road safety impact assessment. Many currently existing trainings have focus mainly on a national system and structure.

### 1.1. Importance

All pillars of road safety management are vital for a well-functioning safety management, through the whole life-cycle of a road; from early planning to the regular maintenance. The implementation of the pillars takes a long time and demands constant development. Each country should select a starting point and implement the selected phase in the best way possible. Having this done it is time to focus on the following pillar since the output of one pillar is the input of the following. When all pillars are implemented there is need to develop a functioning area for communication between them.

In a healthy and attractive society the fully implemented road infrastructure safety management is an always ongoing vital and iterative process. Applying all the pillars related to each phase of a road's life cycle gives the best effect, giving safety a unique position and prioritizing safety of all road users. It cannot be emphasized enough that the database for each pillar has to be reliable and continuously updated.





## 1.2. Current situation

The number of educations and trainings in road infrastructure safety management throughout Europe shows a big variety. There are variations between countries but also between trainings regarding content, length, focus and certification process. While each training try to introduce one part of the joined road safety management, there is a need to emphasize how the different parts effect and interact to improve the overall safety.

Today, the trainings are to a high amount designed by safety experts working mainly with theoretical issues. The trainings are often attended by persons working with safety in a more practical way. One of the main targets with the trainings is to make the latest results from the scientific area available to the practical field.

The demand for trainings introducing new theories and methods, as a part of continuous education is higher than the existing range of trainings in road safety. The request for experiences regarding best practices and new methods is constantly increasing. Tutors in the traffic safety field have many obligations and struggle to find enough time to update their knowledge and share it with others. It shouldn't be too much of an effort to hold training, but to satisfy the future audience we need a training designed according to the demand from the target groups.

## 1.3. Experience from the BALTRIS project

During 2012 the BALTRIS project gave international trainings in road infrastructure safety. The content of the training covered most of the main pillars related to road safety. The purpose of the trainings developed in BALTRIS was:

On one hand to give a “base-knowledge” as a fundament of national trainings for new auditors and widen information-field for certified auditors.

On the other hand to move the emphasis from checklists to the communications of findings. The training tried to give the auditors some tools to be able to “deliver the message”, to communicate the results of a safety analysis efficiently.

The trainings developed in the BALTRIS projects puts focus on safety together with communication issues, to help the auditor/inspector communicate the results. Regarding this context, the target group of the training is widened. Not only certified auditors, safety experts, designers, but everybody who is working with issues of traffic safety audit or traffic safety inspection can attend on the trainings.

The BALTRIS trainings were international and had participants from more than four countries at the same time. With participants from different age groups and gender the training can reflect different ways of thinking, find jointed solutions to given problems and improve road safety in a transnational perspective. A carefully and well composed group of participants is essential to achieve the training target, to deliver and receive the message of the training. With participants





from different states the discussions will be even more fruitful and the exchange of experiences and ways of working can benefit both the attending persons (participants and tutors) and the infrastructure in each state. With an international training there might be reason to slightly change the focus and encourage discussions between participants with different backgrounds.

#### 1.4. Recommendations

The road infrastructure safety is a complex and wide field, based on four main pillars. Those pillars – road safety assessment, road safety audit, road safety inspection and network safety ranking – together form a comprehensive safety system including all parts of road infrastructure; from early planning to the regular maintenance.

There are different organizations; different persons dealing with safety aspects in the different stages of a road's life, but all stakeholders should see clearly the importance of its part in the overall structure as well as the interdependence of each unit. The key to make this complex system successfully functioning is to give each stakeholder on each level updated information. Based on the BALTRIS project the following recommendations are suggested:

- **Access to regular continuation courses** is fundamental. In a well structured road infrastructure safety system there are several courses available, not only the trainings qualifying for a safety procedure. National and international training can together cover the wide field of safety. Where national training can focus more on theoretical issues, international trainings give room for introducing new methods and exchanging of experiences.
- The **content of the trainings should be harmonized**. Since road infrastructure safety is a complex system, some of the trainings have to be succeeding – a part of the previous training is a base for understanding the new information – while others can be freestanding. In a well-structured education system, the trainings should cover all parts of road infrastructure safety management and indicate clearly its relation to the others.
- Make **clear what the situation is relating to the training institute**. It has to be clear from the very beginning which institute is qualified for which trainings.
- **Documentation** is important – a database about trainings and participants has a key-role to evaluate and develop future trainings and education.

It is not easy to build an education system supporting a complex structure. A systematic work for developing courses for newly developing areas of road infrastructure safety management and a continuous monitoring of actual demand can achieve this target.





## 2. Target group in education and training

To have knowledge about the participants is the most important factor during training design. A well-defined target group is the key to find the structure and methods to efficiently deliver the main message of the training. Designing training in road infrastructure safety management require detailed analyses of stakeholders' need working in different segments of the infrastructure sector.

To make trainings in road safety really useful to the road users and decrease the number of fatalities and serious injuries in traffic, a successful communication between different stakeholders is vital.

### 2.1 Stakeholders in road infrastructure safety management

It is important to see that road safety is the result of a wide cooperation between road infrastructure sectors/segments. There are many persons and many organizations essential to improve road safety, saving life, health and money.

When selecting the most appropriate target group it is relevant to consider what organizations are involved in road infrastructure safety management. Trainings in road safety should be considered to be of interest to all persons dealing with road safety in some aspect. Different sectors using traffic safety expertise might find a training more or less relevant depending on the level of the training. A training should always be adjusted to its target group. Possible target groups for training in road infrastructure safety management are:

- Road Authorities (decision makers and employees)
- Road Designers (from public and private sectors)
- Road Safety Auditors and Inspectors
- Academics in Road planning and Traffic engineering (lecturers, researchers)
- Research institutes (decision makers, researchers)
- Police and Rescue personal (traffic inspectors, officers, head of department)

A realistic selection of the target group helps to achieve the objectives of the training.

### 2.2 Personal development

A well-designed and updated training will at best not only deliver the main message but also enable personal development for each participant. Independent of what sector each participant represent, the training should give a useful input on other sectors' way of working. Adding to this







it should give information on sectors' sub-targets and encourage to discussions within and between different sectors – making a united view on road safety improvement possible.

Training is not only education but a unique occasion to exchange experience, to have fruitful discussions about interesting problems with other experts and to build a network for future cooperation. Actually, training is one of the most important communication tools to enable interaction between different road safety infrastructure pillars.

A training is a possibility for the stakeholders to:

- deepen and widen their existing knowledge.
- see their role in the system of road infrastructure safety management.
- discover and understand the way an improved interaction and networking can gain traffic safety.
- get information about the latest and upcoming news in the road infrastructure safety sector.
- get constant feedback on problems in other fields.
- have a continuous discussion.

### 2.3 Societal and health development

The world we live in today offers a wide range of communication to and from home. No matter if we go by car, bike, train, bus or tram, we need to be careful. Interacting in traffic is necessary to decrease accidental risk. However, we are humans and it is sometimes inevitable to make mistakes also in traffic. The problem is that a mistake in traffic can have fatal consequences. A forgiving road design should protect road users from injuries and death.

More and more persons tend to take advantage of the infrastructure system. Traffic safety is a common problem and the need to make roads safer is continuously growing. The awareness of the importance of road safety is increasing. We need to cooperate to develop road safety.

The society has a responsibility. Politicians and decision makers need to fully realize the importance of a safe infrastructure. Using the infrastructure system is inevitable in today's society. Communication is a vital part of our lives – we go within cities and municipalities, in and between regions of different sizes – be it countries or continents. We all have a responsibility in trying to avoid accidents and decrease the number of fatalities in traffic. Traffic safety is a common responsibility. No matter if we are experts or road users this could be the main message of traffic





safety trainings. Only when we interact and truly cooperate to improve infrastructure safety, positive changes can occur.

## 2.4 Recommendations regarding target groups

When designing a training or an education, please be aware of what target group you will have. Define your target group by figuring out:

- what their actual level of road safety knowledge is,
- what the desired level (to achieve with training) is,
- what participants should learn to reach the desired level.

Clarifying the target group's needs gives the possibility to adjust the training according to theoretical and/or practical information, ideas and examples of application of existing tools. When the target group is given and the training participants are selected, their current level of knowledge should be checked. This makes sure the planned effects from the training are realistic. Based on experiences from the BALTRIS project, some recommendations can be given:

- When selecting participants, it is good to consider the background and pre-knowledge. They need to be able to communicate and they should have possibilities to learn from each other.
- To have a good communication the participants need not only a common background, but also a common problem.
- To cooperate and communicate takes time and energy. This should be considered during design of the training and selection of the participants.
- Communication is a two-way thing, not only information from e.g. the tutor but an interaction. Please make sure all tutors at the training try to inspire the participants to join discussions and interact.
- In a complex system, international trainings have more focus on exchange of experience than national trainings might have. Be sure that the participants have time for exchange and discussion.
- Having trainings open to a wider audience is not only to spread information but also a good inspiration on how to solve the common problem of safety in the infrastructure.
- When the training is international, experts from different countries interact and have a possibility to share their different views.





- By making the contact information for the participants public to them the participants can build and maintain a network of experts, encouraging cooperation over regions, transnationally and interanationally.
- Web based tools and open databases can ease and make the process quicker.





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