



Stakeholder Conference

as part of the

Evaluation Study on the Road Infrastructure Safety Management (Directive 2008/96/EC)



Minutes report

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Executive Summary

The present report, commissioned by the Directorate General Mobility and Transport of the European Commission, summarizes the main findings and conclusions of the Stakeholder Conference held on 13 June 2014, as part of the review process of Directive 2008/96/EC.

The Conference comprised four thematic sessions addressing the following aspects:

1. Review of the preliminary study results
2. Vulnerable road users in relation to the Directive
3. Role of Intelligent Transport Systems in the Directive
4. Measurement of the safety performance of the roads.

A conference background paper was sent out to all participants upon registration, outlining the background and purpose of the study, and providing participants with detailed information on the key topics to be discussed during the event.

In session 1, the stakeholders participating in the conference reviewed the preliminary results of the study by tackling three questions pertaining to the presentation of the ex-post evaluation. The consensus view was that the preliminary results of the study by and large matched the participants' expectations. Comments and suggestions regarding the study's methodology pertained to the study's coverage in terms of respondent EU Member States, and conveyed concerns that respondents would mostly comprise better-performing states. Participants' recommendations included ensuring that the study only covered the actual implementation of the Directive, and that data collected via questionnaires should be further complemented by individual follow-up interviews.

In each of the sessions 2-4, the expert speaker, Professor George Yannis of the National Technical University of Athens, introduced the session's topic and the identified problems. Subsequently, participants were given the opportunity to express their views and comment during each session.

With respect to the VRUs in relation to the Directive, the contributions were mixed. While some participants indicated that the Directive already mentions VRU, others saw a need to introduce procedures dedicated for VRUS, customised for the different VRUs and for the different types of roads. In terms of data – performance – knowledge, there is strong support to collect **data** dedicated for VRUs; to evaluate safety performance; and to develop knowledge dedicated to VRUs, by exploiting existing knowledge. Other topics raised were the need for appropriate road design **standards** in relation to VRUs, and the introduction of minimum standards; and the concept of forgiving roads for VRUs

With respect to the role of ITS in the Directive, the general conclusion coming from the discussion was that ITS (especially V2I connectivity) are innovation, and they are the future, but legislative steps should be cautious and in parallel to the ITS deployment and the related Directives. ITS can play a manifold role: as applications supporting safer traffic, as a tool supporting road infrastructure safety Management and for the collection of necessary data. A series of specific topics were salient: ITS **harmonisation** and standards are needed and a process should be set; **data protection** should be respected in all processes; and infrastructure related ITS should also be audited and **evaluated**.

On the measurement of the safety performance of the roads, there is a clear need for more detail in measuring the safety performance of roads, as a major support tool of the management procedures of the Directive, but also to support the accountability of authorities. More data (accident, exposure, performance indicators) should be collected, with sufficient frequency, possibly including cost of measures and accidents for cost-benefit/effectiveness analyses, including common data collection methods and facilitated and harmonized accession to data.

The results of this stakeholder conference will be taken into account in the further work on the "Study on the effectiveness and on the improvement of the EU legislative framework on road infrastructure management (Directive 2008/96/EC)". For the ex post evaluation additional data is being collected, more interviews are planned and efforts are intensified to obtain more replies to the survey to overcome a possible bias in replies. The comments made on the three final thematic sessions will steer the work on possible areas for the further improvement of road safety by providing focal points into the wide subject range.



1 Main Findings of the Conference

This document presents the main findings and conclusions of the conference. The following sections summarize the main findings where a detailed record of the minutes of the different sessions is provided in Annex I.

1.1 Introduction

On 13 June 2014, the European Commission organized a Stakeholder Conference as part of the review of Directive 2008/96/EC on road safety infrastructure management. The “Study on the effectiveness and on the improvement of the EU legislative framework on road infrastructure safety management (Directive 2008/96/EC)” is meant to assist the European Commission in the assessment of the Directive, and to examine preliminary possible changes in light of stakeholder feedback and technological developments.

The main objectives of the conference, which was open to all interested stakeholders, were to present the preliminary results of the ex-post evaluation of the Directive, and to consult with a variety of stakeholders in order to obtain their views on issues aimed at improving road safety. 63 participants registered for the conference, representing 58 Member State ministries and relevant organisations from 17 Member States or operating EU wide.

The Conference comprised four thematic sessions addressing the following aspects:

1. Review of the preliminary study results
2. Vulnerable road users in relation to the Directive
3. Role of Intelligent Transport Systems in the Directive
4. Measurement of the safety performance of the roads.

A conference background paper was sent out to all participants upon registration, outlining the background and purpose of the study, and providing participants with detailed information on the key topics to be discussed during the event.

1.2 Study presentation: Introduction to the ex-post evaluation and impact of the implementation of the Directive 2008/69/EC

In its opening welcoming note, the Commission reflected briefly on the objectives and agenda of the stakeholder conference, outlining also the current status of the evaluation process of the Directive.

Ms Eef Delhaye from TML Leuven briefly outlined the study undertaken on behalf of the European Commission and the consortium making up the project team: Transport and Mobility Leuven (TML), Trasporti e Territorio (TRT), and Prospex. She then presented the background and overall objectives of the study.

An important input for the study was the stakeholder survey as other sources are relatively scarce and mostly outdated. This survey, whose aim was to collect data for the ex post evaluation, as well as input for further analysis, consisted of two questionnaires: one comprised 147 questions and was aimed at Member States relevant authorities, eliciting 26 responses (22 Member States, Belgium



Flanders and Belgium Wallonia¹, as well as two non-EU Member States: Iceland and Switzerland); and a second one of 32 questions, which targeted other stakeholder groups and was sent out to 65 prospective respondents, eliciting 28 responses.

Mr Alessio Sitran from TRT outlined the main objectives of the Directive: encouraging the integration of road safety in all phases of planning, design and operation; the definition of rules on all audit and inspection procedures mentioned in the Directive; and the use of limited available funds for more efficient construction and maintenance of roads.

He further explained the methodology of the ex post evaluation and the evaluation criteria which are used to carry out the evaluation. He went on to summarize the initial findings of the survey, following the evaluation criteria in order to make a link with the general methodology.

Preliminary findings pertaining to the *implementation* of the Directive revealed that there are no particular barriers or hindrances; when encountered, these consisted mainly of lack/poor capacity and not/or poorly consistent pre-existing legislative framework.

It was appreciated that the Directive has encouraged a more systematic approach and the streamlining and standardization of procedures, as well as of the efficient use of resources. This is confirmed by the extension of procedure use to non TEN-T roads for most of the responding Member States.

The *effectiveness* analysis showed that deficiencies observed during audits and inspections are registered, but with different remedial actions depending on the administrative structure of each Member State. They tend to issue recommendations, which have to be taken into account when these remedial actions are followed through. Half of the responding Member States stressed the compulsory character of remedial actions. Training curricula for auditors are adopted in particular for RSAs and RSIs.

As far as *sustainability* is concerned, responses stressed the fact that there is an exchange of good practices, and that the Directive enhanced the mutual recognition of auditors and of training certificates issued for them. Procedures predated the Directive in many countries, and were in some cases extended beyond the scope of the Directive.

When applying the criterion of *efficiency*, analysis has shown that costs are usually included into the overall project costs; in most cases there is no specific budget allocation for the procedures for these costs. An important point relates to the fact that only one third of the member states measure costs and benefits. However, respondents have not provided descriptions of methods of performing this cost-benefit analysis.

The responses offered by *non-MS stakeholders* paint a significantly more mixed picture. In the view of more than half of the respondents, the Directive has very much or much triggered improvements in the EU Member States' administration of road infrastructure safety management. However, only 14% of the same stakeholders considered that the Directive has contributed very much or much to increasing road safety, while 46% of respondents see only a moderate increase of road safety following from the Directive's contribution, and 37% see little and very little increase in road safety.

A detailed record of the minutes of this session is provided in Annex I.

¹ Due to its federal structure, the regions making up the Kingdom of Belgium each have their own separate road authority responsible for implementing the Directive, and in possession of statistics and data relevant for the purpose of the survey.



1.3 *Session 1: Review of the preliminary study results*

In response to the presentation of the preliminary results of the study, conference participants have put forth a variety of points, organized around three questions, both orally and by use of individual exercise sheets provided to conference participants upon registration.

The three questions were

1. Do the results of the survey surprise you, or are they in line with your understanding of the issue?
2. Do you have any comments about the methodology (data sets, literature review, questionnaire, etc.) used in the survey?
3. Are there additional topic areas that should be addressed to increase the understanding of the issue?

From the discussion, the following main points/recommendations could be made:

- Most stakeholders indicated that the results of the surveys were in line with their understanding of the issues at hand.
- A number of participants were surprised to find out that only one third of Member States measured benefits, while others were pleasantly surprised that as many as that did measure the benefits, given the difficulty.
- The importance of a sound methodology was stressed, in order to mitigate the risk of errors. Stakeholders pointed out the inherent bias that generally, only exemplary Member States volunteer information in surveys.
- Stakeholders stressed the danger of the study assessing the Directive's implementation on paper rather than in fact.
- Interest was expressed in the extension of the Directive to other sorts of roads, and in information on the breakdown per type of road, and which type of roads were involved.
- It was stressed that motorway safety is part of the whole management approach, and therefore a holistic approach was missing including the link between drivers and infrastructure.

A detailed record of the minutes of this session is provided in Annex I.

1.4 *Session 2: Vulnerable road users in relation to the Directive*

Professor George Yannis of the National Technical University of Athens gave a general introduction to the topic of vulnerable road users (VRUs). VRUs are to be understood as non-motorised road users (cyclists and pedestrians), and powered two-wheelers (PTWs). They represented approximately 43% of all road victims in 2012 in the EU. PTWs, pedestrians and cyclists interact with traffic of high speed and mass. They suffer the most severe consequences in collisions with other road users because they cannot protect themselves against the speed and mass of the other party.

The Directive addresses Vulnerable Road Users only generally, as a part of the procedures of Road Safety Impact Assessments, Road Safety Audits and Inspections, and Network Safety Rankings. No specific instructions are provided in the Directive on how vulnerable road users shall be taken into consideration.



The Directive applies compulsorily only to the TEN-T network, which mainly comprises motorways and expressways, where cyclists and pedestrians are not entitled to transit, therefore the benefits for these groups of VRUs are limited. PWTs are therefore the most affected VRU group.

The Directive can play a role by establishing a practice where technical standards for design, construction and maintenance are developed to meet the needs of vulnerable road users in general.

Conference participants were then invited to consider a set of four questions pertaining to VRUs. All sets of questions for every topic of discussion had also been made available in the conference background paper sent in advance to the participants:

- Does the Directive take adequately into account all road users? Which road users are not sufficiently addressed? Why?
- How could the safety of vulnerable road users be improved? Technical standards are one tool, but what other instruments are there?
- Which standards could be further developed to improve road safety for VRUs on road infrastructures falling under the scope of the Directive?
- Which ITS tools could be developed to improve road safety for VRUs on road infrastructures falling under the scope of the Directive?

After working individually and in groups, the spokesperson from each group then presented the most salient points identified in relation with the topic and the questions. Based on the contributions the following conclusions can be made:

- While some participants indicated that the Directive already mentions VRU, others saw a need to introduce procedures dedicated for VRUs, customised for the different VRUs and for the different types of roads (e.g. dedicated auditors and expertise).
- In terms of data – performance – knowledge, there is strong support to collect data dedicated for VRUS; to evaluate safety performance (for the different VRUs and for the different types of roads); and to develop knowledge dedicated to VRUs, by exploiting existing knowledge (tools, manuals, research results, best practices).

A series of specific topics were also raised, which are of particular significance:

- The need for appropriate road design standards in relation to VRUS, and to introduce minimum standards;
- Manage speed - self explaining roads, forgiving roads also for VRUs;
- A need for ITS dedicated to VRUs.

A detailed record of the minutes of this session is provided in Annex I.

1.5 Session 3: Role of Intelligent Transport Systems in the Directive

The speaker, professor George Yannis, gave a general presentation on the role played by Intelligent Transport Systems (ITS) in road infrastructure.

Intelligent Transport Systems refer to systems in which information and communication technologies are applied in the field of road transport, including infrastructure, vehicles and users, and in traffic management and mobility management, as well as for interfaces with other modes of transport, in order to make safer, more coordinated and 'smarter' use of transport networks. ITS that enhance road infrastructure safety can include: traffic events detection, traffic data collection, accident data collection, accident prevention, real time provision of traffic weather or event information, information on the current condition of road infrastructure, etc.



No specific instructions are provided in **Directive 2008/96/EC** on how to deploy ITS across the EU. ITS are mentioned as part of the procedure for Network Safety Rankings. Nevertheless, the **ITS Directive** (Directive 2010/40/EU) instead provides the framework for the development of specifications to address the compatibility, interoperability and continuity of ITS solutions across the EU.

Conference participants were invited to consider a set of five questions pertaining to ITS. These questions were also included in the background document:

- Should ITS be further considered in the road infrastructure safety management?
- How could ITS play a stronger role in facilitating road infrastructure safety management?
- Which kind of ITS Systems shall be further developed in relation with Directive 2008/96/EC?
- Could ITS be applied to road safety audits and inspections?
- Is there a need for further legislation in this area? Are the existing technical standards sufficient?

As before, a spokesperson from each group then presented the most salient points identified in relation with the topic and the questions. These can be summarized as follows:

- As a general remark, ITS (especially V2I connectivity) are innovation, and they are the future, but **legislative steps should be cautious** and in parallel to the ITS deployment and the related Directives.
- More demonstration projects and more ITS deployment are needed.
- ITS can play a manifold role:
 - as **applications supporting safer traffic**, providing information to the driver (infrastructure, traffic, weather conditions), supporting enforcement (Section control), and as e-cal applications.
 - as a **tool supporting road infrastructure safety Management**: for audits and inspection; in accident investigations (car recorders);
 - for the collection of necessary data. As such, auditors should include ITS solutions in their proposals.

A series of specific topics were salient:

- ITS **harmonisation** and standards are needed and a process should be set;
- **data protection** should be respected in all processes;
- and infrastructure related ITS should also be audited and **evaluated**.

A detailed record of the minutes of this session is provided in Annex I.

1.6 Session 4: Measurement of the Safety Performance of the Roads

Professor George Yannis introduced the topic in a general presentation on the measurement of the safety performance of roads.

The measurement of the safety performance of road infrastructure may be developed in different ways:

- By defining key **performance indicators** targeted to certain road users:
 - Accident-based indicators: number of accidents, number of fatalities, accidents per vehicle km, fatalities per vehicle km, etc.
 - Speed Data: Average speed, operational speed etc.
- By applying a **risk assessment method** to predict the likelihood of an accident in a given time and place.



It is worth recalling that the Directive **does not contain any specific provision** on measuring the safety level of a road. Instead, the Directive provides a framework to ensure that safety is adequately addressed during the road lifecycle (through Road Safety Impact Assessments, Road Safety Audits, and Network Safety Ranking and Management).

As far as road safety data collection is concerned, the Directive provides minimum requirements regarding the accident information to be included in **accident reports** on the TEN-T roads. The Directive requires that Member States should calculate the **average social cost of a fatal accident and of a severe accident** occurring in their territory, and update them at least every five years.

Conference participants were invited to consider a set of five questions pertaining to the topic. As with the other sessions, these questions were also included in the background paper:

- Are the provisions within the current Directive, namely road safety audits and the black spot analyses, sufficient? Is there a need for a European methodology to measure the safety performance of the TEN-T?
- What could be the added value of the measurement of the safety performance of road compared to the four management instruments already included within the Directive?
- What data, procedures and ITS tools are needed for an efficient and reliable measurement of safety performance?
- What are the pros and cons of conditional funding?
- Should conditionality on EU funding be established more widely? Can it be reproduced at a national level?

Participants shared in plenary the most salient points they identified in relation with the topic and the questions:

- In general, there is a clear need for more detail in measuring the safety performance of roads, as a major support tool of the management procedures of the Directive, but also to support the accountability of authorities.
- More data (accident, exposure, performance indicators) should be collected, with sufficient frequency, possibly including cost of measures and accidents for cost-benefit/effectiveness analyses.
- Common data collection methods should be introduced. Compulsory measuring safety performance of roads by the Authorities would also be a good idea. Access to data should be facilitated and harmonized.
- More specifically, needs for data are numerous but they should fit the available budgets. There is a need for a balanced mixture of conditional funding.

A detailed record of the minutes of this session is provided in Annex I.



1.7 Concluding remarks

At the end of the Conference, the Commission made the following concluding remarks:

- The Commission emphasized their acknowledgment of the need to take vulnerable road users more into account. Although the scope of the Directive discussed is the TEN-T network, where the dominant traffic is not that of VRUs, there is certainly room for further thinking in terms of education, procedures, and managing speed, as well as sharing best practices.
- In principle, the Commission found that there was support for *intelligent transport systems* but also a clear expression of caution by a number of participants. In some areas the market might perform better than legislation. On the other hand, ways of promoting the sharing of all the types of information that contribute to road safety should be considered.
- The Commission also found the discussion on the *measurement of the safety performance* of roads quite conclusive. While participants all appreciated the fact that this sort of ranking requirement is in place, a need was identified to further develop and harmonize it, to make it more accessible and understandable for various purposes. The Commission will consider the steps to be undertaken in order to have more common and more accessible data.
- As far as further steps are concerned, a final evaluation report on Directive 2008/96/EC will be submitted towards the end of 2014, and the Commission will then consider further steps to be undertaken. This decision will also be informed by the outcome of the review of the Tunnel Directive, which is also in progress. The results of this stakeholder conference will be taken into account in the further work on the "Study on the effectiveness and on the improvement of the EU legislative framework on road infrastructure management (Directive 2008/96/EC)". For the ex post evaluation more interviews are planned and efforts are intensified to obtain the highest possible response rate to overcome a possible bias in replies. The comments made on the three final thematic sessions will steer the work on possible areas for the further improvement of road safety by providing focal points into the wide subject ranges.



Annex I: Minutes of the Conference

Study presentation: Introduction to the ex-post evaluation and impact of the implementation of the Directive 2008/69/EC

In its opening welcoming note, the Commission reflected briefly on the objectives and agenda of the stakeholder conference, outlining also the current status of the evaluation process of the Directive.

Ms Eef Delhaye from TML Leuven briefly outlined the study undertaken on behalf of the European Commission and the consortium making up the project team: Transport and Mobility Leuven (TML), Trasporti e Territorio (TRT), and Prospex. She then presented the background and overall objectives of the study.

An important input of the study was the stakeholder survey. This survey, whose aim was to collect data for the ex post evaluation, as well as input for further analysis, consisted of two questionnaires: one comprised 147 questions and was aimed at Member States relevant authorities, eliciting 26 responses (22 Member States, Belgium Flanders and Belgium Wallonia², as well as two non-EU Member States: Iceland and Switzerland); and a second one of 32 questions, which targeted other stakeholder groups and was sent out to 65 prospective respondents, eliciting 28 responses.

Mr Alessio Sitran from TRT went on to summarize the initial findings of the *ex post* evaluation of the Directive. The overall objective of the Directive comprised encouraging the integration of road safety in all phases of planning, design and operation; rules defined on procedures such as Road Safety Impact Assessments (RSIAs), Road Safety Audits (RSAs), Road Safety Inspections (RSIs) and Network Safety Management (NSM)³.

The methodology for the study is organized around three main phases: **understanding** (state of play, knowledge and data gathering, initial development of indicators), **evaluation framework**, and **analysis**. The criteria in use for the evaluation comprised *implementation, relevance, effectiveness, sustainability, coherence, utility, efficiency* and *EU added value*. They were then translated into evaluation questions and sub-questions. The final, **fourth stage** of the study was data collection, through desk research and Member State and stakeholder consultation via questionnaires and the conference, subject of these minutes.

The presentation made at the conference focussed on the results of the survey.

Preliminary findings pertaining to the *implementation* of the Directive revealed that there are no particular barriers or hindrances; when encountered, these consisted mainly of lack/poor capacity and not/or poorly consistent pre-existing legislative framework. Of the procedures established in the Directive, Road Safety Audits (RSAs) are the most applied (including prior to the Directive),

² Due to its federal structure, the regions making up the Kingdom of Belgium each have their own separate road authority responsible for implementing the Directive, and in possession of statistics and data relevant for the purpose of the survey.

³ It is worth underlining that the Directive does not include any specific acronyms for identifying each procedures. Acronyms are then derived from the existing literature on this topic and used to refer the single procedures within this report.

including on non TEN-T roads where procedures are compulsory in around half of the Member States, which goes to show the extension of these procedures outside the scope of the Directive.

As far as *relevance* is concerned, there is widespread appreciation of the fact that the Directive has encouraged a more systematic approach and the streamlining and standardization of procedures, as well as of the efficient use of resources. This is confirmed by the extension of procedure use to non TEN-T roads for most of the responding Member States.

In terms of *effectiveness*, deficiencies observed during audits and inspections are registered, but with different remedial actions depending on the administrative structure of each Member State. They tend to issue recommendations, which have to be taken into account when these remedial actions are followed through. Half of the responding Member States stressed the compulsory character of remedial actions. Although occurring prior to the Directive as well, the exchange of good practices between Member States, and between Member States and qualified organisations, was thus further encouraged. Training curricula for auditors are adopted in particular for RSAs and RSIs.

As far as *sustainability* is concerned, responses stressed the fact that there is an exchange of good practices, and that the Directive enhanced the mutual recognition of auditors and of training certificates issued for them. Procedures predated the Directive in many countries, and were in some cases extended beyond the scope of the Directive.

When applying the criterion of *efficiency*, analysis has shown that costs are usually included into the overall project costs; in most cases there is no specific budget allocation for the procedures for these costs. Most of the categories of costs incurred follow from audits (38%), are related to performing the audits (29%) or are administrative (19%). An important point relates to the fact that only one third of the Member States measure costs and benefits. However, respondents have not provided descriptions of methods of performing this cost-benefit analysis.

The responses offered by *non-MS stakeholders* paint a significantly more mixed picture. In the view of more than half of the respondents, the Directive has very much or much triggered improvements in the EU Member States' administration of road infrastructure safety management. However, only 14% of the same stakeholders considered that the Directive has contributed very much or much to increasing road safety, while 46% of respondents see only a moderate increase of road safety following from the Directive's contribution, and 37% see little and very little increase in road safety.

Session 1: Review of the preliminary study results

In response to the presentation of the preliminary results of the study, conference participants have put forth a variety of points, organized around the following three questions:

1. Do the results of the survey surprise you, or are they in line with your understanding of the issue?
2. Do you have any comments about the methodology (data sets, literature review, questionnaire, etc.) used in the survey?
3. Are there additional topic areas that should be addressed to increase the understanding of the issue?



Question 1: Do the results of the survey surprise you, or are they in line with your understanding of the issue?

- A number of participants were surprised to find out that only one third of Member States measured benefits, while others were pleasantly surprised that as many as that did measure benefits, given the difficulty. A participant outlined that data referred to only a third of responding Member States, not to all. Further surprise was manifested at the fact so few countries noticed an improvement in road safety.
The research team confirmed that countries with issues in implementation might be the ones not replying to the survey, but stressed the high number of responding Member States (23), which represents a good EU-wide coverage and paints a good picture of the situation. The team is in possession of an amount of data regarding audits and inspections, and is considering including them in the analysis in order to tackle the issue of actual implementation versus “paper implementation” at Member State level.
- A known problem of inherent bias was also raised: it is usually exemplary Member States that reply to questionnaires, as opposed to those encountering problems, who might not be implementing the Directive. The picture presented is rather good, but a different situation is encountered when examining implementation on the ground.
- Participants also raised the issue of actual performance versus the implementation of the Directive on paper, in order to be in line with requirements, and suggested measuring real performance by the number of road safety inspections and audits actually performed.
- Interest was expressed in the extension of the Directive to other sorts of roads, and in information on the break down per type of road, and which types of roads were involved. Stakeholders also enquired about the Commission’s prior knowledge that only 8% of answering non-Member State stakeholders believe that implementation went well.
- The Commission expressed a certain degree of surprise at the limited enthusiasm of respondents regarding the contribution of this Directive to road safety. This is more so taking into account the respondents’ appreciation of the systematic approach to road safety brought by the Directive, and the extension of the Directive’s application beyond the TEN-T network, which forms its scope. The Commission found this an indication of the Directive being appreciated and acknowledged. Moreover, the Commission stressed the fact that, according to investigations, infrastructure is hardly ever the sole cause of an accident but rather a contributing factor, which can increase the consequences.
- A concern was raised that not all stakeholders have been consulted in the implementation of the Directive at national level, and they have as such seen no improvement with regards to road safety of PTW. In this sense, the Directive is not sufficiently detailed regarding different categories of road users, some of who do find infrastructure a problem.
The Commission stressed the fact that the stakeholder consultation process is still ongoing, and that motorcyclist associations have been invited to participate. This is of particular interest, given that accident figures are on the rise among this category of vulnerable road users, and the incidence of driver errors is remarkably high in the case of motorcyclists.

Question 2: Do you have any comments about the methodology (data sets, literature review, questionnaire, etc.) used in the survey?

- Some participants wondered whether the study took into account response rates and which countries have replied. When preparing the study and identifying the questions, the way the questions are defined is extremely important. The consortium should have been in contact with the key players when defining the questions, to make them more relevant and focused.
- There is a need to find out more about how the views of the non-respondents compare to those of respondents. A tremendous bias in results might result otherwise. Another bias



may result from the way in which the research team tackled the issue of different respondents in the same country providing different views on the same subject. Authorities tend to be more positive, while experts tend to be more negative. It is interesting to know how the research deals with representation by country compared to the diversity within the same country.

In response, the research team stressed the fact that, as far as the validation of answers is concerned, the analysis of the survey is complemented by other data being collected and by follow-up interviews with experts. They admit that some data are difficult to get, so additional data from case studies will complement them. Further exploration of cost and benefit analysis data will be performed. The main evaluation criteria fuelled different questions, and they were related to indicators. For each indicator, methodology to measure them was also developed.

- Concerns were also raised by the slight difference in the descriptions of the procedures from the definitions in the Directive.

The research team responded that they had been crosschecked with the currently available literature, condensed based on it, and are as comprehensive as possible. However, the consortium team also underlined their willingness to take on board any suggestions from participants regarding further studies, literature or data that the research needs to take into account.

Question 3: Are there additional topic areas that should be addressed to increase the understanding of the issue?

- It was stressed that motorway safety is part of the whole management approach, and therefore a holistic approach was thought to be missing. There is a need to insist on the role of the driver and on the information the driver will find regarding the infrastructure used. An agreement regarding a common understanding of performance needs to be reached, and performance indicators have to be subsequently identified. Interconnectivity between drivers and infrastructure has to be created.

- Participants wanted to know whether respondent Member States found the cost-benefit analysis positive. They also drew attention to the fact that the part of the infrastructure covered by Directive is the safest type.

The research team replied that with regard to cost-benefit analyses (CBAs), very little quantitative information followed from respondents.

The Commission expressed a measure of disappointment that respondents who do perform cost-benefit analyses did not provide actual data in this respect.

The research team identified the differences in how the CBA is performed in each country as one possible reason preventing respondents from volunteering hard data.

- Regarding methodology, a suggestion was made to find basic criteria, such as the number of accidents over time, in order to compare trends and give an objective indication.
- It was pointed out that authorities are apprehensive about inspections revealing low efficiency. Audits are therefore often directed towards locations where results would be positive, and not where they could be negative. In some countries the legal framework might even stipulate sanctions for authorities in the case of negative inspection results. Problems tend to be hidden because of political or legal consequences. This pertains to the difficulty in having relevant measures and systems of measurement.



Session 2: Vulnerable road users in relation to the Directive

Professor George Yannis gave a general introduction to the topic of vulnerable road users (VRUs), which are commonly understood as non-motorised road users (cyclists and pedestrians), and powered two-wheelers (PTWs). They represented approximately 43% of all road victims in 2012 in the EU. PTWs, pedestrians and cyclists interact with traffic of high speed and mass. They suffer the most severe consequences in collisions with other road users because they cannot protect themselves against the speed and mass of the other party.

Road Infrastructure Measures that can be taken to reduce the future number of crashes involving pedestrians and cyclists, and/or to decrease the severity of resulting injuries, relate to:

- Separation of motorized traffic from non-motorised traffic,
- Area-wide speed reduction,
- Provision of walking and cycling networks,
- Proper design of pedestrian and cyclist facilities,
- Technical standards developed to meet the needs of VRUs,
- Application of ITS tools to improve safety for VRUs.

The Directive addresses Vulnerable Road Users only generally, as a part of the procedures of Road Safety Impact Assessments, Road Safety Audits and Inspections, and Network Safety Rankings. No specific instructions are provided in the Directive on how vulnerable road users shall be taken into consideration.

The Directive applies compulsorily only to the TEN-T network, which mainly comprises motorways and expressways, where cyclists and pedestrians are not entitled to transit, therefore the benefits for these groups of VRUs are limited. PTWs are therefore the most affected VRU group.

The Directive can play a role by establishing a practice where technical standards for design, construction and maintenance are developed to meet the needs of vulnerable road users in general.

Reaction from participants

Conference participants were then invited to consider a set of four questions pertaining to VRUs. All sets of questions for every topic of discussion had also been made available in the conference background paper sent in advance to the participants:

- Does the Directive take adequately into account all road users? Which road users are not sufficiently addressed? Why?
- How could the safety of vulnerable road users be improved? Technical standards are one tool, but what other instruments are there?
- Which standards could be further developed to improve road safety for VRUs on road infrastructures falling under the scope of the Directive?
- Which ITS tools could be developed to improve road safety for VRUs on road infrastructures falling under the scope of the Directive?

After working individually and in groups, the spokesperson from each group then presented the most salient points identified in relation with the topic and the questions. They paint a very mixed picture of opinions and standpoints, as can be seen below:

- The Directive doesn't address all VRUs as they fall outside its scope. However, should the Directive be extended beyond the TEN-T network, more attention should be paid to cyclists and pedestrians.



- National auditors should be better supported in Member States. Currently national auditors do not have enough resources to provide an actual implementation of the Directive.
- There is no need for new ITS tools but for a better implementation of existing ones.
- The Directive mentions VRUs, and this is enough as a general indication. It is the responsibility of the Member States to correctly implement it. However, guidelines on how to implement the tools in all road areas are needed, as well as an exchange and dissemination of best practices. In addition, there should be a better dissemination of results of projects co-financed by the European Commission. There are several manuals, procedures and tools dealing with these issues, but they are not known.
- The Directive is okay for the TEN-T network, some procedures are used for other roads in some countries, and are not compulsory. Try to encourage the procedures.
- The Directive could encourage and support evaluation and exchange of best practices in order to harmonise the management of public spaces and disseminate best practices across Member States and to support appropriate road standards for all kinds of users. Include feedback from road safety audits and inspections.
- Support the development of dedicated road safety audit trainings (organised differently by different types of roads).
- Technical design standards in relation to the network for VRU are not mentioned in the Directive, but could be added to its general framework.
- A specific point in the technical design for VRUs is the continuity of path networks.
- Support the development of best practice guidelines for VRUs beyond the TEN-T.
- Prioritise speed management and examine how infrastructure can handle speed (forgiving roads).
- Directive is dealing with management of road safety, and not design; however, some countries face problems because they have a lack of capacity and attention given to VRUs.
- We need to streamline design standards across borders (needs to be addressed at EU level).
- Map high concentration stretches for accident incidence of PTW at EU level.
- Improve data collection and harmonisation of methodology.
- Before accidents happen set minimum performance levels for road elements in terms of safety.
- Standardisation of the deployment of equipment is also called for.
- Directive is a framework about procedures, but when you deal with VRUs we are talking about design standards and measures, and they don't fall under the Directive.
- Set up specific targets for the number of accidents/casualties for different categories of road users in terms of vulnerability.
- There is a harmonised approach to safety in the Directive, and no categorization.
- Technical standards cannot be used for the safety approach, because everybody has a different approach to what safety is. Instead, we need (technical) guidelines and the standardisation of safety globally. ITS are dangerous for VRUs because they increase the distraction of users and may cause more accidents.
- Problems with the implementation and integration of VRUs differ across countries, and the best way to address this complexity is to work with different VRU Organisations.
- The Directive/EC could provide tools to have concrete ideas about what Member States should do when accidents that are infrastructure-related occur.
- Work towards minimum standards for design for all road users, and rate roads based on this.
- Taking a small part of the Directive that deals with VRUs, and making it the focus of a new Directive would be going too far. The focus of the Directive is the motorways.



Professor George Yannis summarized a series of concluding remarks based on the participants' contributions. As a general remark, there is a need to introduce procedures dedicated for VRUS, **customised for the different VRUs and for the different types of roads** (e.g. dedicated auditors and expertise). In terms of data – performance – knowledge, there is strong support to collect **data** dedicated for VRUS; to evaluate **safety performance** (for the different VRUs and for the different types of roads); and to develop **knowledge** dedicated to VRUs, by exploiting existing knowledge (tools, manuals, research results, best practices).

A series of specific topics were also raised, which are of particular significance:

- The need for appropriate road design **standards** in relation to VRUS, and to introduce minimum standards;
- **Manage speed** - self-explaining roads, forgiving roads also for VRUs;
- A need for **ITS** dedicated to VRUs.

Session 3: Role of Intelligent Transport Systems in the Directive

The speaker, professor George Yannis, gave a general presentation on the role played by Intelligent Transport Systems (ITS) in road infrastructure.

Intelligent Transport Systems refer to systems in which information and communication technologies are applied in the field of road transport, including infrastructure, vehicles and users, and in traffic management and mobility management, as well as for interfaces with other modes of transport, in order to make safer, more coordinated and 'smarter' use of transport networks. ITS that enhance road infrastructure safety can include: traffic events detection, traffic data collection, accident data collection, accident prevention, real time provision of traffic weather or event information, information on the current condition of road infrastructure, etc.

No specific instructions are provided in **Directive 2008/96/EC** on how to deploy ITS across the EU. ITS are mentioned as part of the procedure for Network Safety Rankings. Nevertheless, the **ITS Directive** (Directive 2010/40/EU) instead provides the framework for the development of specifications to address the compatibility, interoperability and continuity of ITS solutions across the EU.

Reaction from participants

Conference participants were invited to consider a set of five questions pertaining to ITS. These questions were also included into the briefing document:

- Should ITS be further considered in the road infrastructure safety management?
- How could ITS play a stronger role in facilitating road infrastructure safety management?
- Which kind of ITS Systems shall be further developed in relation with Directive 2008/96/EC?
- Could ITS be applied to road safety audits and inspections?
- Is there a need for further legislation in this area? Are the existing technical standards sufficient?

As before, a spokesperson from each group then presented the most salient points identified in relation with the topic and the questions:

- ITS Directive is younger and some countries are still struggling to implement the RISM Directive. We should wait a few more years to see how the Directives are interacting.
- Road authorities can use the Directive if it makes sense, so there is no need for further focus on ITS in the infrastructure Directive.



- ITS is an asset for the whole infrastructure development and the whole traffic system, but we need more projects would be helpful, as well as broader deployment. ITS tools that could be developed include traffic management systems, speed management, and section control.
- It will become important to include ITS functions in safety inspections, e.g. sensors regarding weather conditions can be affected by wildlife and give wrong readings.
- There is no need for legislation, but there needs to be a better exchange of best practices and examples to get everybody going in the same direction and improve harmonisation.
- ITS can help to achieve closer integration between all road users with the objective of increasing road user awareness regarding traffic conditions.
- ITS included in infrastructure planning as a tool to solve problems can help evaluating it like you do with other infrastructure measures.
- Need to integrate infrastructure planning.
- ITS equal innovation, they are about connectivity between vehicles, users and infrastructure.
- Set minimum standard for markings and for maintenance. Benefits include: new vehicles and ITS can interact, and vehicles stay within the road lane; speed is also controlled.
- Each car has in-car event data recorders; gain access to data recorders, and understand what was happening to vehicles leading up to collision.
- Use existing in-car sensors to monitor environmental and surface conditions, and the interaction with road surface. Then convey this information back to the road administrators, who can use it to define responses, and to provide information/information campaigns back to road users.
- Information on speed of vehicles can help gaining understanding of road conditions in the area.
- Use ITS equipment when making recommendations during for road safety audits.
- There is no need for further legislation, rather foster availability of data collected during audits should be made available, by ranking for re-use, and help foster best practices.
- Member states should remain in charge of ITS implementation depending on their means and needs.
- More cross-referencing between the two Directives is called for.
- Real-time monitoring helps provide real-time information to road users of an impending safety hazard (e.g. incident ahead, flooding).
- CCTV monitoring enables the monitoring of road user behaviour, in order to determine problem areas. It also helps to obtain higher quality data collection (e.g. Road Safety Ranking and RSIs).
- Information required can be obtained from monitoring and gives higher data collection quality.
- RISM Directive applies to ITS projects at their design stage; once the ITS system is in operation, it is only a matter of maintenance.
- The ITS Directive is very detailed; legislation is necessary to establish the framework and minimum requirements because technology is advancing at a fast pace.
- There should be a harmonisation of IT language, as this helps with cross-border communication.
- Standardisation of manufacturers across Europe would also be needed.
- The question of what information is given to user and how has to be dealt with.
- Personal security is important (personal data and data misuse).
- Road authorities are already gathering a lot of information when people are travelling. Data protection concerns are important, but they should not prevent us from data collection.



- There was disagreement among a number of participants on whether the Directive should tackle ITS systems and how they should be implemented. Traffic management systems may cause accidents, as drivers are looking for alternative roads to avoid traffic jams.
- Further disagreement referred to whether traffic lights management systems fall under the scope of the Directive. Furthermore, there are safety concerns related to sensors failing to detect certain road users (bicycles, motorcycles) or drivers' focus on traffic flow increasing the risk of jumping red lights.

The session was rounded off with a series of concluding remarks by Professor George Yannis, summarizing the participants' contributions:

As a general remark, ITS (especially V2I connectivity) are innovation, and they are the future, but **legislative steps should be cautious** and in parallel to the ITS deployment and the related Directives. More demonstration projects and more ITS deployment are needed. ITS can play a manifold role: as **applications supporting safer traffic**, providing information to the driver (infrastructure, traffic, weather conditions), supporting enforcement (Section control), and as e-cal applications. They can be further used as a **tool supporting road infrastructure safety Management**: for audits and inspection; in accident investigations (car recorders); for the collection of necessary data. As such, auditors should include ITS solutions in their proposals. A series of specific topics were salient: ITS **harmonisation** and standards are needed and a process should be set; **data protection** should be respected in all processes; and infrastructure related ITS should also be audited and **evaluated**.

Session 4: Measurement of the safety performance of the roads

Professor George Yannis introduced the topic in a general presentation on the measurement of the safety performance of roads.

Measuring the safety performance of road infrastructure is necessary to:

- **Set casualty reduction targets** on the basis of a road safety management process.
- Support public authorities in their decision-making process for **funding allocation**, either for investments in new roads or for maintenance or upgrading of existing roads.
- Support public authorities in the commitment to a certain **minimum safety level** for roads in operation.
- **Justify** operating **road safety measures**, such as speed limits and traffic bans.
- Assess the **progress** of road safety measures implementation.
- Assess the **effectiveness** of implemented road safety measures.

The measurement of the safety performance of road infrastructure may be developed in different ways:

- By defining key **performance indicators** targeted to certain road users:
 - Accident-based indicators: number of accidents, number of fatalities, accidents per vehicle km, fatalities per vehicle km, etc.
 - Speed Data: Average speed, operational speed etc.
- By applying a **risk assessment method** to predict the likelihood of an accident in a given time and place.

It is worth recalling that the Directive **does not contain any specific provision** on measuring the safety level of a road. Instead, the Directive provides a framework to ensure that safety is adequately addressed during the road lifecycle (through Road Safety Impact Assessments, Road Safety Audits, and Network Safety Ranking and Management).

As far as road safety data collection is concerned, the Directive provides minimum requirements regarding the accident information to be included in **accident reports** on the TEN-T roads. The Directive requires that Member States should calculate the **average social cost of a fatal accident and of a severe accident** occurring in their territory, and update them at least every five years.

Reaction from participants

Conference participants were invited to consider a set of five questions pertaining to the topic. As for the other topics, these questions were also included in the briefing document:

- Are the provisions within the current Directive, namely road safety audits and the black spot analyses, sufficient? Is there a need for a European methodology to measure the safety performance of the TEN-T?
- What could be the added value of the measurement of the safety performance of road compared to the four management instruments already included within the Directive?
- What data, procedures and ITS tools are needed for an efficient and reliable measurement of safety performance?
- What are the pros and cons of conditional funding?
- Should conditionality on EU funding be established more widely? Can it be reproduced at a national level?

Participants shared in plenary the most salient points they identified in relation with the topic and the questions:

- The Directive needs to be clearer and more explicit about the best ways of measuring risk; better steering in this respect would be helpful.
- A call for more data on key performance indicators, and data on death/serious injury per vehicle km travelled (work done by the PIN Programme); if possible, break data down per user type and speed data. The Member States should be mandatorily required to provide such data.
Data collection on other roads has been done and can be accessed by interested parties.
- Safety performance should be defined as a matrix, not scale (identify its columns and rows), and then one can easily see how to identify the proper indicators.
The RISM Directive was good at the time, it responded to elements that were obscure back then. But we don't know if the 28 Member States have a common understanding of the auditors' minimum standards.
Inspections are rather vaguely defined (e.g. is the "competent entity" understood in the same way in all Member States?) Bottom-line: there is stringent need to identify and set common minimum standards for auditors, and clearly define inspections and the frequency thereof, in order to safeguard at least a minimum level of risk.
It is easy to call for performance indicators, but they require work, and it takes 3 years to define performance. ASECAP uses the term 'serviceability', where safety is a part of the serviceability matrix, together with comfort level, speed, and the information received by the driver.
The difficulty with defining the frequency of inspections across the entire European network is that a lot of road authorities already have a series of methods in place to determine safety. A lot of resources are needed to do inspections, to identify works needed, and which are then prioritized, so each road authority needs to define the frequency individually, especially given the specifics of each country. It should be done at road authority level, not at EU level.



- The EU should not put down an exact number for the frequency of inspections. One specific procedure requires the allocation of many resources. In many countries the Directive applies to the safest roads and those also get inspected most often.
- The access to (accident and other) data is sometimes difficult (for privacy or business reasons). Action is only possible at EU level to facilitate and harmonize the rules to gain access to such data.
Users travel across Europe, so a harmonisation of all the important points relating to the perception of the users is important.
- European-based data collection methods would be useful in relation to information regarding the circumstances of accidents.
Sometimes it is not important to have a standard way of collecting data, but to be aware of the right contact points to obtain the information required in the format needed.
- There are issues with road pricing introduced in parts of the network: How does one make the decision (for a safer or for a cheaper road)? Who can afford safe roads?
Roads are either safe or unsafe, but that has nothing to do with pricing schemes; in the end, somebody pays for them, as they are, and that's in most cases the taxpayers.
Safety is nevertheless linked to the funding, and to the conditionality of the funding.
Roads constructed today might be safe based on current standards, but that might not be the case in 5 years. We can later manage how traffic can be safe on that road.
- Tools to predict what the future crash outcome of a road would be do exist, and one can tell on new builds whether the road would be 2 stars, 3 stars or 4 stars.
- EIB deals with well-defined investments in roads. They need to follow how the money is being used to insure the client gets their worth in safety. Define clearly the minimum data requirements; that would be helpful for banks to indicate to clients what they need to have in place.
- Public procurement approach to move from cheapest option to best value for money.
Performance indicators might be misleading, when the measurements are not compatible across roads (e.g. comparing accident data on roads that are crossed by ten pedestrians/day versus roads crossed by hundreds or thousands of pedestrians/day).
- State/regions/communes decide on conditions of a road (based on needs and available funds), and they define quality and costs in a tender. The quality characteristics of the roads planned differ among roads from the very design, depending on resources. Enforcement tools will subsequently also be different later on: on roads that were designed and executed as less safe from the beginning, the communes or regions will simply define further safety measurements (e.g. low speed limits, function of what the road can manage in a safe way).

Professor Yannis summarized the viewpoints shared in the plenary, and gave a series of concluding remarks on this session's topic. In general, there is a **clear need for more detail** in measuring the safety performance of roads, as a major support tool of the management procedures of the Directive, but also to support the accountability of authorities.

More data (accident, exposure, performance indicators) should be collected, with sufficient frequency, possibly including cost of measures and accidents for cost-benefit/effectiveness analyses.

Common data collection methods should be introduced. **Compulsory measuring** safety performance of roads by the Authorities would also be a good idea. **Access to data** should be facilitated and harmonized.

More specifically, needs for data are numerous but they should **fit the available budgets**. There is a need for a **balanced mixture of conditional funding**.



Conference concluding remarks

The research team thanked everyone for their contributions, and tackled the next steps. Firstly, they emphasized the fact that work on the survey is continuing; the report and more input would be publicly available in due time. Secondly, another part of the study was the preliminary evaluation of further topics to tackle, and the team would definitely take on board participants' suggestions in that sense.

The Commission emphasized their acknowledgment of the need to take *vulnerable road users* more into account. However, the scope of the Directive discussed is the TEN-T network, where the dominant traffic is not that of VRUs. There is certainly room for further thinking in terms of education, procedures, and managing speed, as well as sharing best practices.

In principle, the Commission found that there was a lot of support for *intelligent transport systems* but also a clear expression of caution by a number of participants. The Commission understood that it shouldn't attempt to legislate in areas that are better dealt with by the market itself. On the other hand, ways of promoting the sharing of all the types of information that contribute to road safety should be considered. There is still a lot of room for ITS use in order to inform road users of the infrastructure condition.

The Commission also found the discussion on the *measurement of the safety performance* of roads quite conclusive. While participants all appreciated the fact that this sort of ranking requirement is in place, a need was identified to further develop and harmonize it, to make it more accessible and understandable for various purposes. The Commission will consider the steps to be undertaken in order to have more common and more accessible data.

As far as further steps are concerned, the Commission emphasized that recordings of the conference would be made available on their website. All individual stakeholder contributions would also be made public, unless there is express indication to the contrary from the stakeholders themselves. Full transparency of the consultation process will thus be ensured.

Towards the end of 2014, the project consortium will submit its evaluation report and once the report is approved it will be made available on the European Commission's website. The Commission will then consider further steps, as a review of the tunnel Directive is also on-going. The EC will also consider whether to propose to merge the two road infrastructure related EU Directives into a single piece of legislation. A legislative proposal could be developed following a formal impact assessment but only if a clear benefit for road safety can be demonstrated. In such a case, 2015 would be a year of internal work, after having gathered input as much as possible from all stakeholders concerned.

The Commission also noted that under the existing Directive a comitology procedure is also in place, where experts from Member States regularly meet, which is meant to provide for an exchange of good practices among the Member States, as stipulated in the Directive.

The Commission stressed the fact that Member States have no formal reporting obligation under this Directive. Instead, Member States have to provide their national guidelines to the Commission, and these are published in the original languages on the Commission's website.

