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Road safety data and information availability and priorities in South-East European regions

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Abstract

While road deaths have been reduced by 53% in the European Union (EU) between 2001 and 2013, in South East European (SEE) members reductions vary from 64% (Slovakia) to 24% (Romania) indicating a significant diversity in the road safety level in the region and the need for urgent improvements. Moreover, the poor performance in the SEE countries is slowing down overall progress at EU level. ROSEE- ROad safety in South-East European regions is an EU co-funded project undertaken in Italy, Romania, Hungary, Greece, Slovenia and Bulgaria. ROSEE aimed at improving coordination in planning and operation of national and regional road networks with an emphasis on improving accessibility and road safety. The objective of this paper is to present the results of a survey conducted among a large panel of road safety stakeholders in SEE countries, aiming at assessing what they considered to be priorities and necessities in terms of scientific data, information, and tools to conduct their road safety activities. A questionnaire comprising of the following sections was used for the assessment: (a) background information; (b) data and resources for fact finding and diagnosis of road safety issues; (c) data and resources for the development of road safety related programmes; (d) data and resources for the implementation of road safety related measures; (e) data and resources for the monitoring and evaluation of road safety measures. In sections (b) to (d), the respondents evaluated each listed item on two dimensions: the perceived priority for their personal work, and the perceived availability at the level of their country (i.e. the extent to which, according to their knowledge, the item in question was available would they want to use it). In total, 112 questionnaires were analysed. Combined priority and availability ratings as well as ranking of priorities and identification of highest priorities per country was achieved. Furthermore, policy makers' priorities were analysed separately. The analysis of the collected responses revealed that stakeholders expressed significant demand for data and knowledge in road safety-related decision making. They also expressed discontent about the current poor availability of such information. Groupings of the road safety needs and priorities of the different stakeholders were also performed.

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1. Introduction

South-East Europe regions are among the worst road safety performers in Europe, suffering higher road injury and mortality rates and slower and causality reduction trends than the EU average. In 2013, the road fatalities per population rate in countries such as Romania, Bulgaria, Greece, and to a less extent Slovenia and Hungary was above the respective European Union (EU) average of 51 fatalities per million population.

Within this framework, the project titled “Road safety in South East European regions –ROSEE” of the South East Europe (SEE) Transnational Cooperation Programme was assigned to a consortium of institutes from Italy, Romania, Hungary, Greece, Slovenia and Bulgaria. One of the project tasks was the analysis of the situational and policy framework of participating SEE regions and the proposal of a data-led approach to improve coordination in planning and operating road networks from a road safety perspective. In order to complete this task, it was necessary to fill in the gap in knowledge on road safety policy making processes, the institutional framework and the data, methods and technical tools needed to base policy formulation and adoption on scientifically-established evidence. The availability of road safety data and information in the ROSEE countries needed to be examined. The findings would reveal the needs and priorities of local road safety stakeholders. Satisfaction of these needs and priorities would be a first step towards an evidence-based decision making by local road safety stakeholders concerning future actions for the improvement of road safety in South-East Europe. If all needed road safety information and data are available to stakeholders, they will be able better understand the existing problems and select the most effective measures to tackle them .

The objective of this paper is to present the results of a survey conducted with a large panel of road safety stakeholders in SEE countries, aiming at assessing what they considered to be priorities and necessities in terms of scientific data, information, and tools to conduct their road safety activities.

Firstly, the methodology adopted for the collection of input from road safety stakeholders in the SEE is presented. Then, indicative results on the key examined subjects in all partner countries are presented and compared. Finally, findings and the conclusions that may be derived.

2. Methodology

One key task within the ROSEE project was to assess demands and views of road safety stakeholders in each partner country. This was critical to identify which data and tools are required by road safety stakeholders in partner countries and better understand the viewpoints of stakeholders who may not be directly involved in decision-making.

To complete this task the “Stakeholders (STA) questionnaire” was used. The STA questionnaire is a tool developed to record the needs and priorities of stakeholders on road safety related data and information. The STA questionnaire was firstly developed in the framework of the EU co-funded research project DaCoTA, for the conduct of a stakeholder survey assessing the scientific input (information, data, tools etc.) that actors, involved at various levels and in various areas of road safety, consider important and necessary for their work. The survey was designed on the basis of a theoretical framework describing the key tasks and sub-tasks making up the Road Safety Management process, also developed in the framework of the DaCoTA project. The decisions to be taken in the context of each of these road safety management tasks need to be supported by scientific knowledge and tools. The relative framework is consequently bi-dimensional (type of road safety management task and type of scientific support associated with it) and is often referred to as to the “RS management matrix”. This framework decomposes the RS management process into 4 main tasks (Papadimitriou et al, 2012):

- Fact Finding
- Programme Development
- Preparing Implementation
- Monitoring and Evaluation

and can be coupled with 4 types of scientific support:

- Data
- Tools for data treatment
- Other decision-support tools
- Training tools.

The questionnaire was constructed in two parts. The first one aimed at collecting “background information” allowing to better describe the stakeholders’ involvement in the field of road safety, such as: their country of work, the type of organisation they worked for, the types of activities they were primarily involved in concerning road safety, the level of influence they attributed to their organisation in terms of road safety management, and the extent to which they resorted to international/national databases to perform these activities.

The second part consisted in a list of items structured along the key Road Safety Management tasks. All items listed in correspondence to a given task had been identified as important and/or unavailable by a panel of experts previously interviewed. The respondents were asked to evaluate each listed item on two different dimensions: (1) the perceived priority for their personal work, and (2) the perceived availability at the level of their country (i.e. the extent to which, according to their knowledge, the item in question was available would they want to use it) (Papadimitriou et al, 2012).

The priority ratings were made on a scale comprising four response options: “High priority” (3); “Medium priority” (2); “Low priority” (1), and “Not relevant to my work” (0). The availability of each item was evaluated on the basis of the following response options: “Already available” (3); “Partially available” (2); “Currently not available” (1); “Unknown” (0).

Within the ROSEE project, the existing road safety stakeholders’ needs and priorities assessment framework was updated with data from all partner countries using the above described questionnaire. The STA questionnaire was sent to all partners in order to be filled in by every member of the National Advisory Group (NAG) which was established in each partner country and comprised of an adequate number of key road safety stakeholders. In an effort to increase the number of completed questionnaires and consequently to achieve more accurate and reliable results, STA questionnaires completed in the framework of the DaCoTA project, in 2011, by road safety stakeholders coming from the ROSEE partner countries, were retrieved and also included in the analysis of results. In few cases of stakeholders who completed the STA questionnaire within both the ROSEE and the DaCoTA projects, only the one completed within ROSEE was included in the analysis.

In total, 112 questionnaires were included in the analysis, 23 from Italy, 23 From Romania, 14 from Hungary, 22 from Greece, 20 from Slovenia and 10 from Bulgaria.

In all countries, most of the respondents had a significant experience in the field of road safety (over 10 years), thus the information they provided is considered accurately and reliable.

Experts from all countries stated emphatically the high importance of data and knowledge to support road safety activities. However, less than 2 out of 10 experts from each country are satisfied with the available road safety data and resources. This is a clear indication of the urgent need for the improvement of data and information availability with regard to the improvement of road safety in SEE countries (Yannis and Laiu, 2014).

In the following sub-chapters, indicative results of the STA questionnaire are presented and discussed. The full set of results are available in the ROSEE project deliverable titled “Transnational Report on road safety in South-East European regions”.

3. Road safety needs and priorities in SEE countries

3.1 Data and resources for fact finding and diagnosis of road safety issues

Considering data and resources needed for the identification of specific road safety problems, the general problem of underreporting of road accidents was highlighted by the stakeholders who, in their vast majority, consider the availability of relevant data a high or medium priority but to most of them, such data are only partially available (Figure 1).

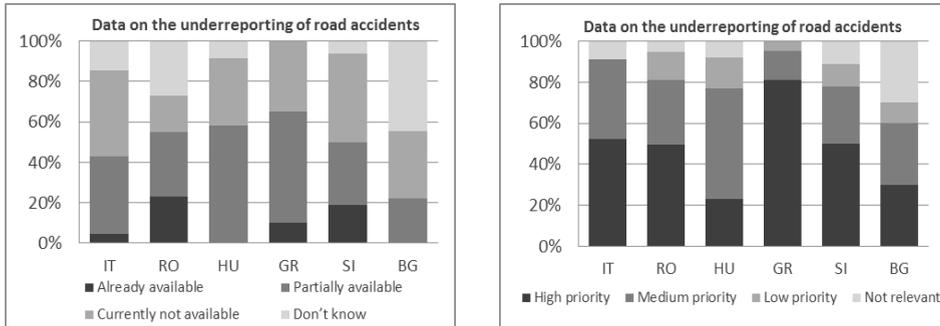


Fig. 1. Data on the underreporting of road accidents – availability and priority.

Another important resource that would also be useful for tackling the underreporting problem is the availability of road accident databases that link data from the Police and the hospitals. In all countries, such accident databases are of a high priority to an important number of road safety stakeholders. However, at the moment these databases are not available to the majority of stakeholders, with some exemptions mainly in Bulgaria and to a lower degree in Slovenia and Romania (Figure 2).

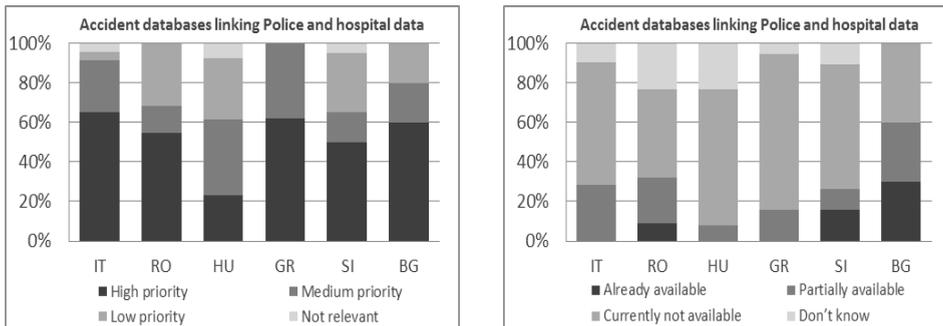


Fig. 2. Accident databases linking Police and hospital data – availability and priority.

As road users are considered the most important factor of road accidents it is not surprising that information on their behaviour and accidents are highly prioritized by more than 50% of road safety stakeholders in all countries. On the other hand, availability of such information is rather limited to almost the same percentage of stakeholders (Figure 3).

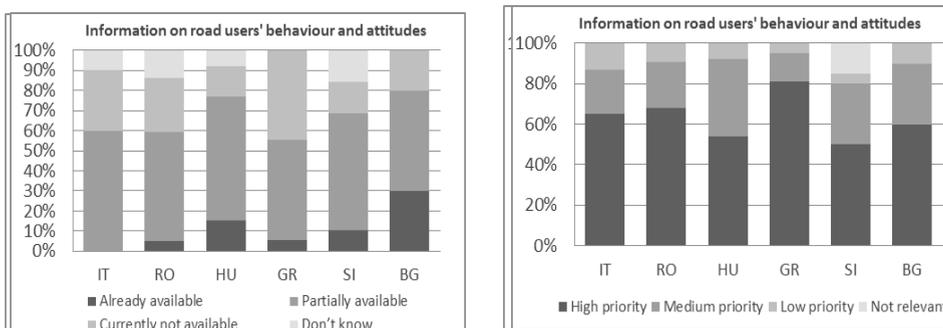


Fig. 3. Information on road users' behaviour and attitudes – availability and priority.

Apart from information on road users' behaviour and attitudes, it is shown that road safety stakeholders are also very interested in acquiring information on road accident causation factors in general, in order to be able to select the most appropriate countermeasures. An interesting finding on this issue is that such information is already available to almost 70% of road safety stakeholders in Hungary, to almost 35% and 30% in Slovenia and Bulgaria respectively, but to approximately only 10% in Romania and Italy and to even fewer stakeholders in Greece (Figure 4).

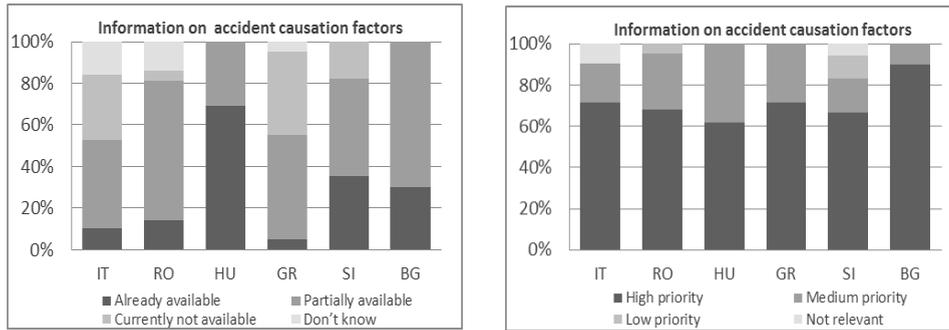


Fig. 4. Accident causation factors – availability and priority.

It must be noted that the true cause of accidents can only be revealed through an in-depth accident analysis. The results described herein are based on expert opinions, not hard data, and should be treated as such.

3.2 Data and resources for the development of road safety related programmes

In order to be able to develop the most appropriate and successful road safety programmes, relevant stakeholders are in need of specific information mainly concerning measures. One important issue is to have standardised procedures and methods for carrying out evaluations of road safety measures and thus acquire comparable results on their effectiveness. Such procedures are currently available in all countries, although to a rather low percentage of road safety stakeholders, and partially available to the majority of them with the exemption of Greece and Slovenia (Figure 5).

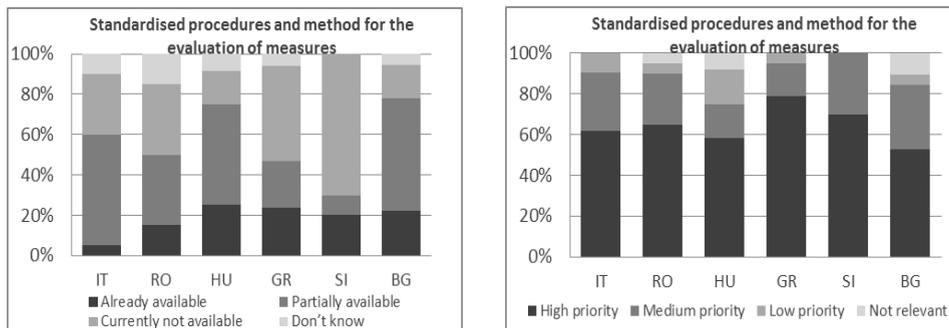


Fig. 5. Standardised procedures and method for the evaluation of measures – availability and priority.

As road safety budget limitations exist in all SEE countries, it is very important for relevant stakeholders to gain as much information as possible on the costs and benefits of a road safety measure. Therefore, the vast majority of experts in all countries stated that relevant information is of high priority. Still, approximately 1 out of 10 has this information already available (Figure 6).

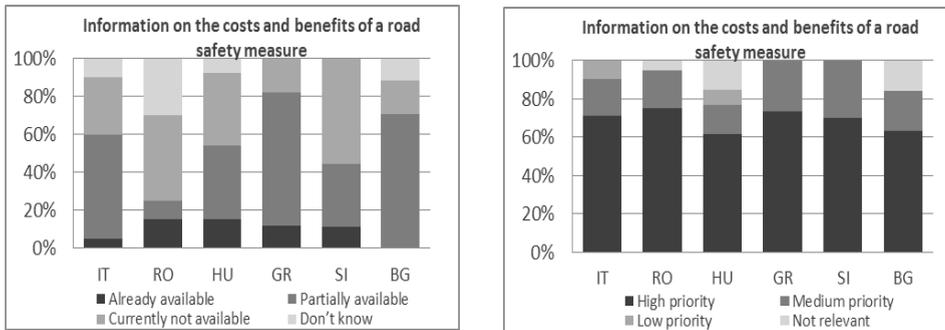


Fig. 6. Information on the costs and benefits of a road safety measure – availability and priority.

A critical issue for the successful implementation of road safety measures is their acceptance by the public. This seems to be recognized by many stakeholders in all countries (ranging from 30% to almost 80%) for which information on the public acceptance of a road safety measures is highly prioritized. This information is already available to relatively low percentages of stakeholders in all countries but Italy and Romania where it is only partially available (Figure 7).

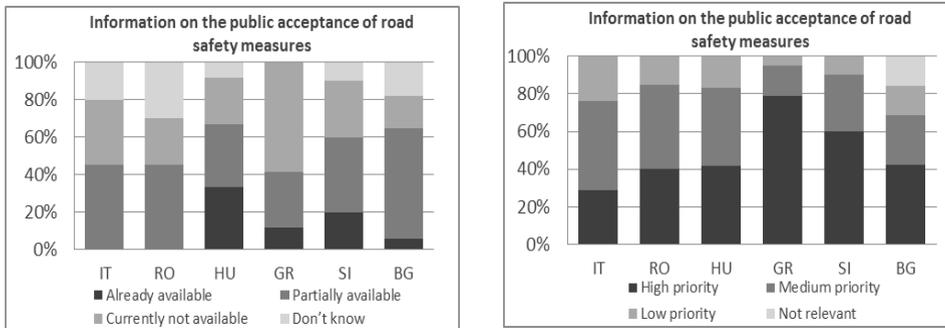


Fig. 7. Information on the public acceptance of road safety measures – availability and priority.

Good practice catalogue of measures including implementation conditions are also necessary for the development of successful road safety strategies. Availability of such catalogues allows for the comparison of the actual conditions that need to be tackled to similar situations elsewhere and for the selection of the most effective measures. This seems to be recognized by the majority of stakeholders, as more than 50% of them in each country give it a high priority. On the other hand, good practice catalogues of measures including implementation conditions are currently available to approximately only 20% or less of the road safety stakeholders in each country (Figure 8).

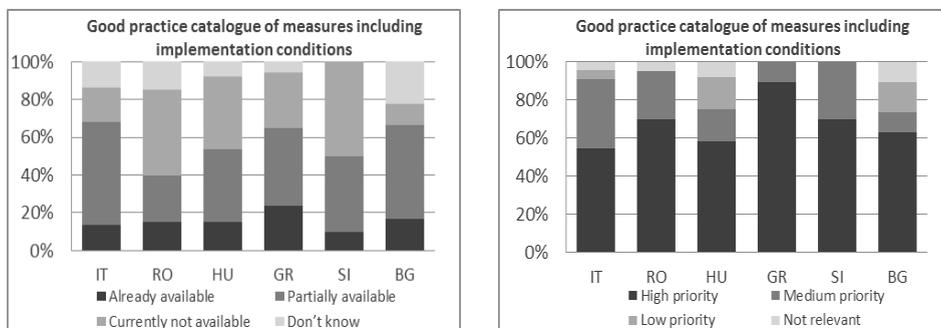


Fig. 8. Good practice catalogue of measures including implementation conditions – availability and priority.

3.3 Data and resources for the implementation of road safety related measures

The exploration of road user behaviour is the subject of an increasing number of studies and new methods are introduced on this purpose. Simulation of road user behaviour is one of the most popular methods at the moment. Therefore, it was not surprising a high or medium priority to tools for simulating road user behaviour was given by almost 80% or even more of the stakeholders in all countries except Hungary. At the moment, it seems that such tools are available to very few stakeholders and mainly in Italy (Figure 9).

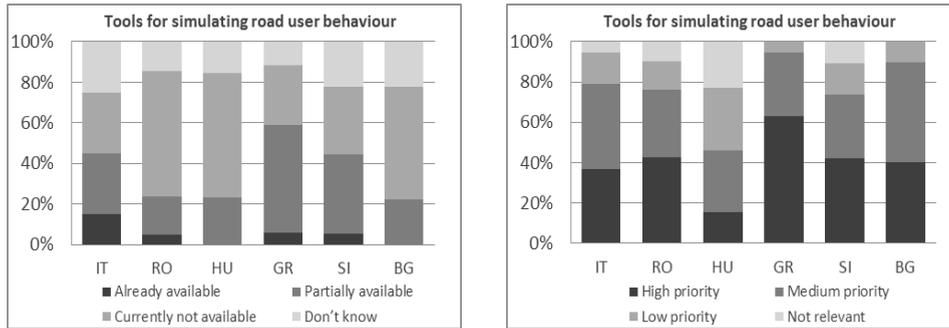


Fig. 9. Tools for simulating road user behavior – availability and priority.

The comparisons of driver training programmes across Europe seem to also attract the interest of numerous road safety stakeholders in the SEE. This is a high priority issue for a percentage of drivers ranging from almost 20% in Italy and Hungary, to 60% in Bulgaria and may reflect the particular needs for driver training in the various countries. The availability of such comparisons is quite low reaching a maximum of 20% of stakeholders in Greece (Figure 10).

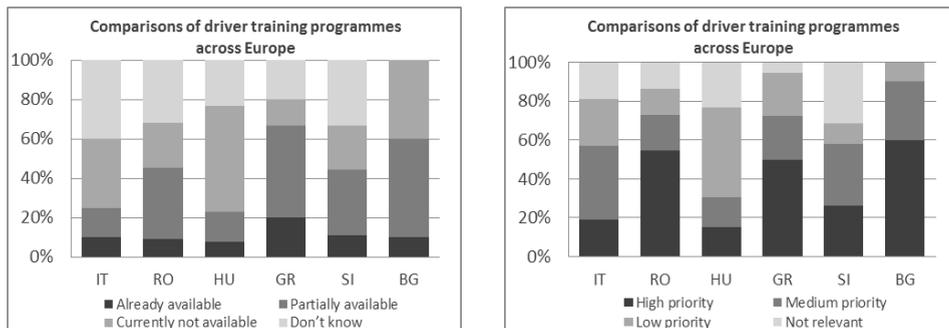


Fig. 10. Comparisons of driver training programmes across Europe – availability and priority

Monitoring of implemented strategies and measures is a key component of every successful road safety policy. This was expressed by stakeholders from all countries, by ranking good practice and methodologies for monitoring implementation as a high or medium priority issue. Currently, such good practices and methodologies are partially or not at all available to the majority of stakeholders in all countries (Figure 11).

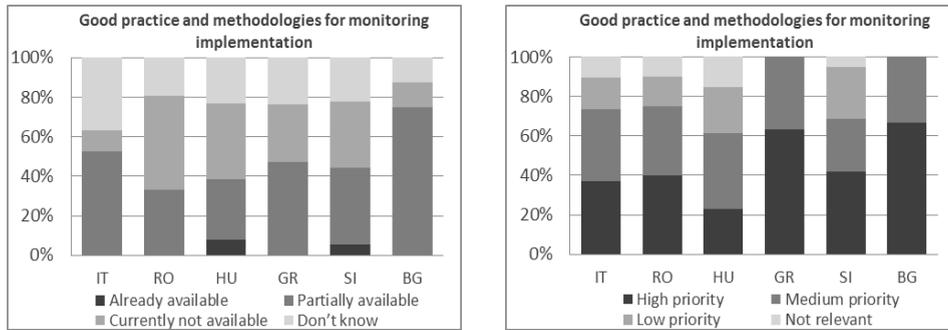


Fig. 11. Good practice and methodologies for monitoring implementation – availability and priority

As the improvement of road safety can be quite demanding in terms of cost and a relevant dedicated budget is not available in all countries, the stakeholders expressed a great interest for information on potential funding sources for road safety measures. The availability of such information is low in all the countries (Figure 12).

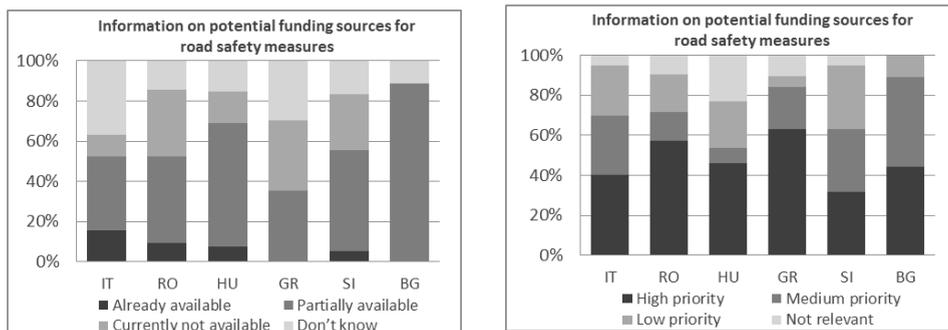


Fig. 12. Information on potential funding sources for road safety measures – availability and priority.

3.4 Data and resources for the monitoring and evaluation of road safety measures

In their efforts to choose the most appropriate road safety measures, stakeholders need information on the effectiveness of measures. However, not all road safety measures have been evaluated and in many cases stakeholders are in need of specific methods to evaluate the measures and particularly their safety impact. This was also expressed by the fact that more than 50% of stakeholders in almost all countries gave this issue a high priority. At the moment methods for evaluation of safety impacts of road safety measures are partially available to the majority of stakeholders (Figure 13).

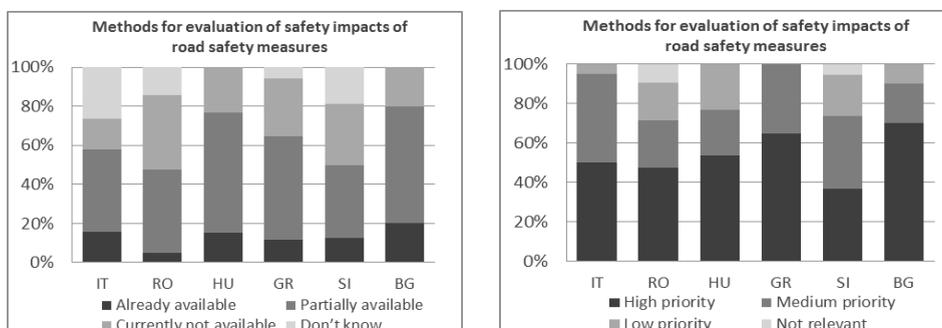


Fig. 13. Methods for evaluation of safety impacts of road safety measures – availability and priority.

In addition to the above, stakeholders are interested in identifying effects of specific policies or measures. Therefore, the statistical methods for isolating the effects of particular actions are of high priority for more than 20% and up to almost 50% of the stakeholders in the different countries. On the other hand, such statistical methods are available at maximum to less than 20% of the stakeholders and in some cases (Slovenia and Bulgaria) they are not available at all (Figure 14).

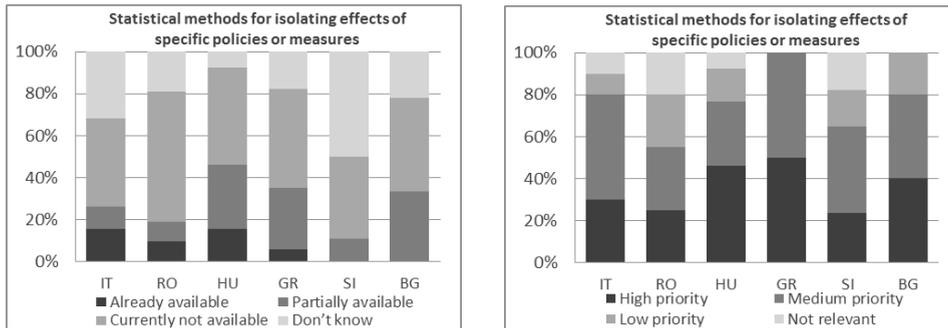


Fig. 14. Statistical methods for isolating effects of specific policies or measures – availability and priority.

Worldwide, road safety strategies focus more and more on injuries caused by road accidents and not only on fatalities. This tendency is also shown in the responses of stakeholder. Focusing on seriously injured counts in addition to fatality counts is a high priority for more than 50% and up to 90% of the stakeholders. At the moment, such a focus exists mainly in Hungary and to the least in Greece (Figure 15).

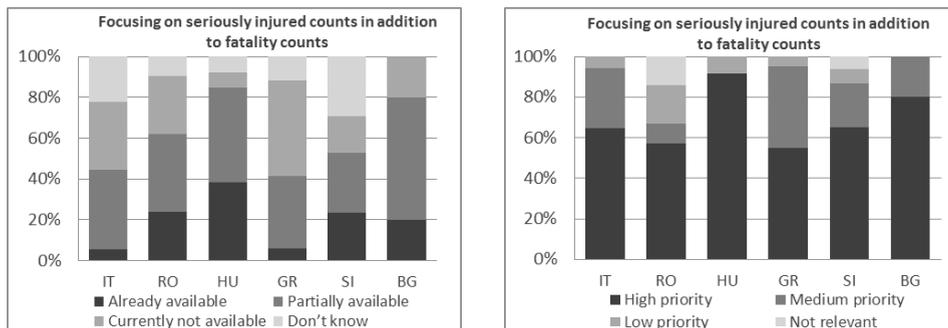


Fig. 15. Focusing on seriously injured counts in addition to fatality counts – availability and priority.

Finally, road safety stakeholders expressed a great interest for accident prediction models for various road types and layouts, probably indicating that they want to tackle road safety accidents which are concentrated in specific road types. At the moment, the availability of such models is low in all countries, reaching at maximum, almost 20% in Greece (Figure 16).

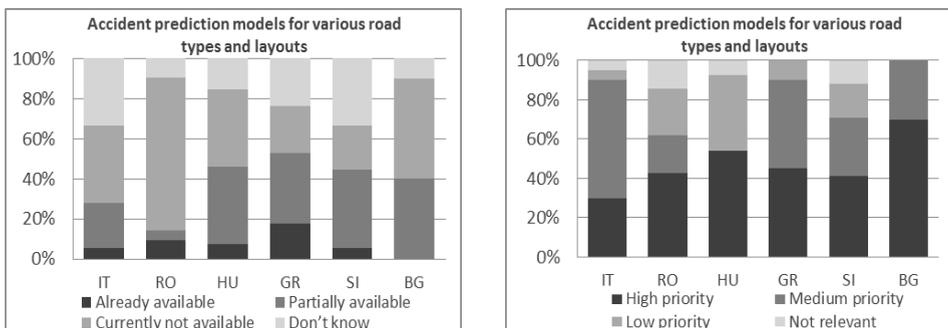


Fig. 16. Accident prediction models for various road types and layouts – availability and priority.

4. Discussion

In the framework of the ROSEE project, the availability, needs and priorities of road safety data and information to stakeholders in the partner countries of the SEE were explored. In total, more than 100 stakeholders participated in the relevant survey providing an adequate sample. The objective of this paper was to present the results of the relevant survey, aiming at assessing what they considered to be priorities and necessities in terms of scientific data, information, and tools to conduct their road safety activities.

Based on the stakeholders' responses it was found that there is a significant demand for data and knowledge in order to be used for road safety-related decision making. Currently, such information is poorly available in the partner countries. This fact makes the work of road safety stakeholders difficult, therefore their discontent was expressed. In several cases, it was found that stakeholders are not even aware of the availability status of items that they consider to be irrelevant to their work. Generally, stakeholders seem to be poorly informed about the availability of road safety data and tools.

In Italy many data, definitions and studies, considered of high or medium priority for the respondents' work activities, are only partially or not available at all. Furthermore, the survey revealed that there is, among others, a need to increase the technicians' and public administrations' knowledge on road users' attitudes. Information on road users' behaviour and attitudes, which are of high priority or medium priority for most of the interviewed stakeholders, are indeed only partially or not available. In addition, many data are not yet available to the interviewed stakeholders (Tira et al, 2013).

In Romania, the analysis of collected information highlighted an overall need to further improve data use concerning all aspects of road safety. While most topics were considered important by the questioned stakeholders, there is an evident gap between data needs and data availability. This situation needs to be addressed mainly due to the fact that policy makers should adopt informed decisions while elaborating policies and should put an effort in addressing issues before they manifest with tragic consequences (Caraman et al, 2013).

In Hungary, a non-negligible lack of road safety data and information availability was recorded. Moreover, many of the examined subjects were identified as issues of high priority to many stakeholders (Mészáros et al, 2013).

In Greece, based on the findings of this assessment, there is significant demand for data and knowledge in road safety-related decision making as well as discontent about the current poor availability of such information (Yannis and Laiou, 2013).

In Slovenia, the results revealed that the main priorities for the majority of different stakeholders working on road safety field concern a common methodology for identifying high risk sites, information on the effect of external factors on the number of road traffic accidents, information on accident causation and information on the costs and benefits of a road safety measures. For all these issues, the availability of relevant information was found to be limited (Marinko et al, 2013).

In Bulgaria, the stakeholders expressed an important need to increase data and information in almost all of the examined subjects. This is in accordance to the fact that, at the time of the survey, road safety stakeholders in Bulgaria reported the lowest availability of data and information among all the stakeholders participating in the survey and with regard to almost all the examined subjects (Vankov et al, 2013).

The above results indicate a general lack of the necessary road safety information and data in SEE countries. It should be noted that such lack of availability of data and information necessary to road safety stakeholders for effective decision-making further prevents the improvement of road safety. Therefore, efforts should focus on closing the existing gaps in knowledge on road safety related issues. Priority should be given to those issues to which road safety stakeholders also indicated as of high priority to for their work. This could

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