Deliverable 8

National Strategies

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# Deliverable Overview

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Executive Summary

This deliverable reports on the work performed during the project and the main outcomes of the activities undertaken in relation National Strategies. It focuses mainly on:

- Comparing existing national road safety strategies and/or national motorcycle strategy/action plans in Europe where they exist.
- Reporting on best practices

Road safety work needs to be based on a thorough analysis of existing safety problems, on a clear strategic view of what problems need to be tackled and by which types of measures, preferably on the basis of a vision about the long-term aims and the role of the various components of the traffic system.

With the objective of gathering as much expertise as possible, the project collected feedback and information from different sources. Part of the work consisted of identifying and summarising the main outcomes of EU co-financed projects of relevance to national strategies. These projects, available on the ERSO website, include 2-BE-SAFE, DaCoTA, IRT, MAIDS, MOTORIST, PROMISING, ROSA, SAFETYNET, SIM, SARTRE 1-4, SUNFLOWER+6, SUPREME, TRAIN-ALL, and TRAINER.

Next, the project compared existing national strategies and analysed the strengths and weaknesses of the 3 main approaches to PTW safety: general road safety strategy with or without a specific approach to PTW safety, and separate PTW safety plans.

The project reviewed existing and commonly used safety performance indicators (SPI) and added a PTW dimension to conclude that, for motorcycling safety, the road safety performance picture cannot be drawn yet because of the lack of knowledge between each identified risk domain and its causal relationship to motorcycle safety.

The project then worked at identifying priority areas for EU action according to the different stakeholders. This feedback collection took several forms:

- a literature review of the main policy documents: Annex 14
- a follow-up review of the Lillehammer workshop recommendations (top20 list) and status for what applies to the EU;
- a questionnaire (Amplifying Questions) designed to survey the different categories of stakeholders directly involved into the policy making (Member States, the European Union, the Motorcycling Community representatives, EU stakeholders). Answers to the questionnaire were collected via phone interviews, written answers or face-to-face meetings and are summarised in Annex 4/ annex 5/ annex 6/ annex 7;
- input from project workshops: Annex 13

Views listed in this report come from:

- Member States’ National Authorities:
Austria: Austrian Ministry for Transport
Finland: Finnish Transport Safety Agency
France: Conseil National de Sécurité Routière
Latvia: Road Traffic Safety Directorate
Luxembourg: Ministère du Développement durable et des Infrastructures
Netherlands: Department of Road Safety, Ministry of Infrastructure and Environment
Norway: Norwegian Public Roads Administration
Slovakia: Ministry of Transport
Slovenia: Slovenian Traffic Safety Agency
Spain: Directorate General for Traffic, Ministry of Interior
Sweden: Swedish Transport Administration
UK: Road User Licensing, Insurance and Safety

- **Research community**
  - Czech Republic: Transport Research Centre
  - Germany: Federal Highway Research Institute (BASt)
  - Greece: National Technical University of Athens

- **EU stakeholders: ACEM**

- **European Commission**: Susanne Lindahl, Casto Lopez Benitez from the DG MOVE, Dir. C Innovative and Sustainable Mobility, Unit 4 Road Safety.

- **Motorcycling Community (Industry/users)**
  - Belgium: FEBIAC; MAG Belgium
  - Denmark: MCTC
  - France: FFMC
  - Germany: IVM; IFZ; BU; BVDM
  - Greece: AMVIR
  - Italy: ANCMA; Ducati; FMI
  - Netherlands: MAG NL
  - Norway: NMCU
  - Sweden: SMC
  - UK: BMF

As part of the review of national strategies, the project discussed the deliverable outcomes with pan-EU stakeholders in one of the 3 project forums.
Based on the interviews held with Member State experts, motorcycling community representatives and EU stakeholders, the project deliverable concludes that while the majority of measures will require a strategy tailored to national circumstances, there are several areas where Europe has a role to play, including the design of regulatory frameworks that integrate PTW safety needs (e.g. White Paper on Transport), or support the increase of knowledge or standardization work. Benchmarking national safety measures and enhancing stakeholder dialogue are other areas where Europe could play a significant role through fostering the exchange of best practices.

The project Deliverable 8 on National Strategies provides the following outcomes:

- A summary of EU research work and main conclusions for the past decade (Annex 21)
- A comparison of national overall road safety strategies and national motorcycling safety strategies (Annex 9)
- A first review of the literature on Safety Performance Indicators and a preliminary analysis of PTW specificities (Annex 18)

Based on these inputs and a comprehensive review of needs, the project team identified a List of recommendations and priority actions for European and national levels, summarized in the report on Needs for Policy Action.

The mid-term review of the EC Communication on Road Safety 2011 provides an opportunity to address the PTW safety needs, including the integration of PTWs into EU transport policies.

This project report was reviewed by Deliverable 8 expert Robbert Verweij from the Dutch Ministry for Infrastructure and the Environment for the latest comments.
1. Introduction

Powered two-wheelers (PTWs) are a popular form of transport providing mobility to millions of people worldwide. However, unlike for other forms of motorised transport, PTW users, like cyclists, remain more vulnerable due to the intrinsic characteristics of the vehicle.

Over the past decade, collision records highlighted a substantial decrease in PTW casualties (motorcycles and mopeds). This decrease, albeit less pronounced than for other means of transport, is taking place against a substantial increase in the number of PTWs on the roads.

In 2008, the Lillehammer Workshop\(^1\) highlighted the need for road authorities and policymakers to

- **Integrate by default motorcycle safety requirements in overall transport policy and infrastructure policy/management. (Priority 2)**

- **Base countermeasures on scientific research into driver and rider behaviour and before-and-after evaluations (priority 3)**

- **Meet with motorcycle stakeholders to enable communication and build mutual confidence (e.g. forums, councils,) in order to exchange views, discuss needs and secure the necessary financing/resources for safety counter measures. (priority 13)**

Since then, several Member States have designed strategy/action plans with the objective of tackling PTW casualties, some as part of overall national safety strategies, others with specifically designed action plans.

**Where do we go from now?**

As the need to address PTW safety is now recognized among the road safety community, the RIDERSCAN project focused on:

\(^1\) [http://www.internationaltransportforum.org/jtrc/safety/Lillehammer2008/lillehammer08.html](http://www.internationaltransportforum.org/jtrc/safety/Lillehammer2008/lillehammer08.html)
• Comparing existing national road safety strategies and/or national motorcycle strategy/action plans in Europe where they exist.

• Reporting on best practices

2. Project activities and work overview

2.1. EU research main conclusions (Annex 21)

• Organisation

    Stakeholders to be involved in a shared responsibility approach. (APROSY)

    Different stakeholders with different functions and interests:
    - Administrations (European, National, Regional or Local).
      - Traffic.
      - Infrastructure.
      - Industry.
    - Medical services.
    - Insurance companies.
    - Others (driving schools, ...).
    - PTW makers.
    - Clothing makers (safety accessories, conspicuity, ...).
    - Other vehicles makers (incompatibility, ...).
    - Research Centers.

    It is a **shared responsibility** of all the stakeholders.

    The administrations should have the **integral vision** of the problem and promote specific targeted solutions for each or combined stakeholder.

![Figure 29.- Working plan about how to proceed for an integrated safety point of view.](image)

    Assuming limited availability of resources, road safety measures should be efficient. In 2004, Elvik (2004) found that effective countermeasures to accidents in macroeconomic terms are not widely applied due to political constraints. Elvik concluded that decision-making should focus more on sound and measureable approaches proposing cost-efficiency as the most appropriate one. (2BESAFE)

    Road safety work needs to be based on a thorough analysis of existing safety problems, on a clear strategic view of what problems need to be tackled and by which types of measures, preferably on the basis of a vision about the long-term aims and the role of the various components of the traffic system. (SUPREME)

    As on one hand, road crashes and injuries are a public health problem and on the...
other hand, any measure taken to alleviate the problem impacts business, the environment and citizens’ everyday life, stakeholders are multiple (provincial or local authorities, members of parliament, private businesses, NGOs) and have varied interests in road safety, ranging from advocacy through participation in action to downright opposition to specific measures. Involving non-governmental stakeholders in policy-making may include two complementary approaches: (1) bottom-up approach or (2) “top-down” approach. (DACOTA)

Simple methodology for designing and implementing a PTW casualty reduction programme. Essentially there are 6 stages:

1. Gather data required for analysing PTW casualty problems: at least collision data and contextual data (background data on PTW use)
2. Analyse data
3. Identify casualty issues: From the analysis it should be possible to identify common causation factors to assist in selecting appropriate interventions.
4. Develop targets and select interventions: match interventions to the problems defined by the analysis of data.
5. Implement interventions and monitor: A robust monitoring framework should be established in order to accurately evaluate the effectiveness of any interventions implemented.
6. Evaluate effectiveness: a named individual should be responsible for the project management of implementation; interventions selected should be suitably modified to ensure that they are appropriate to national/city conditions; sufficient resources should be in place. (eSUM)
Data collection and research are not safety measures by themselves, but serve to study the need for and the effects of such measures. In the case of mopeds and motorcycles there is a strong need for more reliable data and more and better research. (PROMISING)

Overall regarding the use of motorcycles and riding the behavior and the accident risk of motorcyclists, there are many differences between the European countries. Therefore safety measures for motorcyclists should be developed in accordance with the country-specific circumstances. (SARTRE4)

- **Safety measures:**

  The 2BESAFE project recommends (supported by observation data and statement in the Focus Group) working on 5 areas:

  o **Infrastructure:**
    - use of anti-slip materials for road surfaces;
    - separate lanes for PTW riders;
    - use of bus or emergency lanes has been considered as safety and comfort enhancement for riders.

  o **Vehicle:**
    - Improvements of the lighting of the motorcycles;
    - awareness of riders for assistive technologies

  o **Interaction between road users and individual characteristics:**
    - awareness training (training for PTW riders which enhances riding skills)
    - research of traffic conflicts has to take into consideration that addressing certain groups of road users is not an isolated issue. The observation data and the experience obtained in the data analyses repeatedly showed that conflicts and errors by motorcycle riders are to a certain degree the fault of other road users. Therefore, the focus in future traffic research must lie on the interplay of different road user groups.

  o **Society (Legal requirements, media):**
    - it is crucial to adapt the regulatory framework in order to comply with the specific fears, needs and wishes of the group of the PTW riders. In this regard MC riders often mentioned the imbalance of the traffic system which focuses mainly on car drivers. A large proportion of the mentioned behaviour of PTW riders is not legal but still considered as “typical behaviour” and already socially accepted. This aspect needs to be considered in the process of traffic legislation. Campaigns to improve the mutual understanding of all road users can be helpful in...
this regard and have been mentioned several times by the motorcycle riders.

- **Individual:**
  - the training of motorcyclists needs to focus more on the vulnerability of riders and the fact that fast acceleration, speeding and braking abruptly as a consequence of inappropriate speed are particularly risky.
  - Refreshing training for riders who haven’t been riding a motorcycle for a long time need to be advocated.
  - The design of the motorcycle protection clothing should be adapted to different riding tasks. For motorcyclists who use the motorcycle for riding to work or for short trips protection clothing which is also suitable for the office or daily use is needed. The costs for protection clothing in general needs to be adequate so that it is not “exclusive” clothing but for the daily use. In addition, there should be a standard level of security of the safety equipment in order to ensure the quality. Therefore legal requirements should focus on adequate protection clothing for different riding tasks. (2BESAFE)

SUPREME organised measures in the nine areas:

- Institutional organisation of road safety;
- Road infrastructure;
- Vehicles and safety devices;
- Road safety education and campaigns;
- Driver training;
- Traffic law enforcement;
- Rehabilitation and diagnostics;
- Post-accident care and
- Road safety data and data collection

Good practice in road safety management:

1. A lead agency responsible for road safety at the highest government level:
2. A long-term vision enduring political and government changes
3. A compelling quantitative target, challenging but achievable and commitment of the higher levels of government to reach it
4. A national road safety programme adopted at the highest level of government after consultation of stakeholders
5. A well-defined and realistic funding procedure and fund allocation
6. an efficient coordinating structure at all necessary levels, precisely defined
7. (key sectors and actors involved, roles and responsibilities)
8. A system for monitoring progress in realizing targets and providing feedback to the agencies in charge of implementation
9. A strong process of knowledge production and knowledge transfer. (DACOTA)

In view of their high accident rate, this should not only include technical and non-restrictive measures. Policy makers will therefore have to recognise the role of mopeds and motorcycles as road users and the need for measures to improve their safety. (PROMISING)

Of the technical measures, the design and maintenance of the road in view of the safety of mopeds/motorcycles seems to have been neglected. This in turn may be related to a wrong image of riders of mopeds/motorcycles as a minority group of mostly young riders with a high accident rate because of their own behaviour. What is needed in this situation is first of all a correction of this image. (PROMISING)

PTW safety is a complex undertaking, as improvements in the field require an integrated, ‘safe system’ approach and rely on adoption of measures by all participating disciplines and behavioural modifications by the public at large. (eSUM)

Since the lack of protection can only partly be compensated by protective devices, much depends on the effectiveness of other measures. (PROMISING)

More explicit rules are supposed to result in more uniform behaviour by riders and better knowledge and acceptance of it by other road users. (PROMISING)

In urban area, three major modifiable risk factors for PTW injuries can be addressed: helmet non-use, driving under the influence of alcohol and unlicensed riding. (eSUM)

- Acceptance

Acceptance is a particular issue in terms of PTW safety measures. Riders are a rather inhomogeneous group of road users. Experience valid for passenger car drivers might not be relevant to PTW riders. Hence, specific attention should be given to an objective assessment of acceptance. PTW riders are a group of road users particularly keen on having their needs and wishes considered. In most of the cases it may be useful to consult rider organisations and implement a constructive process of consulting and discussion.

Highest rated measures from the expert evaluation (both expert and FEMA) include measures that involve road infrastructure. A great number of measures scored highly and those measures were considered to be of high implementation priority in the EU. Another type of measures that got high scores involved post-accident care.

Measures including improving emergency and post-injury services and acquiring particular knowledge on how to deal with certain types of riders’ injuries that need specific care. In addition almost all measures related to road safety data and data collection received great support by experts and FEMA. Such measures include improvement of data collection, road conflict investigation, in-depth analysis of PTW
accidents, naturalistic riding studies and identification of accident black spots. The interaction of PTWs with other vehicles which is considered to be a contributing accident factor was also considered as the measure involving other road users’ responsibilities to riders also scored high. (2BESAFE)

Acceptance of a measure is much greater if the target group has been involved in the development and introduction of the measure. Motorcyclists in many countries have some degree of organisation, which makes it easier to discuss measures with representatives of the group of motorcyclists. For moped riders there are no special organisations representing their views and needs, although tourist organisations and the industry may offer to represent them. (PROMISING)

The results also suggest that driver opinions about the problems of vulnerable road users are only slightly influenced by the actual risk to these groups. For example there is clearly less support for tackling motorcyclist problems, even despite the fact that the risk to motorcyclists is highest. What is more in many cases there was opposition to government involvement in the matter. This may suggest a negative attitude to the problems of these road users. (SARTRE3)

### 2.2. National Road Safety Strategies - Comparison (Annex 9)

Next, the project compared existing national strategies and analysed the strengths and weaknesses of the 3 main approaches to PTW safety: general road safety strategy with or without a specific approach to PTW safety, and separate PTW safety plans.

- **Overall approach: national road safety plans**

  - **Reference countries:**
    - Austria: [Austrian Road Safety Programme 2011-2020](#).
    - Bulgaria: [National strategy for improving road safety in Bulgaria for the period 2011–2020](#).
    - Croatia: [National Road Safety Programme of the Republic of Croatia 2011-2020](#).
    - Finland: [From objectives to Outcomes. Road Safety Plan until 2014](#).
    - Germany: [Road Safety Programme 2011](#).
    - Greece: [Development of a Strategic Plan for the Improvement of Road Safety in Greece, 2011-2020 - summary](#).
    - Hungary: [Road Safety Action Programme 2011-2013](#).
    - Latvia: [Road Traffic Safety Programme for 2007-2013](#).
Slovakia: Road safety enhancement strategy in the Slovak Republic in the years 2011 to 2020.

Most often recommended measures:

Including dedicated measures/section addressing powered two-wheelers

- **Motorcycle training and licencing** to improve motorcycle safety: develop licence training; post-licence training; training of driving instructors
  - Austria
  - Norway
  - Portugal
  - Slovakia
  - Greece

- **Road behaviour**: education culture aimed at road safety; awareness campaigns
  - Portugal
  - Slovakia
  - Greece

- **Enforcement measures**: controls of mopeds (helmet and tuning); automatic speed control; tighten sanctions
  - Austria
  - Portugal
  - Slovakia
  - Greece

- **Road maintenance and road infrastructure**: motorcycle-friendly crash barriers; road surface improvements
  - Austria
  - Germany
  - Norway

Not including dedicated measures/section addressing powered two-wheelers

- **Training**: developing the system of motorcyclist training; road safety education for the young
  - Hungary
  - Switzerland
  - Bulgaria
  - Estonia
  - Finland
  - Northern Ireland
  - Slovenia

- **Infrastructure**: identification of safety-enhancing infrastructure developments; black spot management
  - Hungary
  - Switzerland
  - Estonia
  - Northern Ireland
  - Slovenia
  - Czech Republic

- **Road safety campaigns**: vulnerable road users; helmets; the young
  - Hungary
  - Latvia
  - Lithuania
  - Bulgaria
  - Croatia

Deliverable 8 - National Strategies
PTW visibility: daytime running lights; high-visible gear

Helmet control: systematic monitoring of helmet wearing; higher fines

Strengths and best practices:

To dedicate a section to powered two-wheelers

Even for countries without a motorcycle safety strategy, it is nevertheless possible to dedicate a section to powered two-wheelers. This is the case with Portugal, Slovakia, Germany and Austria. However, even with a specific section on motorcycle, different variables are possible:

In Portugal, there is a specific section on motorcycles as they are considered as the top risk groups. But there are no specific measures for PTWs as their needs are considered within general measures.

In Slovakia, there is a specific chapter on vulnerable road users, and a subsection on motorcyclists with 3 specific measures for motorcyclist safety.

In Germany, there are subsections on motorcyclists within 3 main sections: the human factors action area and the automotive engineering action area, while there are specific measures on a motorcycle-friendly infrastructure within the infrastructure action area.

In Austria, there is a dedicated section on motorcycles and another on mopeds.

To integrate powered two-wheelers within all sections

In the Norwegian strategy, there is no particular section on motorcycles, though motorcycle measures can be found within 8 different subsections, including licencing, road maintenance, ITS, etc.

To a lesser extent, in Switzerland and Northern Ireland, there is no section on motorcyclists and measures targeting motorcyclists are integrated within general measures and can be found within other sections and subsections.

To schedule measures and to plan an evaluation

To see a concrete improvement, a road safety strategy cannot only be a declaration of goodwill. Measures planned must be implemented and evaluated.

Slovakia can be seen as a good example of a well-planned road safety strategy. In Slovakia, the road safety strategy considered 9 clear general objectives, with clear sub-objectives. Their goals are clearly identified. They also planned to evaluate the success of the different motorcycle measures via predefined indicators: the numbers of slightly
/ severely injured and killed motorcyclists; the number of implemented campaigns with an emphasis on their evaluation.

In **Austria**, the periods for launching each measure in each field have already been scheduled. Evaluation is planned in the form of a cost-benefit analysis, though specific indicators and schedules are not indicated within the strategy.

**Weaknesses:**

- Lack of specific measures

A problem we observed with overall road safety strategies is that there is a lack of specific measures targeting powered two-wheelers, meaning that their specific needs are not integrated.

In **Estonia**, there was no specific section on vulnerable road users or on PTWs. But for each measure, target groups are specified and organised by vehicle (motorcycle, moped), by traffic environment, and by road users (motorcycle and moped). PTWs are included within some measures but there are only 2 specific measures targeting PTW: one on enforcement and one on research.

In **Hungary**, there are no specific measures for powered two-wheelers. The authorities are aware they must take measures to improve their safety, but they have not yet identified the specific measures.

- Overrepresentation of enforcement measures

In **Eastern European** countries, we can observe that a lot of measures concerning powered two-wheelers are enforcement measures.

In **Hungary**, at present, the only measures identified concern enforcement.

In **Latvia**, PTWs are not really considered as vulnerable road users on a par with cyclists and pedestrians. Latvia has not planned any specific measures for motorcyclist safety, except for enforcement measures.

In **Lithuania**, PTW-specific needs are not considered, while the only measures envisaged are enforcement solutions.

**To summarize:**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possibility to mainstream motorcycling as part of the overall safety strategies</td>
<td>Lack of specific consideration of PTWs characteristics in most cases</td>
</tr>
<tr>
<td>Take advantage of the overall assessment process and action plan</td>
<td>Lack of specific measures targeting PTW specific needs</td>
</tr>
<tr>
<td></td>
<td>Number of specific measures is limited</td>
</tr>
<tr>
<td></td>
<td>Overrepresentation of enforcement</td>
</tr>
</tbody>
</table>

*Deliverable 8 - National Strategies*
• **Specific approach: motorcycle safety plans**

  **Reference countries**
  
  
  
  – Spain: *Strategic Plan for the Road Safety of Motorcycles and Mopeds.*
  
  
  – Norway: to be published
  
    
    ○ London: *Motorcycle Safety Action Plan*

**Common identified problems:**

– Vulnerable road users = very high rate of fatalities

– Speed

– Conspicuousness (blind spot in a car mirror)

– Behaviour: drink-driving, gender factor, age factor, riding experience

– Infrastructure

**Most often recommended measures:**

**Human Factors**

– *Education and Training:* improve the quality of current training; training for instructors
  
  Ireland

  Sweden

  United Kingdom

  Netherlands

  Spain

– *Research:* protective equipment and the wearing of helmets
  
  Ireland
Awareness campaigns: helmets and protective clothing

Enforcement:
- Enforcement measures for riders not wearing their helmets
- Speed

Vehicle factors
- Research:
  - Impact of cars on motorcycle safety
  - Motorcycle visibility

Intelligent Transport Systems: ABS

Environmental factors
- Infrastructure
  - Motorcycle-friendly crash barriers
  - Road safety audits and standards

Strengths and best practices:
- Particular needs of motorcycles are considered
  Unlike general road safety strategies, the strength of PTW-specific strategies is that the specific and particular needs of motorcycles and PTW users are taken into account. The solutions recommended and measures planned are specifically designed to solve PTW issues.

Weaknesses:
- Lack of a broad approach
  A weakness we can highlight is that these approaches don’t consider motorcyclists together with other road users. These strategies are designed especially for PTW
issues and measures, meaning that the needs of other road users are taken into account in separate plans. The idea of having different plans/strategies can be a weakness because if the road authorities or the road designers don’t consult these particular plans, they can totally miss the section on motorcyclists.

Integrating the specific needs of motorcyclists within a general strategy to ensure that they are not left out can also be a smart strategy. This allows motorcyclists to be taken into account in every aspect of road safety and to integrate their needs when talking about other roads users. But this can only work when the measures designed for PTWs take the specificities of motorcycles and motorcyclists into account, and when the measures promoted are effectively implemented.

- **Motorcycle/road safety platforms**

Several countries have set up dedicated platforms to discuss road safety/PTW safety issues with the relevant stakeholders, including the United Kingdom, the Netherlands, France, and Spain, with the French peculiarity being that no strategy/action accompanies this platform work.

### 2.3. Safety Performance Indicators for PTWs *(Annex 18)*

In the field of road safety, the use of safety indices and performance indicators as a way to evaluate efforts and monitor target achievement is becoming common practice. In view of the PTW-safety specificities and the overall lack of their integration into transport policies, the establishment of PTW Safety Performance Indicators (or the integration of specific indicators into road safety indices) appears to be an interesting option to be evaluated.

The literature review has taught us that there is, in theory, a wide range of indicators to be used. However, the lack of available and comparable data has led EU safety researchers to select a limited number of indicators based on the common comparable data available throughout European countries.

While these indicators are useful for evaluating overall country performance with regard to dual track vehicles and their occupants, they provide very little insight into VRUs in general, and PTWs in particular.

For motorcycling safety, the road safety performance picture cannot be drawn yet because of the lack of knowledge between each identified risk domain and its causal relationship to motorcycle safety; in other words, while some domains may well be suitable for evaluating motorcycle safety performance (e.g. *alcohol and drugs*), others are irrelevant, or would require different/additional safety performance indicators (e.g. *speed, protection systems, vehicles, daytime running lights, roads and trauma management*); lastly, some new risk domains may well be required coming from other reporting sources, such as insurance data (e.g. accidents where the rider is not at fault, accidents involving a right of way violation).
The RIDERSCAN project reviewed existing and commonly used safety performance indicators (SPI) and added a PTW insight. Within the SafetyNet-project, SPIs were developed for various areas within road safety, and ETSC (2001) identified factors which contribute to road accidents and injuries. These SPIs are grouped into 7 problem areas:

- **Alcohol and drugs:**
  - Potential indicators for alcohol and drugs are also relevant to PTW safety.

- **Speed**
  - Speed is a critical issue as it very often leads to misconceptions and safety measures mainly (if not only) focusing on enforcement, overlooking other major safety areas.
  - Most PTWs are generally ridden outside the speed limit (most of the time above, but sometimes below speed limits).
  - Using the existing SPI Speed will not provide an accurate picture of road safety performance apart from official accident reporting.

- **Protection systems:**
  - Indicators on the percentage of moped riders and motorcyclists wearing a helmet are relevant, but other indicators such as the wearing of (adapted) protective clothing, or helmet age/damage would better illustrate road safety performance for PTW use.

- **Daytime running lights (DRL):**
  - As perception failure is one of the main causes of PTW accidents, it is of crucial importance to enhance PTW conspicuousness. To this end, manufacturers are working at improving headlamp design and vehicle conspicuousness characteristics. An SPI on PTW-specific DRL could be foreseen following appropriate research.

- **Vehicles:**
  - Vehicle age has no impact on PTW safety.
  - Vehicle-related factors accounted for less than 1% of accidents in all in-depth accident causation factors studies.
  - Other indicators such as tyre pressure monitoring or ABS equipment would better reflect road safety performance for PTW use.

- **Roads:**
  - Roadside and other road protection systems have been designed for car drivers.

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Deliverable 8 - National Strategies
Segregating slow and vulnerable traffic will not impact PTW safety.

Only specific consideration of PTW characteristics in road protection scores, road barriers, safety design standards, or maintenance and engineering expenditures can help draw the right safety picture for PTWs.

Trauma management:

Indicators on trauma management are also relevant for PTW safety.

### 2.4. PTW Safety Strategies: Key elements

#### EU Road Safety Planning guidance

A non-paper from the European Commission on road safety planning\(^3\) lists a few recommendations and best practices for designing and implementing a road safety strategy:

- **Strategy period**: long-term planning provides the basis for long-term efforts. As road safety is by nature a long-term effort, a strategy for achieving targets and focusing on the main activity areas over a longer time span would be more effective than just short-term planning.

- **Applying the Safe System approach**: According to the SUPREME project, “a sustainable safe road system aims to prevent crashes and, if they still occur, to minimise their consequences. It is based on the idea that people make mistakes and are physically vulnerable”.

- **Using lessons learned to sharpen the action plan from one strategy period to the next**.

- **The link between problem analysis and action priorities to do the right things**. Priority areas should be evidence-based and target current issues.

- **Scientific choice of measures gives legitimacy**: Concrete measures should be based on scientific studies and cost effectiveness considerations.

- **Using prognoses and risk assessments to prepare for “worst case scenarios”**.

- **Strategic objectives motivate stakeholders**

- **Operational objectives help to focus the work**. Quantitative, measurable and specific operational objectives.

- **Output targets add transparency**: An output target is formulated as the quantified direct output expected from an action. These output targets enable citizens and stakeholders to track progress and know what to expect from the road safety work.

- **The clear assignment of responsibility and clear deadlines facilitate implementation**

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– **Assessment of costs and defined sources of funding make actions realistic.** Define a clear budget and resources not only for the strategy, but also for each concrete measure.

– **Monitoring and evaluation mechanisms are tools for accountability.** Specific evaluation, monitoring mechanisms and performance indicators should be designed before the implementation of the strategy in order to evaluate the effect of measures.

– **Inclusive approach to mobilise stakeholders.** Different actors should be involved in the road safety plan, such as agencies, authorities, administrations, NGOs, users, etc.

– **Transparency for accountability and citizen participation.**

**Lillehammer priorities**

In 2008 the first international workshop on PTW safety took place in Lillehammer (Norway). Organized by the OECD/International Transport and the Norwegian Ministry of Transport, a PTW safety and road safety expert panel met for 2 days to discuss PTW safety in all aspects. At the end of the workshop, experts agreed on a top-20 priority list to tackle PTW safety worldwide.

The project team reviewed this list to check whether the European Commission is taking these recommendations into account in its Road Safety work programme.

<table>
<thead>
<tr>
<th>Lillehammer priorities</th>
<th>Addressed by the EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Training programmes</td>
<td>Not yet</td>
</tr>
<tr>
<td>Countries have different training needs, based on their vehicle fleet and training resources. Motorcycle training should therefore build on existing standards, focus on risk awareness and risk avoidance, and develop an understanding of the rider/motorcycle capacities and limitations.</td>
<td></td>
</tr>
<tr>
<td>2. Transport and infrastructure policy</td>
<td>Not yet</td>
</tr>
<tr>
<td>It is a fundamental motorcycle safety requirement that, by default, PTWs should have a place in overall transport policy and infrastructure policy/management.</td>
<td></td>
</tr>
<tr>
<td>3. Research and evaluation</td>
<td>Not yet</td>
</tr>
<tr>
<td>Counter measures need to be based on scientific research into driver and rider behaviour and before-and-after evaluations should be conducted.</td>
<td></td>
</tr>
<tr>
<td>4. General driver training</td>
<td>Not yet</td>
</tr>
<tr>
<td>A component on awareness and acceptance of motorcyclists should be included in the general training for all drivers, with a particular emphasis on the need for appropriate traffic scanning strategies.</td>
<td></td>
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<tr>
<td>5. Braking systems</td>
<td>Yes</td>
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<tr>
<td>Manufacturers should continue to introduce advanced (better) braking systems, such as combined brake systems and anti-lock-brake systems.</td>
<td></td>
</tr>
<tr>
<td>6. Getting safety messages to the riders</td>
<td>Not yet</td>
</tr>
</tbody>
</table>

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Safety messages to riders should be developed in partnership with rider groups, in order to use the effectiveness of peer advice in communicating key issues to riders on issues that will impact their communities.

7. Integrated awareness campaigns. Not yet
There should be regular, targeted campaigns addressing both motorcyclists and other road users, where necessary supported by other action e.g. enforcement, on safety-related subjects that include, mutual respect, protective equipment, speed, alcohol and drug issues.

8. Guidelines for the development of road infrastructure. Not applicable
Each level of government should include in their infrastructure guidelines, measures for accommodating PTWs, developed with input from relevant stakeholders. The guidelines should be relevant to the needs of the jurisdiction concerned and coordinated with other jurisdictions and levels of government. An international transfer of best practices is also recommended.

9. Portrayal of responsible riding Not yet
Codes of practice should be developed in order to promote and market motorcycling responsibly; the motorcycling press and rider organisations should also promote responsible behaviour codes.

10. Other Vehicle Driver awareness Not yet
To develop an awareness of PTWs and mutual respect between road users, education activities and campaigns should be set up from childhood, to emphasise that “road safety means road sharing”.

11. Training for road designers Not yet
The needs of PTWs should be included in the basic training for road designers, highway and traffic engineers.

12. Protective equipment for riders ongoing
Where standards for protective equipment exist, they should be promoted; and where they do not, they should be developed, taking into account their safety performance, rider comfort, the ergonomics of their use, costs and the climate/regions where they will be used.

13. Policy dialogue Not yet
To enable communication and build mutual confidence, meetings between motorcycle stakeholders and policy makers/road authorities (e.g. forums, councils,) should be established, in order to exchange views, discuss needs and secure the necessary financing/resources for safety counter measures.

14. Roadway design Not yet
Identification and resolution of roadway design problems (e.g. accident black spots & “corridor” analysis of a sequence in the road structure) should include input from rider organizations & relevant experts.

15. Motorcycles in ITS. Not yet
Enhanced awareness of motorcycles should be incorporated into the development of all vehicle ITS projects.

16. Innovation Not really
Where proposed counter-measures are not based on objective research, but are supported by all stakeholders, policy makers should test and evaluate the proposal in a pilot scheme.
17. Speed warning systems

The safe management of vehicle speeds in the road network is improved by the use of speed warning systems, which may be on the vehicle or part of the road infrastructure; such systems should be encouraged as the technology is developed.

18. Global Technical Regulations.

The minimum safety performance of PTWs should be based on Global Technical Regulations.

19. Headlamps in daytime

To improve rider/motorcycle conspicuity; for new motorcycles, headlamps should come on automatically when the engine is started; for other motorcycles, riders should switch on their headlamps before they start their journey.

20. Work together

Stakeholders’ Safety Priorities – National strategies

With the objective of providing a preliminary overview of the key safety aspects to be considered in the PTW safety debate, and of the project safety areas in particular, the project team undertook a detailed comparison of the PTW safety policies of key PTW/road safety stakeholders.

The table below summarizes the identified key safety aspects for each key stakeholder.

It should be noted that, as the documents were not written at the same time, some of them are more up-to-date than others. For the complete overview of the PTW safety policies and reference details, please refer to Annex 14.

<table>
<thead>
<tr>
<th>D8 – National Strategies</th>
<th>ETSC</th>
<th>Lillehm.</th>
<th>FEMA</th>
<th>EC</th>
<th>ACEM</th>
<th>ITF</th>
</tr>
</thead>
<tbody>
<tr>
<td>- PTWs to be integrated in transport and safety plans, taking into account their specificities</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- Test innovative counter-measures if supported by all stakeholders, even when not backed up by research</td>
<td>Yes</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>- Work with the motorcycling community</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
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</tr>
<tr>
<td>- Monitor the effects of counter-measures (e.g. DLD progressive access)</td>
<td>Yes</td>
<td></td>
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<tr>
<td>- Include PTW-accident specificities in medical emergency services procedures</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Assistance to victims (post-injury services)</td>
<td>Yes</td>
<td></td>
<td></td>
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</tbody>
</table>

- The Motorcycling Community (Annex 5, Annex 14):

Amplifying questions and interviews came up with the following list of identified needs for EU action:
- **Knowledge**: the EU could improve PTW safety by financing better and more in-depth studies. Moreover, the strong expertise of the EU on road safety issues and the use of available data from EU Member States will definitely contribute positively when drafting legislation of the highly complex issue of road safety.

- **Better relationship with the motorcycling community**: the EU should work in synergy and get feedback from European manufacturers and motorcyclist associations about the actions to be implemented. Only a close relationship with users and manufacturer representatives can improve PTW safety and make EU institutions aware of the needs of PTW users.

- **Harmonisation**: the EU can support greater harmonisation of Member State policies through establishing a framework for national safety strategies and providing collections of best practices.

- **ITS**: the EU should encourage and support the introduction of ITS for PTWs: on-board collision avoidance technology in cars, vans and lorries which detect riders.

- **Member States** ([Annex 4, Annex 14](#)):

  Amplifying questions and interviews came up with the following list of identified needs for EU action:

  - **ITS** and above all ABS: regulations for obligatory equipment such as ABS (at least for bikes > 125cc), airbags, cooperative systems, e-call.

  - **Training and education**: procedures to obtain driving licences; awareness-raising campaigns; risk perception and risk assessment, advanced riding courses; use of driving simulators; special training and education for older bikers.

  - **Infrastructure safety**: road shoulders and intersections; best practices in urban areas; standards for 'PTW-friendly' safety barriers; PTW-specific road safety management tools.

  - **Enforcement**: technological innovations; controls for driving under the influence of drugs; cooperation among Member States; measures to prevent the tampering of new mopeds; speed support systems.

  - **European awareness campaigns**: based on shared values and topics and easily adaptable at national level; forbid campaigns based on speed; increase communication between authorities and riders.

  - **User safety**: protective clothing (research, promotion, European standards on protective clothing) and conspicuity.

  - **Sharing best practices and benchmarking**: comparison between the work done by the different countries on the Policy Orientations on Road Safety (see below).

  - **Increase knowledge**: promotion of in-depth investigation of accidents involving PTWs; new definition of ‘seriously injured’. 

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*Deliverable 8 - National Strategies*
- The European Commission Communication *Towards a European road safety area: policy orientations on road safety 2011-2020*

The Communication from the Commission, currently under mid-term review, has identified 7 areas for actions:

- Improving education, training
- Safer road infrastructure
- Improve emergency and post-injury services
- Protect VRUs (incl. motorcyclists)
- Increase enforcement (by means of vehicle technology)
- Harmonisation and strengthening of roadworthiness testing (+ roadside checks)
- Promote the use of modern technology (active and passive safety, ITS)

With some specific PTW measures:

- Improving the perception of PTW riders by other road users.
- Enforcement on speed, drink-driving, helmet use, tampering and riding without a licence
- Encouraging research and technical developments
- Standards for personal protective equipment
- Use of relevant ITS applications (e.g. eCall)
- Airbags
- Appropriate anti-tampering measures
- Extending existing EU legislation on roadworthiness testing to PTWs
- Better adapting the road infrastructure to PTWs (e.g. safer crash barriers)

Interestingly, the following recommendations were made by stakeholders during the consultation phase:

- Most problematic: novice drivers and PTW users
- Safer crash barriers for PTWs
- Safety Impact Assessment of land use planning and road infrastructure
- Campaigns, training, instructors
- Lack of accident definitions, integration of safety into other fields, lack of data and research

To which the European Parliament’s Motion further added the following needs of relevance to PTW safety:

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*Deliverable 8 - National Strategies*
Deliverable 8 - National Strategies

- Improving indicators and data;
- Giving greater attention to PTWs/visibility in car driving lessons;
- Designing road infrastructure and equipment with PTWs in mind;
- Replacing existing dangerous crash barriers for motorcyclists

2.5. Other stakeholders’ feedback (Annex 6, Annex 11, Annex 13, Annex 14):

As part of the data collection and validation processes, the project organized 3 forums, and discussed the deliverable outcomes with pan-EU stakeholders. The memorandums of the workshops can be read in Annexes 11, 12 and 13. Below is a compilation of interesting comments made by participants and/or speakers in relation to the implementation of national strategies.

- Stakeholders workshops’ comments

On February 2nd, 2015, the project team discussed the key project findings with a range of EU experts (Annex 13), the main outcomes of which are summarized below:

- Some found it surprising that only a few countries consider enforcement a solution and that this should be accomplished by technical improvements, not police on the road. One solution to racing is to close roads to racers by positioning a police car on the road. On the other hand, others underlined the fact that closing the road just shifts the problem to another road. A better idea would be to get the motorcycling community involved in aspects of road safety on that road, i.e. applying peer pressure.

- One way to accept increased infrastructure costs is to consider the total cost to society of accidents, taking the societal burden into account. Moreover, a safe road infrastructure is essential to the economy. And road safety should be seen as part of a basic service for mobility.

- EuroRAP could adapt its assessment of the highway network to include motorcycle features, helping to bring roads up to a high standard.

- ERF underlines the fact that PTW riders are road users just like other people and shouldn’t have separate guidelines. A holistic approach avoiding specific guidelines for motorcyclists should be preferred.

- One of the key things to do is to target spending on root causes. The best root cause analysis available is the MAIDS study, which gives us percentages of accidents by primary cause. We can then build programs targeting these primary causes. Everything

should be justified by the potential reduction in fatalities through such programs and how they address primary causes.

– It is important to promote cooperation between riders and national road authorities when designing and planning a motorcycle road safety strategy.

3. Deliverable conclusions

A number of recommendations can be made in light of the RIDERSCAN analysis of existing national road safety strategies.

As PTW riders have specificities not shared by other road users, it is essential to know these in order to take them into account.

Specific measures are necessary to enhance PTW riders’ safety. Moreover, measures designed for other road users should also consider the specific characteristics and vulnerability of PTWs and their riders.

Several approaches to PTW safety can be considered when drafting road safety strategies:

– Designing a specific approach => PTW Safety Action Plans/Strategies. PTW users’ specific needs are well considered. But there is a possible side effect: the effectiveness of the plan is reduced by the existence of multiple road safety plans.

– Including a specific section on motorcyclists and moped riders within the overall road safety strategy. The specificities of PTW riders are recognised and measures can be specifically designed. But it is essential to not lose track of these when designing measures for other road users.

– Integrating PTW users’ needs within all sections. This method has the advantage of comprehensively including PTW users in the mobility scheme and keeping their presence on the road in mind. Nevertheless, attention must be paid to not ignore the fact that PTW riders are a particular group of road users with their own vulnerability and needs.

Regarding the content of the strategy itself, actions and measures should be chosen and designed depending on the road safety issues identified nationally/regionally/locally. There is no one-size-fits-all solution, and the problems faced by Member States will greatly depend on cultural and mobility patterns.

While the majority of the measures will require a strategy tailored to national circumstances, there are some areas where Europe has a role to play:

– Design appropriate frameworks (e.g. licencing, training, awareness campaigns) that can be then tailored to national circumstances;

– Make sure PTWs are fully and adequately integrated in all European transport policy papers (e.g. White Paper on Transport Policy, ITS directive, etc…);
Support **standardization work** and efforts (e.g. infrastructure) that rightly integrate PTW needs and requirements:

- infrastructure
- definitions of injuries;
- protective clothes
- conspicuity
- safety management
- etc.

**Increase knowledge:**

- fundamental research leading to proposals for potentially successful PTW road safety measures: riders’ needs, their characteristics (riding behaviour, cognitive performance, mentality, acceptance, motives, mobility needs, etc), their interaction with the elements comprising the road network (other road users, the road environment and their PTW)
- in-depth accident and naturalistic studies to better understand accidents that happened on the road and to design effective and coherent measures to tackle the different safety issues;
- risk perception and risk assessment work

**Develop road safety management tools designed for PTW safety:**

- common **impact assessment** and **cost-benefit analysis methodologies** to evaluate the impact of safety concepts (design better evaluation and better cost-benefit analyses of safety measures and their effects)
- identify **relevant safety performance indicators** based on an understanding of PTW riding models, risk patterns, and accident causation factors;

**Enhance stakeholders’ dialogue:** the European Union could provide added value by stimulating positive national debates on PTW safety, fostering dialogue between the motorcycling community and national road authorities; to this end,

**Benchmark** national strategies and specific road safety actions targeting PTW safety; **sharing of best practices**;

**Develop** awareness-raising campaigns based on shared values and topics easily adaptable at national level;

This is confirmed by the OECD/ITF Motorcycle Safety Report⁸ which further highlights the need to

- **Address PTW safety from a safe system approach** (**prevent errors and protect the users from their consequences**)
- Design a toolbox of measures addressing specific PTW needs
- Further work on PTW conspicuity (through lighting and electronic detectability)
- Improve infrastructure to better integrate PTW-specific needs (self-explaining and forgiving roads)
- Involve all relevant stakeholders in drawing up and implementing a shared road safety strategy

The RIDERSCAN project team views the mid-term review of the EC Communication on Road Safety 2011-2020 as a unique opportunity to integrate RIDERSCAN project findings and outcomes addressing PTW safety challenges, making use of the recommendations issued by all PTW safety experts.