



Unprotected road users – a key concern of road safety

This new Road Safety PIN Flash compares Member States' progress in reducing deaths among pedestrians, cyclists and Powered Two-Wheelers (PTW). With this publication, ETSC is marking the launch of the UN Decade of Action for Road Safety. Many vulnerable road users are being killed worldwide and the situation in the EU is no exception.

At least 15,300 pedestrians, cyclists and motorcycle riders were killed in the EU in 2009, and 169,000 since 2001. Deaths among this category of unprotected road users have been decreasing at a lower rate than for vehicle occupants. Deaths among pedestrians and cyclists decreased by 34% between 2001 and 2009 and those among PTW riders by only 18%, compared with 39 % for car drivers (Fig. 1). While the number of road deaths has declined considerably in the past decade in Europe, the number of PTW riders killed rose in 13 out of 26 countries. This rise can be attributed only partly to the increase in use of PTWs and should urgently receive special attention from policy makers at the national and European levels. The safety of walking and cycling also needs special attention if public health is to be improved by encouraging these forms of active travel.

Experiences from fast progressing and well performing countries show that affordable measures are known that can save the lives of many unprotected road users. The fastest reductions in pedestrian deaths have been recorded in **Portugal, Sweden, Norway and Belgium** and in cyclist deaths in **Finland, Israel, Slovakia and Latvia**. Best progress in reducing deaths among motorcyclists and moped riders has been achieved by **Portugal, Latvia**, and to a lesser extent by **Ireland and France**.

On the 11th of May, the UN will officially launch the **Decade of Action for Road Safety**. On this occasion, ETSC calls on all decision makers to adopt strong measures to cut road deaths among pedestrians, cyclists and motorcyclists. Initiatives targeted at improving the safety of vulnerable road users will be crucial to reaching the new EU 2020 Road Safety Target and contribute to the UN Decade of Action for Road Safety and the goals set out in the recently published **EU Transport White Paper**. About 50% of all car trips are shorter than 5km. It is important that shifting a substantial part of these short-distance car trips to walking, cycling and public transport should increase overall road safety as well as contributing to health and sustainability goals.

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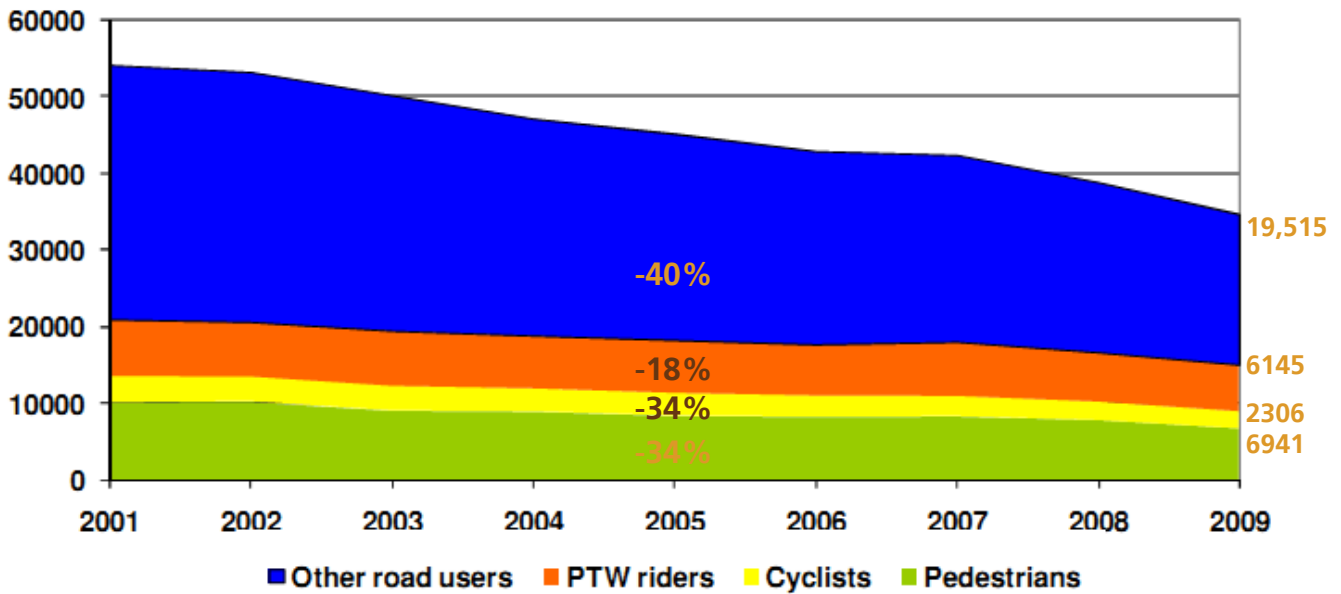


Fig. 1: Reduction in road deaths since 2001 for pedestrians, cyclists, motorcyclists and other road users.

Progress in reducing deaths among pedestrians

Road safety of pedestrians has improved in all PIN countries (except one) since 2001. Yet, as many as 6,900 pedestrians were killed in the EU27 in 2009 alone; 80,800 since 2001.

Portugal achieved an outstanding 11% average year to year reduction in pedestrian deaths over the period 2001-2009 (Fig. 2), cutting numbers of pedestrians being killed by 56% between 2001 and 2009. Two

countries that are already performing well, **Sweden** and **Norway**, have also achieved fast progress with average annual reductions of 9% and 8% respectively. Progress since 2001 has been disappointing in **Slovakia**, **Austria**, **Poland** and **Romania**, but it is encouraging that in **Poland** and **Slovakia** the numbers in 2009 showed substantial reductions from 2008. The number of pedestrians killed in **Denmark** increased by 2% per year on average.

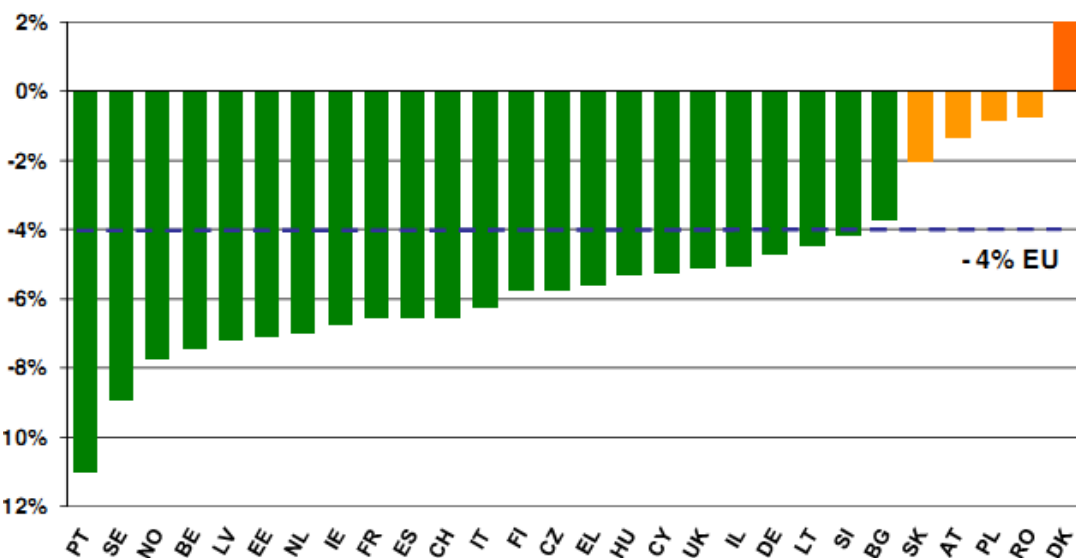


Fig. 2: Average annual percentage change in pedestrian deaths over the period 2001-2009.

The indicator

This report uses as main indicators the percentage change in the numbers of deaths among pedestrians, cyclists and Powered Two-Wheelers (PTW) riders between 2001 and 2009 (Fig. 2, 3 and 4).

Deaths among unprotected road users represent 44% of all road deaths across the EU. Pedestrian killed represent 20%, cyclists 6% and PTW users 17% of all road deaths but big disparities exist between countries (Fig. 2d).

Countries are also compared according to the numbers of PTW rider deaths per billion PTW kilometres ridden to take into account exposure to risk, i.e. the number of motorcycles on the road and the distances ridden (Fig. 5). This indicator of risk for PTW riders could not be calculated for **Bulgaria, Cyprus, Greece, Italy, Lithuania, Luxemburg, Malta, the Netherlands, Portugal** and **Slovakia** due to the lack of data on the number of kilometres ridden by motorcyclists. Fewer countries could provide updated estimates of kilometres travelled by PTW compared with the first publication of this ranking in 2008. Measurements stopped in 2005 in Poland and in 2006 in the **Czech Republic, Denmark, Hungary** and **Spain**. Countries use various methodologies to estimate km travelled by PTW¹.

The great majority of killed motorcycle and moped users are riders: in 14 countries supplying data to SafetyNet, there are 11 rider deaths for every passenger death². This Flash therefore concentrates on risk to the riders themselves and does not compare numbers of passenger deaths.

The data was retrieved from CARE when available and completed or updated by the PIN Panellists. The full dataset is available in the Background Tables on www.etsc.eu/PIN-publications.php (> PIN Flash 19).

The improvements in pedestrian safety are to a large extent a function of the overall improvements in road safety. Countries that have made the biggest improvements in road safety since 2001, namely **Portugal, Belgium, Latvia, Estonia, Ireland, France** and

Spain are among the best performers also in improving the safety of pedestrians. Countries that are already performing well like **Sweden, the Netherlands** and **Switzerland** were also able to cut pedestrian deaths substantially further.

Overall road deaths have decreased faster in **Germany** than pedestrian deaths. Pedestrian deaths represent 14% of all road deaths (Fig. 2d; around the same proportion as in 2001).

"A large share of serious collisions involving pedestrians involve elderly people and occur during winter, at night or in twilight. Pedestrians, elderly people and children in particular, should be made aware of the crucial importance of wearing brighter clothes and retro-reflective materials in order to be seen by car drivers. Vehicles are now increasingly equipped with better light systems such as xenon lamps, cornering lights, adaptive headlights and automatic dipped-beam headlamps, which help to reduce the risk of night-time accidents. Better road infrastructure is also key to further reducing accidents involving pedestrians. Enforcement is a must, in particular enforcement of speed limits, but also in respect of pedestrians and cyclists breaking the law", Jacqueline Lacroix, DVR, Germany.

The reduction in pedestrian deaths formed part of the good reduction in the total number of road deaths observed in **Portugal** since 2001. A lot of efforts were put into improving pedestrian safety. *"Our Road Safety National Plan (2003-2010) includes a 60% reduction target for pedestrian deaths. We achieved a 56% reduction up to 2009; we have most likely achieved our target in 2010. Around 40% of the pedestrians killed are aged 65 and older. The government runs campaigns raising awareness about pedestrian vulnerability. Infrastructure improvement schemes were implemented in several urban and suburban areas, with greater care over the location and signing of pedestrian crossings. Furthermore, recent developments in the management of emergency calls and in the emergency services have resulted in increased efficiency of post-crash care and higher survival rates. Still, there is a huge potential for improvement as many cities have not yet adopted a Road Safety Plan and automatic speed cameras are only being installed slowly."*

Joao Cardoso, LNEC, Portugal.

(1) SafetyNet, WP2, First classification of EU member states on Risk and Exposure Data http://www.erso.eu/safetynet/fixed/WP2/D2.2.2%20First%20Classification%20of%20RED_v2.pdf

(2) EU15 excl. DE. SafetyNet, WP1, Traffic Safety Basic Facts 2006 Motorcyclists and mopeds http://www.erso.eu/safetynet/fixed/WP1/2006/BFS2006_SN-SWOV-1-3-MotorcyclesMopeds.pdf

"We are pleased by the reduction in the number of pedestrians killed. Pedestrians used to be particularly at risk in Latvia - and still are in many areas. We have partly implemented the actions planned in the Road Safety Programme 2007-2013: pavements and cycle paths have been built to protect pedestrians and cyclists from motorised traffic, street lighting and signing around pedestrian crossings improved, enforcement of violations by drivers and pedestrians near pedestrian crossings tightened up. The good results motivate us to do more".

Aldis Lama, Ministry of Transport, Latvia.

After good progress earlier in the decade, deaths among pedestrians in **Italy** have increased each year since 2006.

"Following this worrying trend, the national parliament adopted a new amendment (L.120/2010) providing that drivers must give way to pedestrians crossing the roads and – which is new – to those waiting at a pedestrian crossing. With this new provision, the Italian legislation is falling into line with the example of many European countries".

Lucia Pennisi, ACI, Italy

In **Sweden**, deaths among pedestrians have been cut by 50% between 2001 and 2010, as well as deaths among cyclists (Fig. 3), while deaths among car drivers have been reduced by 30%.

"We are very pleased by this progress. This is the result of a combination of measures, in particular improvement in the infrastructure (separating pedestrian and cycling from motorised traffic) and an increase of 30km/h zones" in areas where there are many vulnerable road users."

Anna Vadeby, VTI, Sweden.

In **Austria**, reductions among vulnerable road users were slower than for car occupants.

"Against this background, our new Road Safety Programme is giving a special attention to the safety of pedestrians and cyclists. One of the challenges is that more than half of all killed pedestrians are older than 65 and many fatal collisions occur at night or in twilight. Wide scale infrastructure improvement schemes of crossing facilities are planned. A modified right-of-way regulation might be considered in order to make pedestrian's priority on zebra crossings more explicit"

Klaus Machata, Austrian Road Safety Board.

Progress in reducing speed: key to success in reducing pedestrian deaths

Progress in reducing pedestrian deaths in **Ireland** and the **Czech Republic**, and to a lesser extent **France** and **GB**, has been helped by a reduction in mean speed on urban roads.

In **Ireland**, drivers have slowed down markedly in cities

(Fig.2a) . But the mean speed is still 54km/h with 53% of vehicles exceeding the limit (Fig. 2b). In residential areas, the mean speed is now 35km/h with only 4% of vehicles exceeding 50km/h, suggesting that there is scope to follow many other European cities by reducing the speed limit to 30km/h.

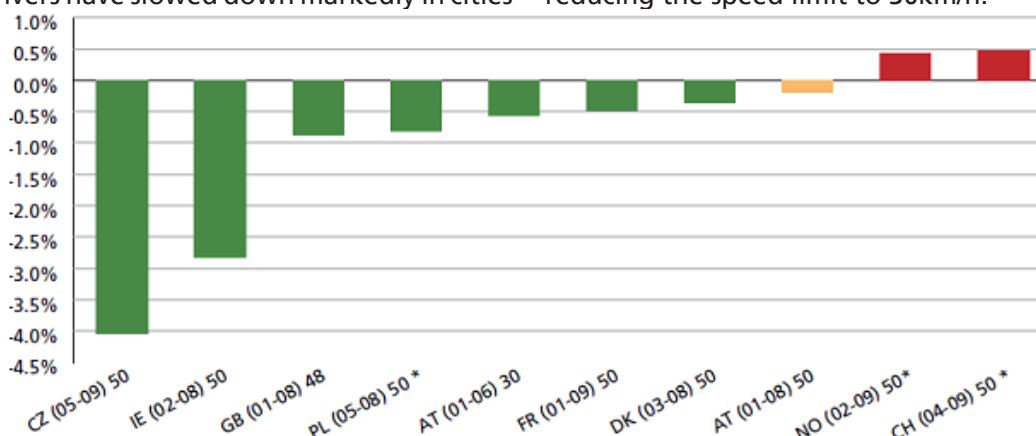


Fig. 2a: Yearly average percentage change in mean speed of cars and vans on urban roads (from earliest available baseline to latest available year)

In **Poland**, in 2004, the speed limit in urban areas was lowered from 60km/h to 50km/h between 6am and 11pm (it remains 60km/h from 11pm to 5am).

* All traffic.

(3) First published in ETSC (2010), Chapter 3.

Best progress in reducing mean speed of cars and vans has been made in the **Czech Republic** (Fig. 2a): 80% of drivers now obey the speed limit (Fig. 2b). The percentage of cars and vans exceeding speed limit there fell sharply in 2006, following the introduction of a penalty point system and increased enforcement. Despite the percentage rising again somewhat in 2007, as the level of enforcement was not sustained, the reduction achieved in 2006 has largely persisted.

The number of pedestrians killed fell sharply in 2006, was somewhat higher in 2007 and 2008, and fell again encouragingly in 2009.

Pedestrians are exposed to high speed in cities in **Poland** with 80% of the drivers breaking the speed limit (Fig. 2b). In Austria, 70% of vehicles exceed the 30km/h limit in residential zones and 51% exceed the limit where this is 50km/h.

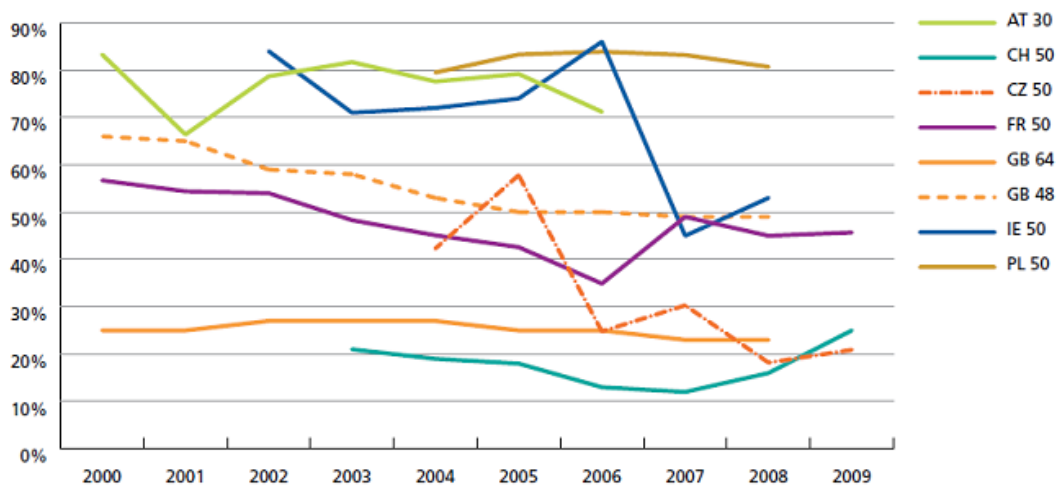


Fig. 2b: Percentage of cars and vans exceeding the speed limits on urban roads.
* All traffic.

Improving pedestrian safety requires a combination of measures. In particular, there is still plenty of room for improvement when it comes to pedestrian crossings in Europe. This is the main finding of the EuroTest 2010 "pedestrian crossing assessment programme"⁴. For the third year, the Automobile Club d'Italia (ACI) and its partner automobile clubs tested pedestrian crossings within EuroTest, the European consumer testing programme. The results revealed that almost one in five crossings failed the test, achieving a "poor" rating, underlining again just how much pedestrian crossings differ across Europe.

The test was conducted in 18 major cities, in 15 different countries across Europe. In each city, 15 crossings were inspected, with efforts made to examine the whole range of crossings found in defined zones. The safety of each pedestrian crossing was assessed and evaluated, taking into account its peculiarities in terms of crossing system, daylight visibility, night-time



visibility, accessibility for all the road users.

The most glaring failings include the absence of refuge islands on particularly long crossings, poor traffic light management (very short green times for pedestrians) and high numbers of potential hazard

(4) <http://eurotestmobility.com/eurotest.php?itemno=385&PHPSESSID=1a4cc7390f6d951996a50d6a23cfded6>

points for pedestrians and vehicles. The visibility aspect particularly at night still needs much improvement (one in five crossings was negatively rated in this respect). Accessibility at pedestrian crossings was also found to be generally poor, particularly for wheelchair users and people who are sight- or hearing-impaired). Better accessibility, greater harmonisation of rules governing the types of infrastructure (traffic light schemes, road markings etc) and behaviour at

pedestrian crossings as well as more effective use of technologies are a must if safety is to be assured.

Most of pedestrians are hit by passenger cars or light duty vehicles. This is because cars form the majority of traffic. However, when allowing for distance travelled, motorcycles and buses pose greater risk to pedestrians in urban areas (see Fig. below from GB)⁵.

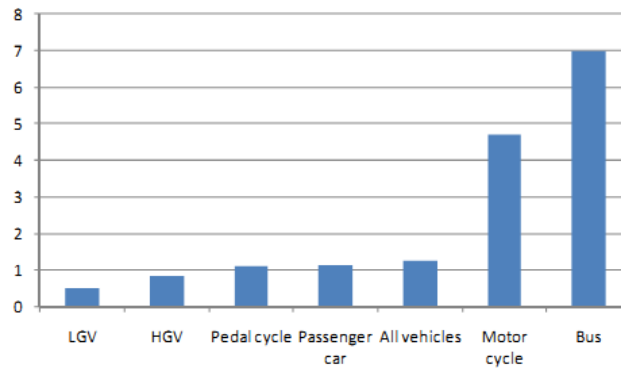


Figure 2c: Reported killed and serious injured pedestrian casualty rate per billion vehicle-km by vehicle types, GB, 2008. Source: UK Department for Transport.

The UN Decade of Action for Road Safety

The United Nations General Assembly proclaimed in its resolution A/64/255 of March 2010 a Decade of Action for Road Safety 2011-2020. The goal is to “stabilise and then reduce the forecast level of road traffic deaths around the world by 2020.” The World Health Organisation (WHO) has prepared a Global Plan for the Decade to facilitate coordinated actions at national, local and global levels.

The Plan calls for special attention to the safety of vulnerable road users (VRUs) for the benefit of all road users and urges all countries to:

- Raise the inherent safety and protective quality of road networks;
- Implement pedestrian protection regulations;
- Set and seek compliance with laws and evidence-based standards and rules for motorcycle helmets to reduce head-injuries;
- Accelerate research into safety technologies designed to reduce risks to VRUs;
- Encourage universal deployment of crash avoidance technologies with proven effectiveness such as Electronic Stability Control and Anti-Lock Braking Systems for motorcycles;

“I call on Member States, international agencies, civil society organizations, businesses and community leaders to ensure that the Decade leads to real improvements. As a step in this direction, governments should release their national plans for the Decade when it is launched globally on 11 May 2011.” Mr Ban Ki-moon, UN Secretary-General

WHO Global Plan for the Decade of Action http://www.who.int/roadsafety/decade_of_action/plan/en/index.html

(5) <http://www.walkeurope.org/uploads/File/publications/PQN%20Final%20Report%20part%20B1.pdf>

Unprotected road user shares of road deaths in different countries

Deaths among unprotected road users represent 44% of all road deaths across the EU. Pedestrians killed represent 20%, cyclists 6% and PTWs 17% of all road deaths but big disparities exist between countries.

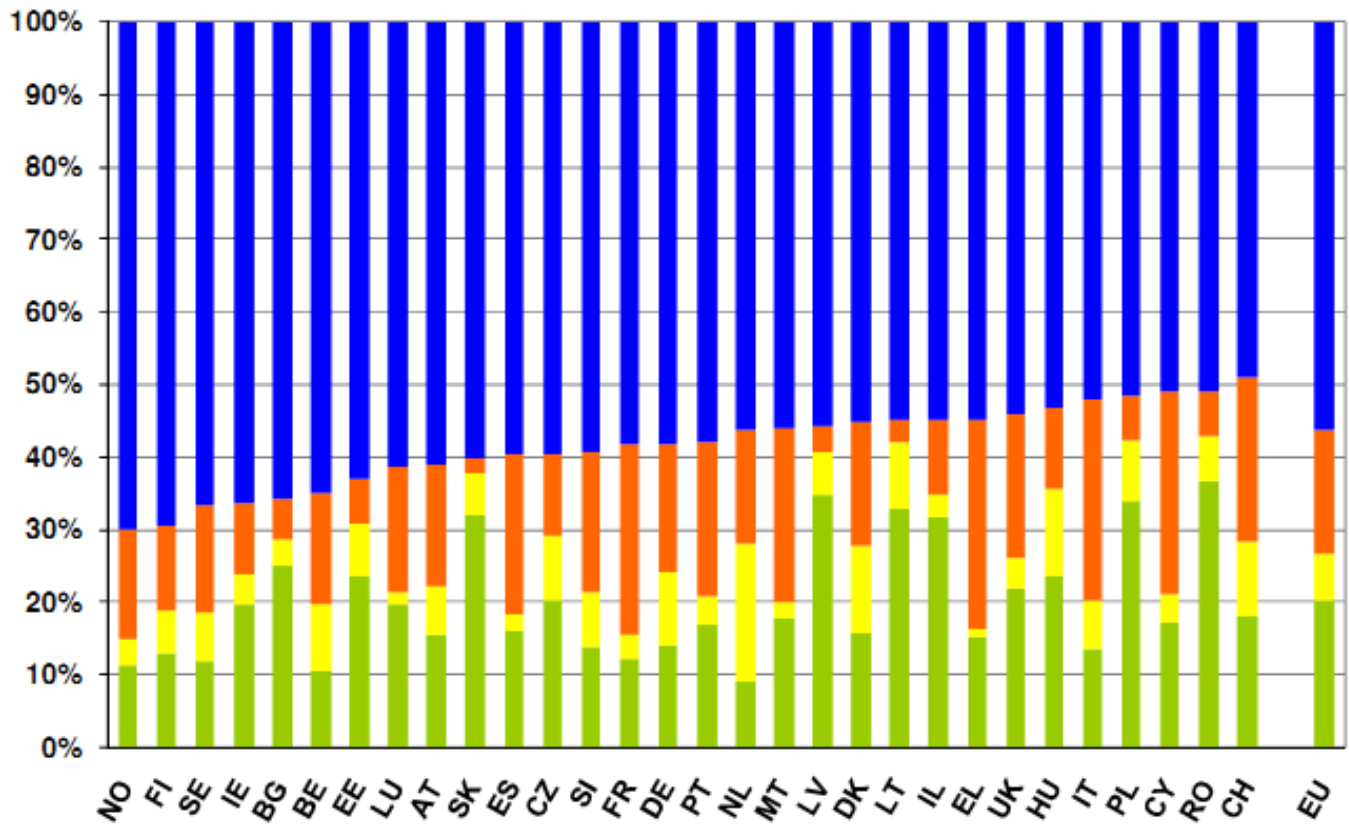


Fig. 2d: Pedestrians, cycle users and PTW users' deaths as a percentage of all road deaths ranked by the share of deaths that were unprotected road users of all kinds taken together (2007-2009 average)

"The share of pedestrian deaths among all deaths is higher in the Eastern European countries (with the exception of Slovenia) and in Israel, which can be partly explained by a lower level of motorisation in those countries than in Western Europe",
Péter Hollo, KTI, Hungary.

"Of course, the cycling and motorcycling season is much shorter in Norway, Finland and Sweden than in other EU countries. There are generally few cyclists and motorcyclists on the roads between November and March in Finland. At the same time, we have put a lot of effort into improving the safety of pedestrians and cyclists in urban areas. Cycling and walking paths are generally separated from motorised traffic, safe crossings are provided and speed limits lowered below 50km/h in most city centres. There is room for improvement in the countryside however",
Esa Rätty, Finnish Motor Insurers' Centre (VALT).

European Parliament Report on road safety

On the 28th of February 2011, MEP Dieter-Lebrecht Koch presented his draft report on the new challenges and measures to improve EU road safety over the next decade to the Committee on Transport and Tourism (TRAN) of the European Parliament. Endorsing the objective of halving the total number of road deaths in the EU between 2011 and 2020, the report also calls for a 40% reduction in the number of people suffering serious injuries, on the basis of a harmonised EU definition. MEP Koch reiterated the need for a greater account to be taken of the protection of vulnerable road users, such as pedestrians, cyclists, children and elderly people, as an integral aspect of road safety. Innovative recommendations include the compulsory fitting of alcolocks to all commercial passenger and goods transport vehicles, a wider introduction of 'eCall', and the introduction of Intelligent Speed Assistance (ISA) systems. The report will be voted in May in the Committee on Transport and Tourism and adopted in plenary in June.

The draft report can be found here <http://www.europarl.europa.eu/oeil/file.jsp?id=5879452>.

Good progress in reducing cyclist deaths...

The numbers of cyclists killed in road collisions decreased in all PIN countries except Romania between 2001 and 2009 (Fig. 3). Finland, Israel, Slovakia and Latvia achieved the best average annual reductions, of between 9.6% and 14%, over the last eight years. Reductions in Italy, Austria, Ireland, the UK, Switzerland and Slovenia were clearly smaller than the EU average of 4% per year.

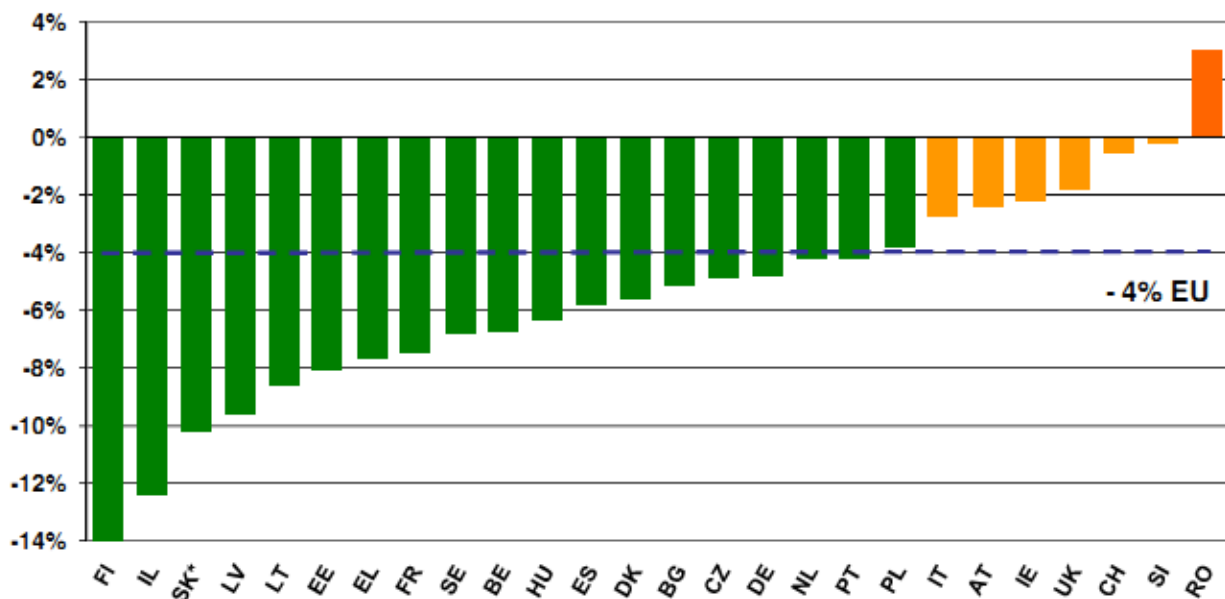


Fig. 3: Average annual percentage change in cyclist deaths over the period 2001-2009.

* SK 2002-2009.

CY, LU and MT are excluded from this ranking because the numbers of cyclist deaths in those countries are so small as to be subject to substantial random fluctuation.

“Cycling is not yet as popular in Latvia as in other EU countries but we expect an increase in cycling in the coming years. We hope to be able to sustain the good results achieved so far. Although limited, the network of cycling paths is being extended. All children are now being taught at school how to behave on the roads as part of the primary and secondary school’s programmes up to the 9th grade. To enter the 6th pupils have to know how to behave as a cyclist. We have just started in May a new campaign “Do you see bicycle?” inviting car drivers to pay attention to cyclists.”

Aldis Lama, Ministry of Transport, Latvia.

“In the Netherlands, 45% of those seriously injured on the roads are injured while cycling with no motor vehicle involved. Traditionally, many road safety measures targeted car occupants and interactions between motor vehicles and pedestrians or cyclists. The new Dutch Road Safety Plan sets a series of priority actions for 2020, in particular extra protection for vulnerable road users, such as cyclists”.

Peter Mak, Ministry of Transport, the Netherlands.

“A National Cycling Plan 2002-2012 was developed by the German Ministry of Transport with a broad range of measures to promote cycling and safety measures for cyclists (vehicle safety, infrastructure and behaviour of the cyclists). Nevertheless, due to the increased use of bicycles, the number of cyclists killed decreased by only 27% from 2001 to 2009. Elderly cyclists are especially at risk: every fourth killed cyclist was over 75”.

Jacqueline Lacroix, DVR, Germany.

“Deaths among cyclists have not decreased in Slovenia since 2001, but the share of cyclist deaths among all deaths increased from 5% in 2006 to 12% in 2010. The Slovenian Traffic Safety Agency encourages the use of bicycle as a mean of transport but we are aware that this might lead to an increase in the number of cyclists killed as a consequence of increased traffic. This is why we have developed a specific action plan for cyclists. The main objective of the plan - and the accompanying national prevention campaign - is to reduce the number of cyclists killed and seriously injured by 10% and increase the use of helmets for cyclists by 10%”.

Vesna Marinko, Traffic Safety Agency, Slovenia.

... is only the tip of the iceberg

Too many cyclists are killed in road collisions, but many more are injured - sometimes seriously. The level of reporting of road injuries also tends to be lower for pedestrians, cyclists and motorcyclists than for car occupants. This is partly because, in particular with collisions with no motor vehicle involved, or

between one motor vehicle and a pedestrian or cyclist and no victims killed on the spot, victims, the involved driver or eyewitnesses call the emergency services but not necessarily the police. In Sweden, only one in ten cyclists treated in hospital following a collision is recorded by the police.

A combination of measures: legislation, enforcement, awareness campaigns...

In some European countries, it is mandatory to wear cycle helmets. This is the case in Finland, Slovenia and Israel for all cyclists regardless of age, in Sweden for those aged up to 15 and in the Czech Republic up to 18. Advocates of helmet legislation may wish to address, as part of their promotional activities,

concerns regarding decreased cycling numbers following introduction of legislation, by citing the benefits and low overall risk of cycling, because those not in favour of legislation have used discouragement from cycling as an argument against legislation⁶.

Turning HGVs: beware of danger!

Copenhagen, with a population of 500,000, is an example of a city where 60% of citizens use their bikes every day and for all of their local trips. Efforts by Copenhagen authorities have led to a 50% reduction of killed and seriously injured cyclists since 2000. To maintain these high levels of cycling and improving safety records, a number of policy interventions have been applied. These include for example restrictions for HGVs over 18 tonnes and recommended routes for HGVs through the city. To further minimise HGV and

cyclists collisions, LED technology informs HGV drivers if a cyclist is approaching at junctions. Large stickers have been placed on the ground in the cycle track at junctions as a very visible reminder to alert cyclists to the conflict potential. So-called “Green Cycle routes” have been developed for cyclists to identify safe routes. Green waves for cyclists, where traffic lights are set at the speed of cyclists, have been created. A “cycle bus” system whereby cyclists meet at set places and times on a route map to commute in and out of

(6) European Child Safety Alliance (2006). Child Safety Good Practice Guide.

town together have also been set up⁷.

The Police in Cologne, Germany, regularly run enforcement activities aiming at improving cycling safety, targeting car drivers who pay too little attention to cyclists as well as cyclists themselves. The last "Action

for safer biking"⁸ was conducted in March and April 2011. Measures were only preventative during the first week, with policemen giving warnings to cyclists breaking the law, and after that policemen imposed fines. The most frequent offences were using cycle paths in the wrong direction or crossing red lights.⁹

The safety impact of more cycling

"Safety in numbers" evidence shows a non-linear relationship between the amount of cycling and walking and the risks to cyclists and pedestrians. This means that the more pedestrians or cyclists there are, the lower the risk to each individual as car drivers and other motorised road users are more used to sharing the road with them¹⁰.

However, an increase in cycling might, at least at first, lead to an increase in the number of cyclists killed and seriously injured¹¹. Yet the advantages of walking and cycling (a healthy life through regular exercise, benefit to the environment and higher quality of life) outweigh their disadvantages (the risk of death or injury). Moreover cyclists and pedestrians do not endanger other road users as much as car drivers do because of their lower speed and mass. So shifting a substantial proportion of short-distance car trips to walking, cycling and public transport can, if accompanied by measures to reduce the risks of walking and cycling, increase overall road safety.

... and safer environment for unprotected road users

Since the risk to unprotected road users stems very largely from the use of motor vehicles, the most fundamental challenge is to enable cities to enjoy at least as high a level of prosperity, and their people to enjoy at least as high a quality of life, with fewer vehicle-km driven per year, for example by:

- Promoting localisation of some activities so that they can be reached on foot or by bicycle, or at least by shorter car journeys than before;
- Centralising other activities so that they can be served better by public transport;
- Improving the quality of public transport to extend the range of circumstances in which it is chosen in preference to the car; and
- Discouraging access by car where there are reasonable alternatives.

A second and related challenge is that if people are going to walk, cycle and use public transport more as a result of using cars more selectively (and there are environmental and public health reasons for encouraging this) then cities have to reduce the risks

of death and injury while walking or cycling, for example by:

- Creating attractive and convenient routes for the journeys on foot or by bicycle that people would actually like to make – routes with less proximity to motor traffic and safer provision for crossing roads; and
- Moderating the speeds of motor vehicles where they still travel in proximity to people walking and cycling.
- Promote 30km/h speed limit zones in residential areas and areas with high levels of pedestrians and cyclists.

However successfully alternatives to car use are encouraged, the amount of motor vehicle use in European cities is still likely to increase a good deal. A third challenge to cities is therefore to reduce the risks of death and injury posed by motor vehicles, for example by:

- Matching the use of each road to the functions that the road serves in terms of living space, access and through movement (Sustainable Safety

(7)ETSC (2010), 4th Report, Safer commuting to work, <http://www.etsc.eu/PRAISE-publications.php>

(8) <http://www.polizei.nrw.de/presse/portal/koeln/110411-141944-84-1127/110411-4-klev-aktion-sicher-fahrrad-fahren?print>

(9) <http://www.velo2010.de/>

(10) Jacobsen P., Safety in numbers: more walkers and bicyclists, safer walking and bicycling. Injury Prevention, vol. 9 pp 205-209, 2003

ECF "Halving injury and fatality rates for cyclists by 2020" http://www.ecf.com/3956_1

(11) Stipdonk H., Reurings, M. (2010), The safety effect of exchanging car mobility for bicycle mobility

- Approach¹²);
- Separating faster vehicles from slower ones and lighter vehicles from heavier ones, and separating vehicles that are making conflicting movements;
- Making the road system self-explaining to its users; and
- Achieving high levels of use of protective devices and understanding of how to drive to reduce risk¹³.

Improve passive and active vehicle safety

European Parliament Supports the Reduction of 'Blind Spots' on Heavy Goods Vehicles

Members of the European Parliament have adopted a written declaration urging the European Commission and Council of Ministers to reduce blind spots around heavy goods vehicles (HGVs) on European roads. HGVs make up 3% of the vehicle fleet but are involved in 14% of fatal collisions, being particularly dangerous to vulnerable road users such as motorcyclists, cyclists and pedestrians. Currently regulated by Directive 2007/38/EC, the fitting of heavy goods vehicles with systems of indirect vision to reduce collisions is under evaluation

by the European Commission. MEPs are putting pressure on the Commission to speed up its evaluation of the current Directive, revise its text to take account of the latest technological developments, and ensure that emergency braking and lane departure warning systems are installed on all HGVs registered in the EU. The written declaration was submitted by MEPs Fiona Hall, Ines Ayala Sender, Isabelle Durant, Dieter-Lebrecht Koch and Sabine Wils and was signed by a total of 415 MEPs.

Urban street user hierarchy or Street code

As exemplified recently in Belgium, a number of EU countries have established an urban street user hierarchy that gives the highest priority to walking, cycling, and public transport. This concept introduces a "principle of prudence", governing the relationship between drivers and the most vulnerable, as well as new urban road planning rules and the generalisation of 30km/h zones. The US Federal Highway Administration sponsored scoping study of five European countries is recommending adopting such approach also in the US.¹⁴

Insufficient progress in reducing deaths among Powered Two-Wheeler users

6,145 riders killed in the EU in 2009 – only 18% fewer than in 2001 ...

Portugal and **Latvia** achieved the highest average annual reductions of 10% and 8% respectively in PTW rider deaths since 2001 (Fig. 4). In **Portugal**, PTW rider deaths were cut from more than 400 in 2001 to 173 in 2009, reaching an outstanding 58% reduction in 8 years. In eleven other countries, motorcycle rider deaths decreased on average.

In 13 countries, the numbers of PTW rider deaths rose on average over the past nine years. The number of PTW riders killed increased by 6% yearly on average in **Sweden**, by 10% in **Finland** and by 43% in **Romania**. The Romanian government need to adopt strict measures as a matter of urgency to reverse this worrying trend.

(12) ETSC (2010), PIN Flash 18 Reducing deaths on rural roads, <http://www.etsc.eu/PIN-publications.php>

(13) ETSC (2009), 3rd PIN Report, Chapter 4

(14) Fischer, E. et al. (2010). Pedestrians and Bicyclist Safety and Mobility in Europe, US Federal Highway Administration. <http://www.international.fhwa.dot.gov/pubs/pl10010/pl10010.pdf>

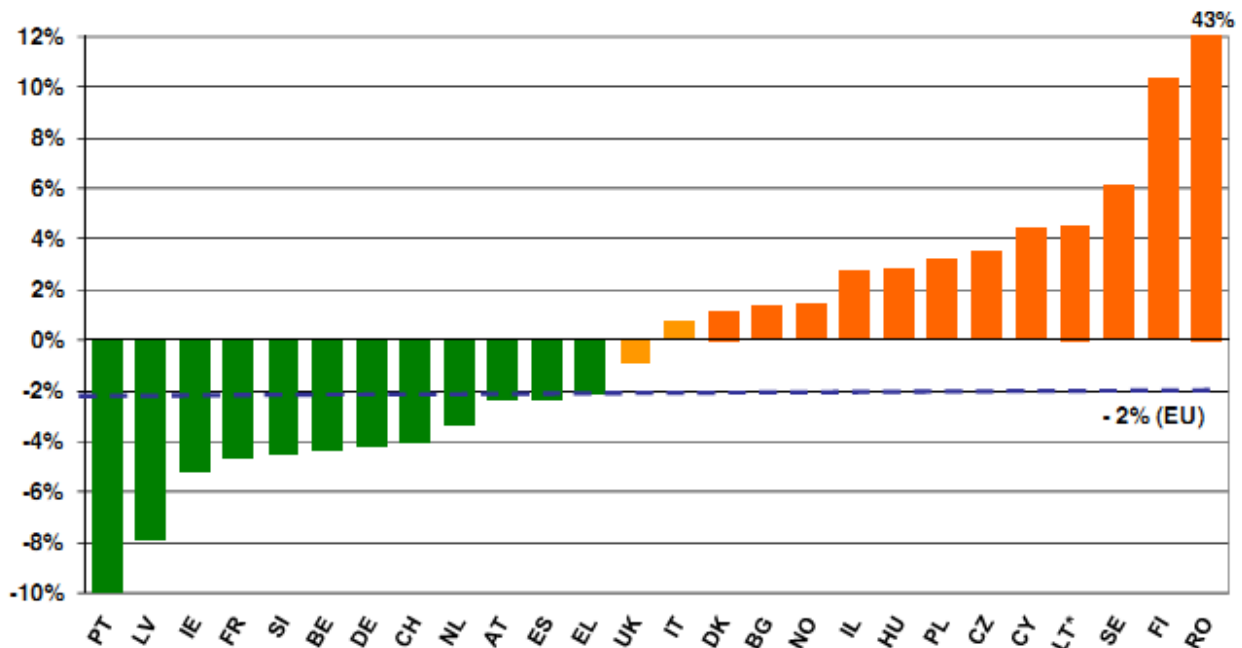


Fig.4: Average annual percentage change in PTW rider deaths over the period 2001-2009.
*LT: 2006-2009. Notes: LU, MT, EE, SK excluded (countries having <10 deaths in more than 2 years)

With the entry into force of the EU Directive on Driving Licencing and its transposition into Romanian law, **Romania** will soon fall into line with the rest of the EU and introduce a compulsory driving licence for riding a motorcycle.

“Unfortunately, in 2010 we were unable to sustain the 2009 low record of seven motorcyclists and one moped rider killed. Last year, 15 motorcyclists and four moped riders lost their lives on Latvian roads, putting us back to the 2001 level”.

Aldis Lama, Ministry of Transport, Latvia.

Powered Two-Wheelers (PTW)

As the diversity of two-wheeled motor vehicles in Europe has increased, the general term Powered Two-Wheeler has recently been used to encompass all relevant vehicles, the main types being mopeds, scooters and full-sized motorcycles. In this report, the terms ‘motorcycle’ and ‘PTW’ are used synonymously and, except where specified, refer to all types of such vehicles. Differences in machines and their use between mopeds and other PTW are important and are discussed here as far as the data allow.

In recent years there has been much discussion about whether a PTW user falls into the category of vulnerable road user since they can pose risks to other users such as pedestrians and cyclists. This is why we are also using the term ‘unprotected’. Although motorcyclists are to some extent protected by helmets and clothes, they are not protected by a vehicle body, seat belts or the other protection systems that car occupants enjoy, while the speed at which they move exposes them to risks of motorised traffic.

To reach the EU target of cutting road deaths by 50% between 2001 and 2010, a year-to-year reduction on deaths of at least 7.4% is needed from 2001 onwards¹⁵. The reduction in PTW rider deaths is contributing fully to the overall reduction only in **Portugal** and **Latvia**. The average annual reduction in PTW rider deaths between

2001 and 2009 was only 2% for the EU as a whole. Yet rider deaths decreased in 2008 and 2009 by 8% and 5% respectively, after having changed relatively little between 2002 and 2007, giving some hope that the general road safety improvements recorded in the EU are starting to benefit motorcyclists and moped users as well.

(15) ETSC (2007), Road Safety PIN Flash 6.

“The general road safety improvements recorded in Portugal over the past few years are benefiting motorcycle and moped users as well. It seems also that some people might have switched from mopeds to cars and motorcycles, explaining part of the reduction in deaths among moped riders. Yet more than 116 motorcyclists and 57 moped riders were killed on Portuguese roads in 2009.”

Joao Cardoso, LNEC, Portugal.

“We hope to be able to sustain the reduction in the coming years. The objective for 2021 set in our new national road safety programme is to halve the number of deaths among motorcyclists”.

Vesna Marinko, Traffic Safety Agency, Slovenia.

“Motorcycling has gained popularity in Romania recently. We need to adopt a coherent package of measures as part of our upcoming road safety programme. Already, helmet wearing rates have been increased from 90 to 93% for riders and from 56% to 71% for passengers following awareness campaigns. We need to increase our enforcement activities targeting motorcyclists”

Mihai Calinoiu, Romanian Traffic Police.

“Deaths among PTW riders increased by 26% over the last 10 years. Part of the increase can be explained by an increase in PTW use and PTW-km ridden. However, we need to attend to this trend. In-depth accident studies show that more than half of the moped riders killed in road collisions in Sweden were not wearing a helmet or lost the helmet in the accident. A good share of those people would have been saved had they worn one properly. More efforts are needed to achieve a 100% helmet wearing rate and proper fastening among moped riders and passengers”.

Anna Vadeby, VTI, Sweden.

... and many more seriously injured

At least 42,500 riders were seriously injured in road collisions in the year 2009 alone.

“For every motorcyclist who dies there are some four motorcyclists who survive with severe brain damage, spinal cord injury or serious joint dysfunction in the upper or lower limbs. Such injuries require substantial periods of rehabilitation and often leave permanent disabilities. Such cases are very predominantly young males. The social and economic costs of such casualties are enormous”.

Murray Mackay, Professor Emeritus of Transport Safety, University of Birmingham, UK.

In Fig. 5 the annual average percentage change in PTW rider deaths since 2001 in 23 of the PIN countries is plotted vertically against the annual

average percentage change in serious injuries (estimated in each case from data for all of the nine years) plotted horizontally. The EU averages of the two indicators are used to divide the diagram into four quadrants. The number of seriously injured riders across Europe as a whole has stagnated between 2001 and 2009.

Portugal, Latvia, Ireland, Belgium, Germany, Slovenia, Switzerland and Spain achieved better than average reductions in both the number of killed and seriously injured PTW riders since 2001 (Fig. 5). **Greece, GB, Denmark, Norway, Cyprus and Malta** have also made above average progress in reducing serious injuries among PTWs but the reductions in riders' deaths were not sufficient to bring them into the favourable lower left quadrant.

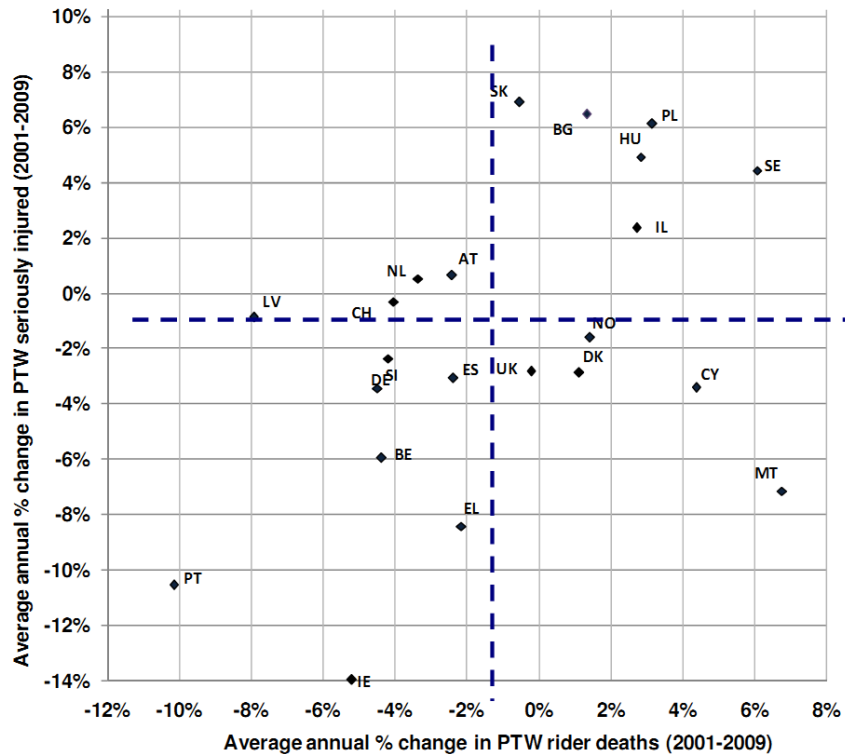


Fig. 5: Average annual percentage change in PTW rider deaths (2001-2009) plotted against the average annual percentage change in PTW seriously injured (2001-2009). Trends in seriously injured: GB figure used for UK, LV (2004-2009), SK (2002-2009); CZ, EE, FI, IT, LT, UK: data on PTW riders seriously injured is not available. France is excluded from Fig. 5 because of the change in the definition of seriously injured in 2005.

Still a great disparity of risks

PTW riders in **Norway, Switzerland, Israel and Finland** benefit from a lower level of risk than riders in the rest of Europe (Fig. 6). In these countries with a good overall level of road safety, average rider deaths are between 24 and 40 per billion kilometres ridden. In **Germany, Sweden, Denmark, Latvia, Ireland and Austria** rates are better than the EU average of 87 rider deaths per billion km ridden. Regrettably, no progress has been made across the EU since the first publication of this ranking¹⁶ as the EU average of PTW rider deaths per billion km is 87 in 2009 compared to 86 in 2006.

In the **UK, Estonia, Spain, France and Belgium**, rider

deaths are above the average of 84 but below 150; while in **Slovenia**, riders are exposed to death rates above 200 and in **Czech Republic and Romania**, to death rates well above 250 per billion km ridden.

Norway, Switzerland, Finland and Germany, already ranking among the top five for PTWs deaths per billion km ridden in 2006, have been joined by **Israel and Sweden**¹⁷ in having rates not exceeding 50 deaths per billion km, whereas the rate for **Denmark** has risen above 50 since 2006.

Significant disparities in terms of riders' safety exist in Europe. While the difference in overall road

(16) ETSC (2008), 2nd PIN Report, Chapter 2, Fig. 1.

(17) See ETSC (2008), 2nd PIN Report for background information on those well performing countries.

safety performance between the worst and the best performing European country is a factor of 3 (4th PIN Report), the difference for PTW riders is a factor of 5 between **Norway** and **France**. Furthermore, in **Poland, Slovenia, Hungary, Czech Republic** and **Romania** riders have recently been exposed to risks of being killed in road traffic per km ridden of 7, 10, 15, 15 and 30 times higher respectively than their Norwegian counterparts have.

Another way to measure the relative safety of motorcyclists is to compare it with that of other kinds of road user. Here again, no progress has been made since the first publication of this country ranking¹⁸. For the same distance travelled, the risk of a rider being killed in a road accident is still on average 18 times the corresponding risk for a car driver. The variation in this ratio between countries is also striking: between 8 times in **Norway** and 70 times in **Slovenia!**

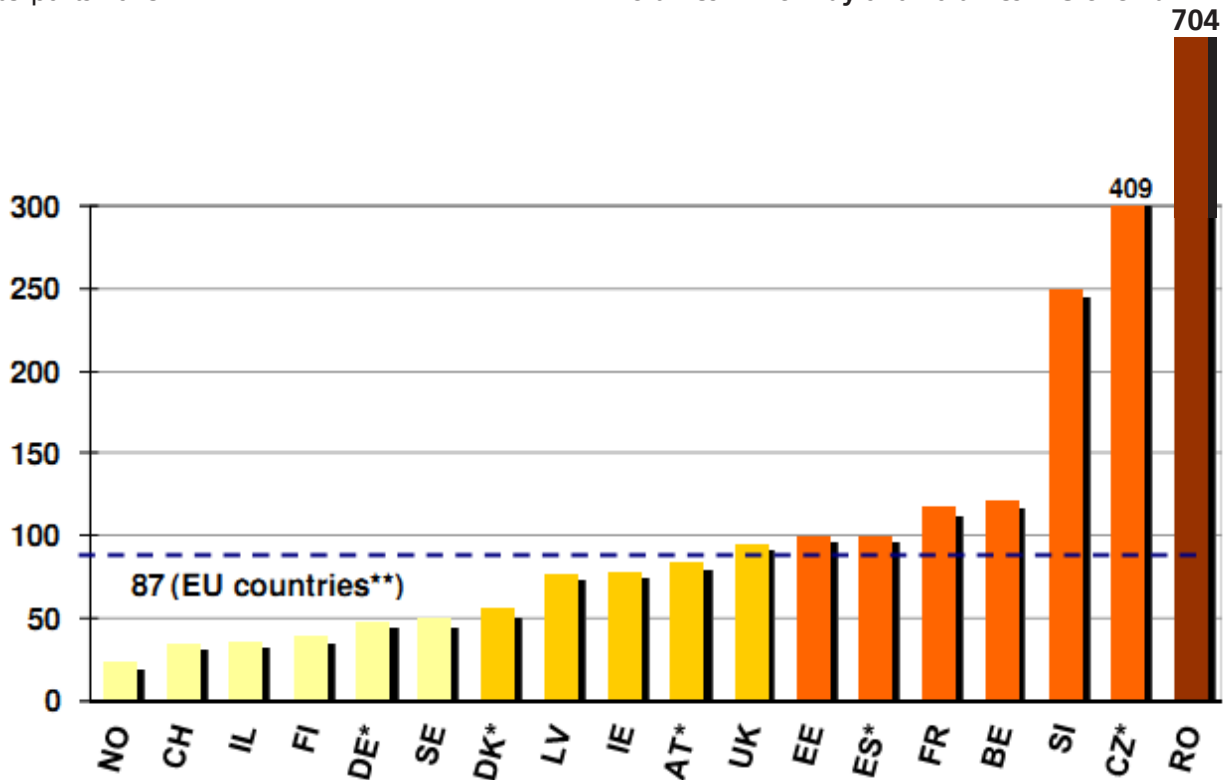


Fig. 6: Power two-wheeler rider deaths per billion kilometers ridden in 2009

* AT, DE (2008); CZ, DK, ES (2006). BE, UK: Mopeds not included.

**Average for the EU Member States for which rates are shown in the Figure.

Some sources of disparities in risk

Like the risk to users of other types of vehicle, the aggregate risk for PTW riders differs between countries for many reasons other than road safety policy and measures. These other reasons include climate, topography, seasonal variation, the age-distribution of the users, and the mix of commuting, work and leisure journeys for which the vehicles are used.

In the case of PTW riders there is another particular and substantial source of difference between countries. This is the proportion of PTW use that is formed by riding of mopeds (PTW with engine volume less than 50ccm), which differ in characteristics and pattern of use from larger and more powerful PTW. Comparison of the proportion of moped rider deaths in the total number of PTW rider deaths can help countries to identify and prioritise safety measures for PTW.

(18) ETSC (2008), 2nd PIN Report, Chapter 2, Fig. 2.

Fig. 7 shows how the proportion of PTW riders killed who were moped riders differed among 22 countries over a recent 3-year period. This proportion is the lowest in the **Czech Republic, GB and Luxembourg**

and the highest in **Romania, Denmark, Estonia and the Netherlands**. In other countries, moped rider deaths are between about 8% and 35% of all PTW deaths.

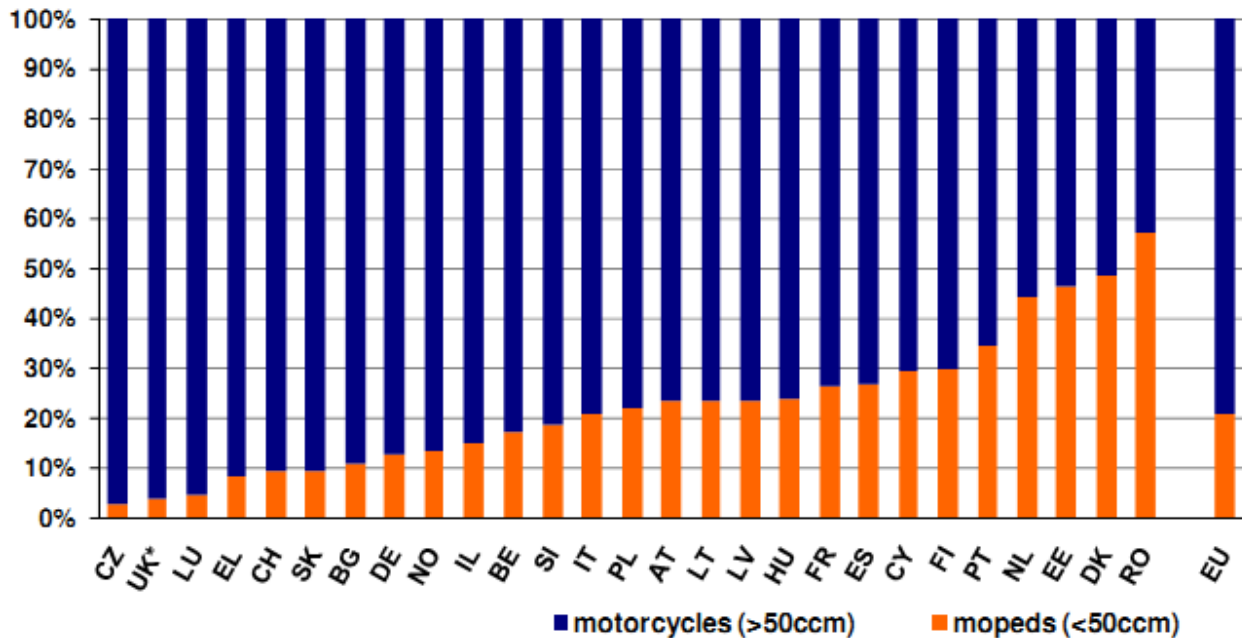


Fig.7. Moped rider deaths as a percentage of total PTW rider deaths (2007-2009 average).
*2006-2008.

More mid-life riders on the roads

The age at which riders gain their motorcycling licence and purchase their first bike has increased steadily over the years. These recent changes suggest that a significant proportion of motorcyclists either use newly learned skills or rely on skills that were developed some years ago and which may have subsequently degraded through lack of use. This phenomenon has also been noted elsewhere in Australia and the US. The way in which motorcyclists build up their experience has also changed. Mid-life recruits to motorcycling tend to move up to powerful machines much more quickly - helped in particular by

higher incomes - than their younger counterparts. As a consequence, there are more mid-life riders being killed today than in 1991 (Fig. 8).

While riding a motorcycle will for the foreseeable future carry more risk than driving a car, evidence shows that the implementation of dedicated safety measures can substantially improve PTW safety. The measures should aim at improving the behaviour of motorcyclists, but also the behaviour of other road users and providing a safer environment for PTW riders¹⁹.

(19) ETSC (2008), vulnerable riders, Safety implications of motorcycling in the European Union.

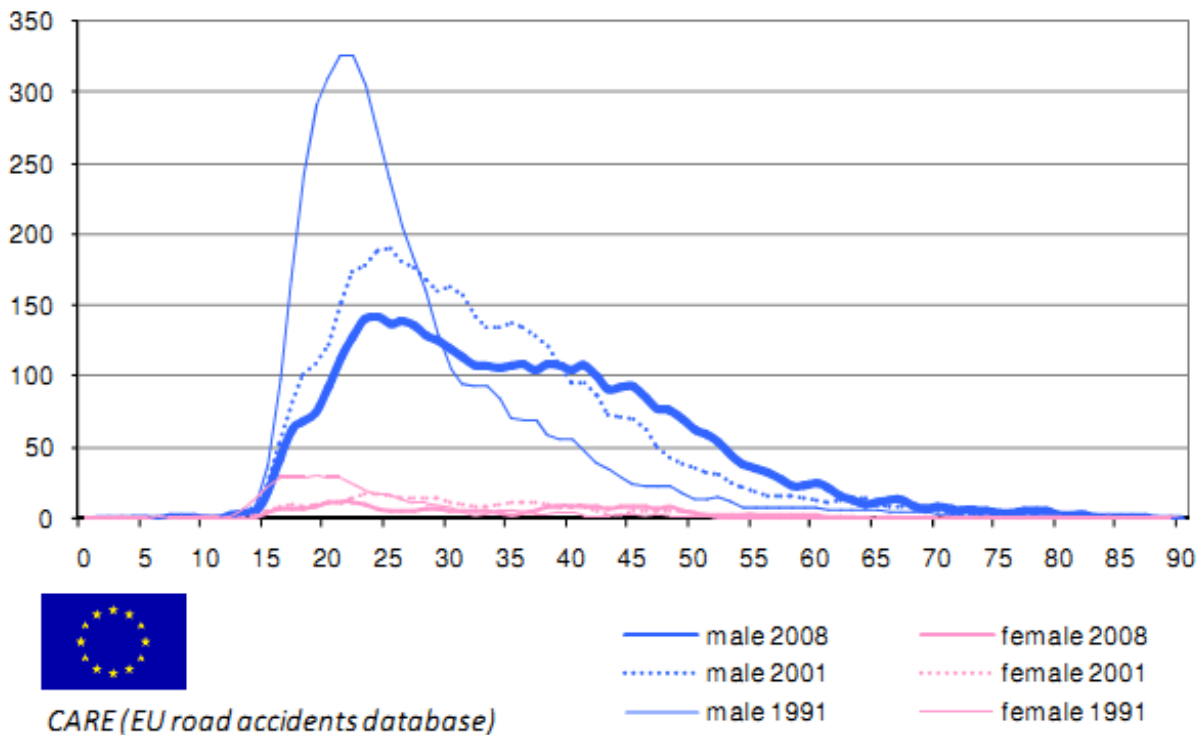


Fig.8. Male and female motorcycle deaths by age in 2008, with 2001 and 1991 for comparison.

Improving riders' and drivers' skills

The rider's skills, training, experience and attitudes are fundamental to safe motorcycling. Governments should ensure that riders receive appropriate training when they start to use a motorcycle (or re-start after a period of non-use) and that they receive further training as they progress from smaller to larger motorcycles. Motorcyclists should be made aware of the difficulties other road users have in detecting powered two-wheelers and evaluating their speed. Motorcycle riders, because of their inherent vulnerability, need to attain a level of skill that will enable them to ride defensively and to avoid putting themselves at unnecessary risk. The European Commission recently published a new Initial Rider Training manual, addressing one of the main problems affecting the quality of initial rider training, namely the focus on machine control skills to the neglect of hazard awareness and rider attitude and behaviour²⁰.

Campaigns would benefit from targeting younger riders who are more likely to engage in speed-related

aggressive riding and mid-life leisure riders who tend to own larger capacity machines. Schemes such as free courses offered at the point of sale or regular refresher courses should be encouraged as well. Car drivers also need to be educated to actively search for motorcyclists in their visual field, particularly at junctions.

Governments should develop enforcement strategies targeted at motorcyclists. Although the use of helmets is mandatory for motorcycle and moped riders and passengers in the EU, wearing rates are still clearly less than 100% in most of the countries that are collecting data on helmet use. The rates are significantly lower for moped riders than for motorcyclists. Governments should also set a target for proper fastening as set in the Spanish plan for motorcycle safety²¹. Motorcycles escape safety cameras in many countries, as they are not required to have a licence plate in front and therefore in most cases remain unidentified when photographed from the front. Governments need to install cameras able to detect speeding motorcyclists.

(20) The Initial Rider Training manual is available in 11 languages from <http://www.initialridertraining.eu/>.

(21) http://www.dgt.es/was6/portal/contenidos/documentos/seguridad_vial/union_europea/plan_sectorial009.pdf

Provide a safer environment for PTW riders

A significant number of collisions involving PTWs are a result of shortcomings in infrastructure. Several handbooks and manuals (such as eSUM) identified good practices addressing the specific needs of PTW users in road design and maintenance use anti-skid surfaces and make roadsides more forgiving).²²

The intention of the European Road Assessment Programme (EuroRAP) to include PTW characteristics in risk-assessment and performance-tracking should be welcomed and provide a sound basis for upgrading road networks to be forgiving for all users, including riders²³.

“Addressing road design from the perspective of motorcyclists is essential if we are to mirror the drop in fatalities amongst other road users.”

John Dawson, Chairman of EuroRAP.

Improving the safety of the machines

A number of new safety technologies have been progressively adopted in cars over the past decade and the European Commission supported this by, for example, making Antilock Braking Systems (ABS) mandatory in cars. This has not been the case with changes to the design of motorcycles. ABS brakes for high capacity motorbikes have been commercially available for 25 years and are now being fitted to a wider range of machines. Even so, only 49% of PTW street models available in Europe were equipped with an advanced braking system in 2010 whether as standard or as an option, resulting in only 35% of new PTW registrations being fitted with an advanced braking system. Furthermore, most of these models

were equipped with Combined Braking Systems only. EU legislation is therefore needed to push ahead with the introduction of Antilock Braking Systems (ABS) given the range of studies showing clear safety benefits for this technology²⁴.

“ABS is common on cars, but although it is even more important for PTWs, they are not yet routinely equipped. In 2010 already 60% of new motorcycles in Sweden were equipped with ABS, compared to only 15% in 2008, and the insurance company Folksam has decided to cut the insurance costs for ABS-equipped motorcycles by 15%.”

Asa Ersson, Swedish Transport Administration.

EU Regulation on type approval of powered two-wheelers

The proposal for a Regulation on type approval and market surveillance of powered two-wheelers tabled by the European Commission in October 2010 is currently being discussed in the European Parliament. Discussions in the Committee for Internal Market and Consumer Protection and the Committee on Transport and Tourism showed that MEPs largely support the proposal to make Automatic Headlights On (AHO) mandatory on all powered two-wheelers and Antilock Braking Systems (ABS) on all machines over 125cc. The European Commission proposes that for smaller machines manufacturers can choose to equip vehicles with either ABS or CBS systems. For this sub-category, ETSC stresses that whenever possible, preference should be given to ABS. The Committee on Transport and Tourism (TRAN) is also suggesting extending the mandatory introduction of antilock braking systems to the fastest powered two wheelers below 125 cc. ETSC calls on the European institutions to anticipate the dates set in the EC Proposal. ABS is not a new technology. Furthermore, by maintaining 2017 as the initial starting date for the mandatory fitting of ABS, only 3 years will be left for its safety potential to be fully exploited on all new vehicles and translated into concrete safety gains in terms of lives saved before 2020, the date by which the renewed 50% EU casualty reduction target should be reached. The opportunity to increase the safety of PTW users, the user group at greatest risk on European roads, should not be subject to further delays. ETSC proposes 2014 as implementation date for ABS on new vehicle types and 2017 for all new vehicles.

<http://www.europarl.europa.eu/oeil/file.jsp?id=5877852>

http://www.etsc.eu/documents/ETSC_Position_on_L-category_vehicles.pdf

(22) <http://www.esum.eu/index.html> (safer urban infrastructure guidelines) or ACEM (2006). Guidelines for PTW-safer road design in Europe.

(23) http://www.eurorap.org/library/pdfs/20081202_Bikers.PDF

(24) http://www.etsc.eu/documents/ETSC_Position_on_L-category_vehicles.pdf

White Paper on Transport

The new White Paper 'Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system' comes at a crucial time for European Transport, and in particular road safety. The White Paper recognises progress made in the past decade to reduce road deaths. For the future, "initiatives in the area of technology, enforcement, education and particular attention to vulnerable road users will be key to drastically reduce these losses of lives even further." Including a 'Vision Zero' for road safety is a new and potentially ground-breaking goal for 2050 and complements the renewed target of halving road deaths by 2020. Moreover the European Commission proposes to: "make sure that the EU is a world leader in safety and security of transport in all modes of transport."

One of the other highly relevant areas for VRUs picked up for action by the European Commission was speed. The White Paper recognises that "reducing speed is an extremely effective way to reduce not only the risk of collisions but also fuel consumption". Concretely the Commission proposes to promote eco-driving and in-vehicle systems that 'provide real-time information on prevailing speed limits'.

Other measures of relevance to reducing deaths amongst the VRU target group include the harmonisation and deployment of road safety technologies: eCall, cooperative systems and vehicle-infrastructure interfaces. Within the context of training and education for PTWs the Commission will promote riders' education on the need and advantages of using personal protective equipment, airbags, eCall and advanced braking systems, and will foresee appropriate anti-tampering measures. The White Paper also looks to examine the possibility of extending pedestrian recognition systems to existing fleet.

Finally a very important point within the wider mobility debate the White Paper recognises that public transport is more widely available, and that the option of walking and cycling has also increased. Also that 69% of road collisions occur in cities so that urban transport safety must be a priority in the coming years.
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0144:FIN:EN:PDF>

ETSC Recommendations

With increasing congestion in urban areas and the drive for sustainability, more people are opting to travel on foot or by bike, public transport, motorcycle or scooter or combinations of these. Walking and cycling have the potential to improve fitness, diminish obesity, and reduce noise, air pollution and greenhouse gases

associated with travel. However, pedestrians and cyclists, together with motorcyclists, have a higher risk of death and injury requiring hospitalisation than motor vehicle occupants. Therefore, strategies to improve safety of these modes of transport are particularly needed.

For the benefit of all road users

The EU should:

- Tackle Heavy Goods Vehicles collisions including those caused by blind spots e.g. by improving the design and equipment of HGVs including retrofitting with front-view mirrors (2007 Directive), improved cabin design, installation of cameras and active warning systems and underrun protection.
- Support the development of car windshield airbags by 2015 and to introduce their mandatory fitment soon after as a viable safety measure to improve the protection of pedestrians and other vulnerable road users including cyclists.
- Require manufacturers to mention EuroNCAP ratings in all advertisement of vehicles to encourage consumers to purchase safe vehicles (similar to the 'Monroney label' in the US²⁵).
- Support the standardisation of collision investigation and databases and encourage Member States to include variables specific to PTW safety issues.

Member States should:

- In addition to the overall target of reducing deaths by 50% between 2010 and 2020, adopt a specific target of reducing by 50% between 2010 and 2020 the number of pedestrians and cyclists killed in road collisions.
- Match the use of each road to the functions that the road serves in terms of living space, access and through movement (applying the principles of the Sustainable Safety Approach²⁶).
- Separate faster vehicles from slower ones and lighter vehicles from heavier ones, and separate vehicles that are making conflicting movements.
- Make the road system self-explaining to its users.

To improve the safety of pedestrians and cyclists

The EU should:

- Draft guidelines for promoting best practice in traffic calming measures, based upon physical measures such as roundabouts, road narrowing, chicanes, road humps and techniques of space-sharing. These measures should be introduced as an integral part of setting up speed limit zones of 30km/h in urban areas.
- Regularly monitor developments in passive and active safety technologies for the protection of unprotected road users and adopt legislation when necessary.
- Support the introduction of Intelligent Speed Assistance (ISA) which in restricting speed has the potential to reduce risks to pedestrians and cyclists.
- Support the development of car windshield airbags as a viable safety measure to improve the protection of pedestrians and other vulnerable users struck by cars.
- Introduce minimum requirements for cycle lighting and reflective elements.
- Support the assessment of the safety impact of new traffic codes, e.g. allowing contra-flow cycling on one-way streets.

(25) The Monroney label is an automobile price sticker required by the US Automobile Information Disclosure Act. Manufacturers have to place NCAP star ratings when available on the Monroney label.

(26) http://www.etsc.eu/documents/PIN_Flash_18.pdf

Member States should:

- Support walking and cycling as modes of transport in their own right and an integral part of all transport systems.
- By providing safe and attractive infrastructure and in other ways encourage more walking and cycling as “safety in numbers” will increase individual safety.
- Develop a policy of modal priority for road users, particularly in urban environments: the hierarchy being based on safety/vulnerability, and sustainability. Pedestrians should be at the top of the hierarchy, followed by cycling and public transport.
- Provide shorter and safer routes for pedestrians and cyclists by ensuring that routes are direct and that the quickest routes are also the safest. Travel time should be increased on unsafe routes and decreased on safe routes.
- Promote “Safe routes to school” schemes to increase the safety of children.
- Support the application of effective traffic calmed zones (with a maximum of 30km/h or less) in residential areas and areas with significant pedestrian and cyclist activity.
- Tackle the high level of underreporting of pedestrian and cyclist collisions.
- Consider the issue of, and absence of data surrounding, other risks to which pedestrians are exposed, such as falls resulting from lack of adequate infrastructure or from poor infrastructure design or maintenance.

To improve the safety of PTWs

The EU should:

- Adopt the draft EU Regulation on type approval of PTWs mandating Automatic Headlights On (AHO) on all PTWs.
- Anticipate the dates set in the EC Proposal for a Regulation on type approval of PTWs. ETSC proposes 2014 as implementation date for Antilock Braking Systems (ABS) on new vehicle types and 2017 for all new vehicles.
- Evaluate the opportunity of introducing eCall and Intelligent Speed Assistance (ISA) as a standard for new machines.
- Develop minimum standards regarding protective clothing.
- Investigate the extent to which airbags and leg protectors are viable PTW safety measures.

Member States should:

- Enforce motorcyclists’ compliance with speed limits by installing safety cameras that are able to detect speeding riders.
- Enforce the compulsory wearing of helmets and numberplate visibility.
- Provide consumer information regarding helmet safety and educate riders regarding the importance of proper fastening.
- Road Safety Audits and Road Safety Inspection procedures should address the needs of PTW riders.
- Excessive roadside objects should be minimised and where necessary be PTW-friendly. Road surfaces should be well maintained and provide maximum and consistent skid resistance.
- Road design, particularly curves and intersections should be optimised for PTW safety, paying attention to forward visibility and signage.
- Improve rider and driver training. Rider training should focus on hazard recognition and risk assessment as well as vehicle control skills. Driver training should ensure that candidates understand the vulnerability of unprotected road users and “look for them” when driving.

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