European Transport Safety Council

ETSC's Contribution to CARS 21 WP1 on Road Safety

February 2012

Towards the new EU 2020 Road Safety Target

"Make sure that the EU is a world leader in safety and security of transport in all modes of transport." Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system- Transport White Paper 2011

This is the long term ambitious role of the European Commission set out in the Transport White Paper in 2011. Prior to this, the European Commission adopted a Communication entitled "Towards a European Road Safety Area: policy orientations on road safety 2011-2020" on the 20th of July 2010. ETSC welcomed the adoption of a new EU target to reduce road deaths by 50% by 2020. Targets motivate stakeholders to act and help those responsible for the road transport system to be accountable for achieving defined results. A shared target at European level helps each Member State to see that its road safety improvements are contributing to addressing a Europe-wide problem. The adoption of the EU target in 2001 gave a boost to the combined efforts at national and EU level. As a result, reductions in the number of deaths have been much steeper in 2001-2009 than in preceding decades. In order to achieve the 50% reduction target in 2020 the EU will inevitably have to go above and beyond current reduction trends. CARS21 should drive the discussion on how vehicle safety and vehicle to infrastructure communication can help contributing to reduce road deaths by 50% again by 2020.

ETSC recommends CARS 21 to

- Identify how vehicle safety and vehicle to infrastructure communication can contribute to reaching the 2020 EU target to reduce road deaths by 50%.

Improve inter-sectoral co-ordination between European Commission's services

When it comes to road safety, responsibilities are fragmented between different European Commission General Directorates (DG Mobility and Transport, DG Enterprise, DG Information Society, DG Research and within different Units of the same DG.

CARS 21 to recommend

- Establishing a Task Force to identify and implement the most effective based casualty reduction strategies to meet the 2020 Road Safety Target

EU's Role to Legislate on Vehicle Safety

Road safety is an area for EU legislation and legislation in road safety has an added value for all Member States. The EU has exclusive competence on vehicle safety and vehicle type approval under Article 114. Yet EU legislation on passive safety did not change to a great extent over the last decade and as a result type approval crash tests have become largely outdated. There is an urgent need to align with high performing EuroNCAP crash tests.

Occupant protection has improved considerably over the past decade mostly because of car manufacturers' efforts to meet consumer demands for safer cars driven by EuroNCAP. When the European New Car Assessment Programme (EuroNCAP) started to test the crash performance of cars fifteen years ago, the average car was awarded 2 stars for occupant protection. Now almost all cars tested are awarded 5 stars for combined occupant and pedestrian protection. Improved vehicle safety has been demonstrated to make a large contribution to casualty reduction. The European vehicle industry faces a time of crisis. Beating off the international competition will be a challenge but developing its safety credentials and profiling itself as the producers of the world's safest vehicles can play a crucial role. Upgrading crash test requirements will create a market advantage for the European car industry as European manufacturers are in a better position than third market producers to face higher safety standards.

Side impact protection

Side impact crashes remain one the most common crash types with fatal and serious injury outcome. The most recent European data on lateral crashes available are published by the European Enhanced Vehicle Safety Committee (EEVC). This study has shown that side collisions remain a frequent cause of fatal and serious injury, typically representing 33% of all fatalities but less than 25% of casualties of all severities. Non-struck side occupants are a frequently injured group who are not covered by existing test procedures. Impacts with other cars are marginally the most common type of side collision. More significantly, although rare overall, pole impacts are a frequent cause of death. On the basis of this study, the EEVC recommended specific changes to the current regulation R95, in particular updating the mobile deformable test based on the latest know-how and using better dummies. In addition, it has been proposed to add a pole impact aimed at providing a better assessment of the risk of head injury.

CARS 21 to recommend the European Commission to

- Updating the existing side impact regulation by revising the current mobile deformable test condition and adopting as soon as possible a new standard for side pole testing in order to improve the occupant protection in lateral crashes.

Pedestrian Protection (Vehicle)

Improvements in pedestrian protection have been provided, more slowly than for occupant protection. The 2009 EuroNCAP protocol is challenging car makers by increasing the emphasis on all-round safety performance and demanding higher levels of achievements in pedestrian protection. The Regulation 78/2009 lays down type approval requirements with respect to the protection of pedestrians and other vulnerable road users. It provides for the mandatory installation of Brake Assist Systems on new vehicles in an attempt to compensate for the relaxation of certain parameters on passive safety performance tests. ETSC fought hard against the relaxation of the tests arguing that benefits accident avoidance technologies offer should have been additional rather than substitutive[1]. There are a whole range of other measures that can also be taken to improve vulnerable road user safety and address other elements of the integrated approach (user behavior and infrastructure) which are covered in our Review[2].

CARS 21 to recommend the European Commission to

- Continue to raise vehicle safety for both occupants and pedestrians and other vulnerable road users through EU type approval legislation.
- Update the EU type approval crash tests to align with high performing EuroNCAP crash tests.
- Mandate Advanced Emergency Braking for all new vehicles
- Regularly monitor developments in passive and active safety technologies and ensure that robust in-vehicle safety technologies are mandated in new legislation.
- Fund accident studies to compare the injuries risk posed by car models with good and bad bonnet leading edges identified in EuroNCAP tests.
- Introduce the mandatory fitment of external airbags as a viable safety measure to improve the protection of pedestrians and other vulnerable users as well as car occupants in case of a collision between two cars.

In-vehicle technologies targeting the 3 "Main Killers" should be fast-tracked

Intelligent Transport Systems (ITS) have seen a recent boost for new action with the advent of the negotiation and adoption of the ITS Directive in 2010 and the launch of the implementation plan for the ITS Action Plan adopted in 2008. The EC Regulation 661/2009 on Type Approval requirements for the general safety of motor vehicles also advances the deployment of a number of in-vehicle technologies.

ITS can contribute to road safety both in reducing crash risk and alleviating the severity of crash consequences. Casualty reductions vary greatly depending on the technologies and the most life saving devices should be prioritised. As a matter of priority this should include: Intelligent Speed Assistance (ISA), alcohol interlocks and seat belt reminders[3].

Speed Management Systems

[1] ETSC Position on the EC's proposal for a Regulation on the protection of pedestrians and other vulnerable road users (2008) . http://etsc.eu/documents/ETSC%202008%20Position%20Paper.pdf
[2] ETSC (2005) The Safety of Vulnerable Road Users
[3] ETSC (2009) Position on ITS Action Plan and Directive

There is a well documented relationship between speed and collisions resulting in death and injury with lasting effect. The adaptation of driving speed to the prevailing conditions and speed limits is a primary way of controlling the crash risk of the driver. . Under speed, the European Commissions' Road Safety Policy Orientations pick up speed limiters for light vehicles as an area for action. This is welcomed by ETSC but as a first step to introducing Intelligent Speed Assistance[4] (ISA). The EC Road Safety Policy Orientations 2011-2020 stated that: "*Technological developments, such as in-vehicle systems providing real-time information on prevailing speed limits could contribute to improve speed enforcement.*" This was followed by the European Parliament Report on Road Safety which: "*Calls on the Commission to draw up a proposal to fit vehicles with 'intelligent speed assistance systems' which incorporate a timetable, details of an approval procedure and a description of the requisite road infrastructure*". The European Commission then published its Transport White Paper reiterating that it would work to *"Harmonise and deploy road safety technologies such as (…) (smart) speed limiters".*

There has also been progress under the ITS Directive and Action Plan which include definition of procedures for accurate public data for digital maps. The provision of such a digital database of all speed limits on the network is an important prerequisite for the implementation of ISA.

Speed and Climate Change

Transport is the only sector where greenhouse gas (GHG) emissions have almost continuously grown over the last 20 years and are now about one third above their 1990 levels[5]. The contribution of road to the GHG emissions of transport in 2008 was 71.3%[6]. Fuel consumption and carbon dioxide emissions are a function of speed. Managing driving speeds is therefore a very effective carbon abatement policy as demonstrated by ETSC's Policy Paper "Managing Speed: Towards Safe and Sustainable Road Transport"[7]. Lower or better enforced speed limits are 'one of the most certain, equitable, cost effective and potentially popular routes to a lower carbon economy'[8].

CARS 21 to recommend the European Commission to

[4] ISA is the general term for advanced systems in which the vehicle ''knows'' the speed limit for any given location and is capable of using that information to give feedback to the driver or directly limit the vehicle speed. Navigation devices in the vehicle give a precise location and heading whilst an on-board map database compares the vehicle speed with the location's known speed limit. Drivers are then informed of the speed limit (advisory ISA), warned when they exceed the limit (supportive ISA), or actively aided to abide by the limit (intervening ISA).

[5] European Commission (2011) Transport White Paper

[6] ibid

[7] ETSC (2008) Managing Speed Towards Safe and Sustainable Road Transport

[8] Anable, J. Mitchell, P. Layberry, R. (2006). Getting the genie back in the bottle: Limiting speed to reduce carbon emissions and accelerate the shift to low carbon vehicles, in Low CVP *'Low Carbon Road Transport*

- Develop a test protocol that would provide a star rating system to provide consumers with information on the safety in actual use of navigation systems and other in-vehicle information systems.
- In the short term, introduce a driver set speed limiter as a standard equipment in all new vehicles.
- Extend speed limiters to vans and other light vehicles.
- Contribute to the development of harmonised standards for Intelligent Speed Assistance (ISA) systems towards eventual universal fitment.
- Adopt legislation for mandatory fitting of all fleet cars with Intelligent Speed Assistance systems.
- In the medium term adopt European legislation for mandatory fitting of European cars with Intelligent Speed Assistance systems in the type approval procedure.
- Develop a European standard for a "speed limit service", i.e. over the air[9] provision to in-vehicle systems of current geodata on road speed limits.
- Require Member States to provide a standardised "speed limit service" over the air.
- Recognise the casualty reducing benefits of managing driving speeds and that they are also part of a very effective carbon abatement policy.

Alcohol Interlocks

The European Commission estimates that across the EU at least 20% of all road deaths are alcohol related. In its Road Safety Policy Orientations 2011-2020 the Commission promised to "*examine to what extent measures are appropriate for making the installation of alcohol interlock devices in vehicles compulsory, for example with respect to professional transport (e.g. school buses)".* The European Parliament Report on Road Safety "*recommends, as a reintegration measure, the fitting of alcolocks to the vehicles of road users who already have more than one drink-driving conviction"* and moreover "*Recommends that fitting of alcolocks (...) to all new types of commercial passenger and goods transport vehicles be made compulsory; calls on the Commission to prepare by 2013 a proposal for a Directive for the fitting of alcolocks, including the relevant specifications for its technical implementation"* .

ETSC much welcomes the possibility of making the use of alcohol interlock devices obligatory in certain specific cases, in particular for professional transport. ETSC would recommend for this to be extended to cover the rehabilitation of recidivists as well. The gradual introduction of alcolocks starting with target groups (commercial vehicles and public transport vehicles including buses especially transporting children, dangerous good trucks[10] and repeat drink driving offenders) could reduce the high toll of drink driving casualties every year in the EU and reduce the price for manufacturing those devices.

[9] "Over the air": the idea is that a car would receive updates on speed limits by wireless broadcast, e.g. over a mobile phone network. This would be able to handle permanent changes in speed limits and also temporary changes such as for construction zone. It deals with the problem of speed limit information going out of date.

[10] Crucially in the commercial context alcohol interlocks must not be seen as a stand-alone issue but should be introduced as an integral part of an employer's drink driving policy. Indeed some employers have a zero tolerance to alcohol policy which is also specified in employee contracts.

- Introduce uniform standards for alcolocks in Europe, and provide assistance to reduce the workload for those countries that wish to introduce the technology without having the appropriate legal framework.
- Legislate for a consistently high level of reliability of alcohol interlock devices.
- Further research into the development of non-intrusive alcohol interlocks.
- In the medium term introduce legislation making non-intrusive alcolocks mandatory for all drivers.

Seat Belts and Seat Belt Reminders

Around 12,400 car occupants survived serious crashes in 2009 because they wore a seat belt. Another 2,500 deaths could have been prevented if 99% of occupant had been wearing a seat belt[11]. The seat belt remains the single most effective passive safety feature in vehicles. Despite the legal obligation to wear a seat belt, wearing rates are still low on rear seats in many EU countries. The EC Regulation 661/2009 on Type Approval requirements for the general safety of motor vehicles foresees the compliance with the provision of visual and audible seat belt reminders for the driver's seat by November 2012. ETSC stresses that this should be extended swiftly to all seats and based on existing best practice and guidelines developed by EuroNCAP.

A recent UK accident data analysis has identified that elderly and other more vulnerable vehicles users can still sustain severe thorax injuries in commonly occurring frontal crash conditions. Population aging is expected to increase the numbers of older drivers. Advanced restraints routinely will have load limiters and pre-tensioners but there are still many opportunities to improve protection by the development of restraint systems that adapt to the needs of the user, their individual bio-mechanics and the severity of the specific collision. The introduction of seat belt pre-tensioners and load limiters should also be extended to the rear seat. At present there are no direct incentives for manufacturers to fit rear seats with these safety technologies.

CARS 21 to recommend the European Commission to

- Adopt legislation to ensure that every new vehicle has as standard equipment an enhanced seat belt reminder system for all occupants with audible and visual warnings.
- Support the development of restraint systems that adapt to the needs of the user, their individual bio-mechanics and the severity of the specific collision.

Child Safety Restraints

In the EU27 in 2006 at least 1,000 children died in traffic collisions[12] . Directive 2003/20/EC mandates the use of appropriate child restraint systems for all children travelling in

[11] ETSC (2010) 4th Road Safety PIN Annual Report, Chapter 3, http://www.etsc.eu/PIN-publications.php

[12] ETSC (2009) 3rd Road Safety PIN report, Chapter 3

passenger cars and light vans. Yet usage of appropriate child restraints differs greatly across Europe and the failure to use them properly is high.

CARS 21 to recommend the European Commission to

- Support Member States to increase the rates of child restraint use by transfer of best practice and other methods.
- Encourage the adoption of an EU level scheme similar to EuroNCAP to rate child safety restraints and inform consumers.
- Promote the supply of existing rearward facing seats for children up to 4 years of age throughout Europe.

eCall

ETSC welcomes the inclusion in the EC Communication of an action to accelerate the deployment of eCall and also to examine its extension to other vehicles. Pioneered by the European Commission, the eCall technology, once in operation, will allow for an emergency call to be generated, either manually or automatically, from a crashed vehicle immediately after a road accident has occurred. Basic data on the crash, including its location, will then be transmitted to an eCall operator and simultaneously a voice communication will be established between an emergency centre and the vehicle occupants. According to the European Commission, eCall will annually save up to 2,500 lives in Europe and significantly reduce the severity of injuries in 15% of all accidents involving health damage. Indeed, the response time of emergency services plays an important role in survivability of accidents.

CARS 21 to recommend the European Commission to

- Include eCall in vehicle type approval.
- Consider extending eCall to other vehicle types such as PTWs
- Ensure that eCall works in all 27 EU countries and in new cars of all brands and countries of origin by 2014.

Co-operative Systems

ETSC welcomes attention being given to integrated, active and co-operative safety systems. Cooperative systems, which are using communications between vehicles or vehicles and the infrastructure, may increase the safety and efficiency of road traffic considerably even before all road users are equipped with the communication required. The Commission has also proposed to further assess the impact and benefits of co-operative systems to identify most beneficial applications and recommend the relevant measures for their synchronised deployment.

It is important that the Commission remains open to new technological developments in the coming decade. Under the ITS Action Plan (Action Area 3) and ITS Directive (Annex II) the EC should also foresee the development of other new technologies. The EC Road

Safety Policy Orientations stressed that accelerated deployment and broad market take-up of such safety enhancing applications need to be supported.

The current plans and projects place the main emphasis on equipping cars, and the issues related to PTWs and VRUs are largely overlooked. It is highly likely that road users equipped with cooperative systems will pay less attention to the road users that are not equipped, and have a degraded interaction with them resulting in increased crash risks, although the situation and safety of the equipped road users will improve.

ETSC would single out Advanced Emergency Braking and Lane Departure Warning. AEB has an estimated fatality reduction of 7% on the EU25 scale with full penetration, and one of the highest benefit-cost ratios there is for driver support systems[13]. Studies made in the US show that the Lane Keeping Device could reduce the number of impacts by 37%[14]. Other systems such as pre-safe and hazard warning systems are all directionally sound. However, in many cases the evidence base is insufficient to provide a measure of the true casualty reduction effectiveness of the systems and this represents a key gap in knowledge.

CARS 21 to recommend the European Commission to

- Promote Advanced Driver Assistance Systems where evidence about their life saving potential has been researched.
- Support Field Operational Tests to increase the level of knowledge on what works in real life driving.

Human Machine Interface

Driver distraction is thought to play a role in 20-30% of all road collisions[15] and this may increase with the advent of more Advanced Driver Assistance systems. While there is research and road traffic collision statistics and investigations attesting to the negative safety effects posed by the use of nomadic devices, some devices have ambivalent safety effects (e.g. personal navigation devices), or even positive effects when used properly[16]. Field Operational Tests on Active Safety Systems should be developed to better understand from real-world driving what works.

The ITS Action Plan also includes the development of a regulatory framework on a safe on-board HMI and the integration of nomadic devices, building on the European Statement of Principle on safe and efficient in-vehicle information and communication systems. The HASTE project was close to developing a consumer information scoring system based on

[13] eIMPACT Project Results http://www.eimpact.eu/download/eIMPACT_D6_V2.0.pdf
[14] Olsson T., Truedsson N., Kullgren A., Logan, D., Tomasevic, N., Fildes, B. (2002) Safe Car II – New Vehicle Extra Safety Features, Monash University Accident Research Center
[15] IGES Institut, ITS Leeds, ETSC (2010): Study on the regulatory situation in the Member States regarding brought-in (i.e. nomadic) devices and their use in vehicles. Study tendered by the European Commission. http://www.etsc.eu/documents/Report_Nomadic_Devices.pdf
[16] ibid

safety performance such as EuroNCAP [17]. HMI requirements should also take the challenges of the ageing population into account.

CARS 21 to recommend the European Commission to

- Promote the development of consumer information on nomadic devices, in particular setting up a scoring system.

Create a market for safety

Constantly improving vehicle safety has helped to prevent thousands of people from dying in road collisions in the EU and largely contributed to the reduction in road deaths by 43% since 2001. Yet, European citizens do not benefit equally from these improvements. Safety levels of new cars sold are notably lower in the Central and Eastern European countries than in the older EU-15 ones[18]. Consolidating the internal market for safety will have to be an important cornerstone of achieving the new 2020 road safety target.

The EU needs to ensure that robust in-vehicle safety technologies are mandated in new legislation (as it is the case for ESC). This would prevent that such safety technologies are sold as standard in one EU country and not as an option in another. For all other safety equipments, the EU needs to promote their standard fitment across the EU27 and address the differences observed in safety levels. Demonstration activities and wider support are needed to promote consumer demand and reduce production costs. Influencing the consumer to purchase safe cars and safety techonologies is an important element of road safety and the European Commission should support EuroNCAP. According to a study the risk of severe or fatal injuries is reduced by approximately 12% for each EuroNCAP star rating[19].

All non-private customers, such as governmental bodies, local authorities and companies can play an important role by including specific requirements on minimum safety levels in their vehicle purchase and leasing policies. In doing so, public authorities and companies contribute to the market penetration of safer cars by supporting the demand for such vehicles and for safety technologies, which hopefully in turn help lowering the price of safety technologies.

CARS 21 to recommend the European Commission to

- Ensure the best systems enter the fleet as rapidly as possible: New technologies will not save many lives if they are only optional
- Continue the work carried out by DG INFSO through the eSafety Forum and extended it to other upcoming technologies.
- Support and promote the work of EuroNCAP.

[17] HASTE Project Deliverables http://www.its.leeds.ac.uk/projects/haste/deliverable.htm
[18] ETSC 3rd Road Safety PIN Report, Chapter 2 Boosting the market for safer cars in the EU
[19] Lie, A. and Tingvall, C. (2002). How Do EuroNCAP Results Correlate with Real-Life Injury Risks? A Paired Comparison Study of Car-to-Car Crashes, *Traffic Injury prevention*, 3, pp. 288-293

- Make EuroNCAP testing obligatory for all cars entering the European market.
- Insist that advertisement of vehicles should mention EuroNCAP ratings (when available) in all advertisement as it is required in the US under the Monroney label.
- Extend the EU Directive on the promotion of clean and energy-efficient road transport vehicles[20] to include in-vehicle safety technologies in public procurement.

CARS 21 to encourage Member States to

- Set strict safety requirements (5 star EuroNCAP stars as a minimum) for the purchase of new cars under scrappage schemes
- Provide tax incentives for purchase and use of safe cars and safe technologies

CARS 21 to encourage all governmental bodies, local authorities and companies to

- Set strict safety and environmental requirements for buying or renting cars[21]

Improved Underrun Protection for heavy vehicles needed

Another area which needs to progress and was missed out of the EC Regulation 661/2009 is improving front, side and rear underrun protection of heavy vehicles. Due to the size and mass of heavy vehicles, the problem of compatibility with other road users is a serious matter. Such improvements would reduce casualties among pedestrians and cyclists as well as car occupants in underrun impacts.

Front underrun protection

Frontal car-to-truck collisions are the greatest problem in collisions where trucks are involved. An EU requirement was introduced requiring mandatory rigid front underrun protection defining a rigid front underrun protection system for trucks with a gross weight over 3.5t. Rigid underrun protection is a step in the right direction, but, as these collisions normally take place at higher relative speeds where energy absorption is necessary on the truck, the new proposal should be extended with energy absorbing front underrun protection systems and should be compulsory within the European Union. Studies performed by EEVC WG 14 have shown that passenger cars can 'survive' a frontal truck collision with a relative speed of 75km/h if the truck is equipped with an energy absorbing front underrun protection system. Furthermore, these systems could prevent about 1,170 deaths and 23,660 seriously injured car occupants in Europe per year. The monetary benefit is about 1,482 million Euro[22].

Side underrun protection

When heavy goods vehicles and vulnerable road users are side by side and the vehicle turns in their direction, the vulnerable road users are at risk of being run over by the

[20] Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles.
[21] See Swedish example in ETSC (2009) PIN Report, p. 34-35
[22] ETSC (2005) The Safety of Vulnerable Road Users

vehicle. Trucks and trailers have to be equipped with a protection system at the side preventing pedestrians, bicycle riders and motorcyclists from falling under the wheels of the truck when it turns. The protection system fills the open space between the wheels; however, current legislation accepts an "open" frame (i.e. two planks on the side with a maximum distance of 30 cm). Therefore, under some circumstances, pedestrians and cyclists could be caught by such a side underrun protection system. Investigations have shown that improved side underrun protection systems could reduce deaths among pedestrians and cyclists in such situations by about 45%[23]. In addition the strength requirement should be increased to accommodate side collisions with motorcycles as the strength of current side underrun protection systems has shown to be insufficient[24].

Rear underrun protection

The Council Directive 70/221/EEC defined a rear underrun protection system for trucks and trailers with a gross weight of more than 3.5t. It describes for example a ground clearance of 550mm and test forces of maximum 25km/h, respectively 100kN, depending on the test point. An in-depth study of 58 car/truck collisions has shown that today's rear underrun protection systems are not sufficient, especially because of the large ground clearance and their insufficient strength. The ground clearance needs to be reduced to 400mm. Furthermore, the test forces need to be doubled. First conservative estimates of EEVC Working Group 14 showed that improved rear underrun protection systems with a lower ground clearance as well as higher test forces would reduce killed and seriously injured car occupants by a third in rear underrun impacts in Europe. In addition, WG 14 has found that the costs for deaths and serious injuries could be reduced by 69 -78 Million Euro.

ETSC supports the mandatory fitment requirement for front underrun protection for vehicles in N2 and N3 and for side underrun for vehicles in N2, N3 and N4. However steps should be taken to ensure that side protection closes off the open space between the wheels of the heavy goods vehicle for all new heavy goods vehicles. Energy absorbing front underrun protection for all heavy goods vehicles should also be introduced. Improved rear underrun protection systems with a lower ground clearance as well as higher test forces should also be introduced. These improvements would reduce fatally and severely injured car occupants in underrun impacts in Europe.

CARS 21 to recommend the European Commission to

- Introduce energy absorbing front underrun protection for all new heavy goods vehicles.
- Ensure that side protection closes off the open space between the wheels of all new heavy goods vehicles and increase current strength requirement to accommodate side collisions with motorcycles.
- Improve rear underrun protection systems with a lower ground clearance as well as higher test forces.

[23] ETSC (2001) Priorities for EU Motor Vehicle Design http://etsc.eu/documents/mvdesign.pdf
[24] ETSC (2005)

Longer and Heavier Vehicles

The maximum size and weight of road vehicles are governed by Directive 96/53/EC. The European Commission stated in its Transport White Paper its intention to have a "fresh look" at this legislation and considers to adapt it to new circumstances, technologies and needs (e.g. weight of batteries, better aerodynamic performance), and to make sure it facilitates intermodal transport and the reduction of overall energy consumption and emissions. It also mentions that further independent work is currently being undertaken by the Commission to assess the issue and determine conditions for progress. ETSC has completed its own position[25] on the dossier and concludes that it has serious concerns about the impact of Longer and Heavier Vehicles (LHVs) on transport safety in general, and road safety in particular. Depending on the operational conditions, several safety aspects would need to be addressed bringing with them high societal costs to maintain the current level of risk in road traffic of these vehicles and of other road traffic participants. The renewed 50% EU reduction target for road deaths requires a substantial increase of current efforts in order to be achievable by 2020. The likelihood of an increase in the number of collisions and their severity posed by LHVs is a serious concern that could slow down progress during the next decade and it therefore clashes with current policy expectations. Investments that would need to be made in adapting the road infrastructure are likely to decrease budget available for addressing other safety aspects for all road users.

CARS 21 to recommend the European Commission to

- Consider safety implications to any changes made to the maximum size and weight of road vehicles.

Car-to-car compatibility

The car-fleet across Europe is subject to an increasing polarisation and incompatibility. On the one hand, there is a substantial growth of cars of increased size and weight as best reflected by the increasing share of sports utility vehicles (SUVs) or large pick-ups and vans. On the other hand, there is an increasing demand for smaller cars and light weight vehicles, offering a higher fuel-efficiency and less pollution. They can be operated at lower costs and consume less space. However, the immediate safety problem that evolves from this detrimental development is one of crash-compatibility due to incongruent vehicle design.

CARS 21 to recommend the European Commission to

- Promote research on improved car-to-car compatibility
- Consider the issue of vehicle compatibility in upgrading standards for crash tests for EU type approval.

[25] ETSC (2011) Position on Longer and Heavier Goods Vehicles
www.etsc.eu/documents/ETSC_Position_on_Longer_and_Heavier_Vehicles.pdf

Powered Two Wheelers

More than 6,000 Powered Two Wheeler (PTW) riders were killed in road collisions in the EU in 2009; only 18% fewer than in 2001[26]. Many of the recommendations presented by ETSC in its Blueprint[27] have been taken up by the EC Road Safety Policy Orientations and should be put into action. These include:

- Ensure that motorcycles can also benefit from eCall, which is going to be introduced as a standard for passenger cars in many EU countries.
- Develop minimum standards regarding protective clothing.
- Introduce the mandatory fitment of advanced braking systems to PTWs as soon as possible, alongside a cost/benefit study on braking systems for smaller PTWs.
- Prevent the engine modification of mopeds.

Ageing Europe and Adapting Vehicles and ITS

ETSC reported that, while older people account for one sixth of the European population, every fifth person killed in road traffic is aged 65 or over[28]. Moreover, due to population ageing, older people will represent an increasing share of the total population. This could have a negative impact on road safety development in the future. If the risk rates of older people and others decline at the same pace, by 2050 one death out of three is likely to be an elderly person.

CARS 21 to recommend the European Commission to

- Stimulate the development of safer vehicles for older people by encouraging elderly-friendly design.
- Evaluate the impact of new technologies on older drivers.

Technical Inspections and Road Worthiness

The European Commission is planning to revise the roadworthiness Directive 2009/40/EC. Although the Directive was recast in 2009 this involved only minor changes to the administrative articles. The body of the text has not seen any major revision since adoption in 1996. Since 1996 both cars and in vehicle safety systems that are electronically controlled have developed rapidly. ETSC welcomes moves to extend Periodical Technical Inspections to electronic systems to ensure all safety of all vehicles is maintained through life. Inspection protocols should be reviewed in relation to higher speed conditions relating to more severe crashes. . Vehicle examiners also need to assure a similarly rigorous testing regime for new in-vehicle technologies.

CARS 21 to recommend the European Commission to

[26] ETSC (2011) 5th PIN Report, Chapter 3.
[27] ETSC (2008) Blueprint for the EU's 4th Road Safety Action Programme 2010-2020
[28] ETSC (2008), 2nd PIN Report, Chapter 4.

- Revise the 2009/40/EC Directive to ensure that the testing of new modern vehicles is safely maintained.
- Extend the 2009/40/EC Directive to cover Powered-Two Wheelers vehicles.

Electric Vehicles and Road Safety

The numbers of electric vehicles on the road are expected to increase rapidly in response to the need to reduce the environmental impact of vehicles. These systems must continue to meet existing standards of primary and secondary safety as determined by legislation and EuroNCAP. They must also avoid introducing new hazards through less well developed vehicle dynamics, fire hazards, modified structures and the introduction of additional driver distraction hazards. Safety issues such as repair workshops and scrapping also need to be considered.

CARS 21 to recommend the European Commission to

- Develop new guidelines to ensure that new electric vehicles are safe to use (e.g. safe batteries) and that interaction with other vulnerable road users are taken into account.

The EU as a Global Leader in Research and Development in Vehicle Safety

Sound policies are based on known, effective, science based countermeasures, which in turn are grounded in good research. Road Safety research should continue to benefit from European funds. Related to this is the need to ensure the dissemination of knowledge about successful measures and research results among decision makers and practitioners. The EU is also seen as a centre of excellence and innovation in Research and Development.

ETSC recommends creating a major and dedicated RDI initiative for Safer Car engaging all the major stakeholders (on the model of the Green Car Initiative) to:

- Promote the development of non-industry driven and research based in-vehicle safety systems.
- Routinely evaluate the safety benefits of in-vehicle and other safety technologies
- Identify the most life-saving technologies and the most beneficial applications and
- Support the fast-tracked deployment of the most life-saving safety technologies.

Information and Data

ETSC strongly believes in indicators, based on the attained level of attributes leading to a desired final outcome[29]. To enable the achievement of such an ambitious target as 50% reduction in road deaths, the European Commission will need to create a monitoring framework that includes a set of sub-targets and safety performance indicators. Although the European Road Safety Observatory provides a framework, a pan-European in-depth

[29] ETSC (2010) 4th Road Safety PIN Report.

accident data analysis accessible for all stakeholders should be set up. A common set of performance indicators would be essential, together with a well-functioning Road Safety Observatory.

ETSC would also encourage the wider use of Advanced Driver Assistance Systems and avoidance systems which could be used to document the real-work effectiveness of different measures. ETSC would also welcome progress on in-vehicle Event data recorders (so called "black box") devices, which record vehicle situation before and during any accident. Event data recorders offer first hand information about the safety systems available on the vehicle and their operation. Additional information could include speeding, measures of crash severity and vehicle manoeuvres.

CARS 21 to recommend the European Commission to

- Build on the CARE database, improve the accessibility of the various data collected and make them available as soon as possible.
- Support countries in setting up data collection and evaluation procedures and stimulate the use of harmonised protocols for accident, exposure and performance indicators using SafetyNet recommendations.
- Encourage Member States to set quantitative targets based on compliance indicators and monitor their performance.
- Use the evidence gathered to devise and update relevant policies.
- Implement the recommendations of the EU funded research project DaCoTA on in-depth accident investigations and build the capacity for an EU common in-depth accident investigation database.
- Promote wider use of in-vehicle Event data recorders

For more information

ETSC Positions and Responses
All ETSC Positions and Responses are available from http://etsc.eu/documents.php?did=3

ETSC (2011) Response to the Transport White Paper
ETSC (2011) Position on Longer and Heavier Vehicles
ETSC (2010) Response to the EC Policy Orientations on Road Safety
ETSC (2009) Position on the EC proposal for an ITS Action Plan and Directive
ETSC (2008) Blueprint for the 4th Road Safety Action Programme
ETSC (2008) Position on the EC proposal for a Regulation on Type-Approval Requirements for the general Safety of Motor Vehicles
ETSC (2008) Position on the EC proposal for a Regulation on the protection of pedestrians and other vulnerable road users.

ETSC Reports
All Road Safety PIN Reports are available from http://www.etsc.eu/PIN-publications.php

ETSC (2011) 5th Road Safety PIN Report, 2010 Road Safety Target Outcome: 100,000 fewer deaths since 2001

IGES Institut, ITS Leeds, ETSC (2010): Study on the regulatory situation in the Member States regarding brought-in (i.e. nomadic) devices and their use in vehicles. Study tendered by the European Commission. http://www.etsc.eu/documents/Report_Nomadic_Devices.pdf
ETSC (2010) 4th Road Safety PIN Report, Road Safety Target in Sight
ETSC (2009) 3rd Road Safety PIN Report, 2010 on the Horizon
ETSC (2005) The Safety of Vulnerable Road Users
ETSC (2001) Priorities for EU Motor Vehicle Design http://etsc.eu/documents/mvdesign.pdf

Other
Lie, A. and Tingvall, C. (2002). How Do EuroNCAP Results Correlate with Real-Life Injury Risks? A Paired Comparison Study of Car-to-Car Crashes, *Traffic Injury prevention*, 3, pp. 288-293
Olsson T., Truedsson N., Kullgren A., Logan, D., Tomasevic, N., Fildes, B. (2002) Safe Car II – New
Vehicle Extra Safety Features, Monash University Accident Research Center
www.euroncap.com

ETSC gratefully acknowledges the contributions of Pete Thomas, Professor of Road and Vehicle Safety, Transport Safety Reseach Centre at the UK Loughborough University (UK), Anders Kullgren from Folksam (Sweden) and Michiel van Ratingen from EuroNCAP.

ETSC Contacts:
Ellen Townsend, Policy Director, ellen.townsend@etsc.eu
Graziella Jost, Programme Director, graziella.jost@etsc.eu Telephone 00 32 2 230 41 06

The European Transport Safety Council (ETSC) is a Brussels-based independent non-profit making organisation dedicated to reducing the numbers of deaths and injuries in transport in Europe. The ETSC seeks to identify and promote research-based measures with a high safety potential. It brings together 45 national and international organisations concerned with road safety from across Europe.

Roadmap to 2020

	By 2014	By 2017
General safety	Continue to raise vehicle safety for both occupants and pedestrians and other vulnerable road users through EU type approval legislation. Update the EU type approval crash tests to align with high performing EuroNCAP crash tests.	
Protection of Vulnerable road users	Mandate Advanced Emergency Braking for all new vehicles Regularly monitor developments in passive and active safety technologies at EU level and adopt legislation. Revise EU legislation concerning underrun protection of heavy vehicles	Introduce the mandatory fitment of external airbags as a viable safety measure to improve the protection of pedestrians and other vulnerable users as well as car occupants in case of a collision between two cars.
Seat Belt Reminders	Extend legislation to ensure that every new car has as standard equipment an enhanced seat belt reminder system for front and rear seat occupants with audible and visual warnings.	
Alcolocks	Introduce uniform standards for alcolocks in Europe, and provide assistance to reduce the workload for those countries that wish to introduce the technology without having the appropriate legal framework. Legislate for a consistently high level of reliability of alcohol interlock devices. Stimulate further research into the use of alcohol interlocks in rehabilitation programmes with the goal of setting up best practice guidelines. Further research into the development of non-intrusive alcohol interlocks.	Introduce legislation making non-intrusive alcolocks mandatory for all drivers.
Speed Limiters	Extend the mandatory use of speed limiters, which already exists for HGVs, to	

	vans and trucks under 3.5t.	
Intelligent Speed Assistance	Introduce a driver set speed limiter as a standard equipment in all new vehicles. Contribute to the development of harmonised standards for Intelligent Speed Assistance (ISA) systems towards eventual universal fitment.	Adopt legislation for mandatory fitting of all fleet cars with Intelligent Speed Assistance systems. Adopt European legislation for mandatory fitting of European cars with Intelligent Speed Assistance systems in the type approval procedure. Develop a European standard for a "speed limit service", i.e. over the air provision to in-vehicle systems of current geodata on speed limits and require Member States to provide a standardised "speed limit service" over the air..
Child Safety Restraints	Support Member States to increase the rates of child restraint use by transfer of best practice and other methods. Promote the supply of existing rearward facing seats for children up to the age of 4 throughout Europe.	Encourage the introduction of an EU level scheme to rate child safety restraints and inform consumers similar to EuroNCAP.
eCall	Include eCall in vehicle type approval Consider extending eCall to other vehicle types such as PTWs Ensure that eCall works in all 27 EU countries and in new cars of all brands and countries of origin.	
Lane Departure Warning	Extend the planned introduction of Lane Departure Warning Systems to large vehicles in 2013 in the EU.	
Create a market for Safety	Promote the work of EuroNCAP through making EuroNCAP testing obligatory for all cars entering the European market. Insist that advertisement of vehicles should mention EuroNCAP ratings (when	Adapt the EU Directive on the promotion of clean and energy-efficient road transport vehicles to include in-vehicle safety technologies (ISA, alcolocks) in public

	available) in all advertisement as it is required in the US under the Monroney label.	procurement