European Transport Safety Council

Horizon 2020

ETSC welcomes Horizon 2020, the new financial instrument running from 2014 to 2020 with an €80 billion budget. The new proposal recognises that:

"Although the necessary investments in research, innovation and deployment will be significant, failing to improve the sustainability of transport will result in unacceptably high societal, ecological, and economic costs in the long term."

For road safety, the annual death and serious injury on Europe's roads carries a heavy cost and burden to our society. Investing in research and development to prevent these collissions from occuring in the first place must be a priority in the Horizon 2020. It is recognised that safety issues are common in the EU and that an EU wide collaborative approach is needed. The draft regulation also cites the new goal set in the Transport White Paper to: *"move towards the target of zero fatalities in road transport by 2050."* Section 4.2.4 sets out some of the priorities for future research and development in the area of road safety. ETSC's comments are below.

Research Principles for Road Safety

Sound policies are based on known, effective, science based countermeasures, which in turn are grounded in good research. The EU has a global reputation to defend as a centre of excellence and innovation in research and development in areas of road safety. Research and development is supported by the spending from public authorities: regions, Member States and the EU. Road safety research should continue to benefit from this public funding. Road safety research should continue to benefit from European funds under the research framework programme. Related to this is the need to ensure the dissemination of knowledge about successful measures (good practice) and research results among decision makers and practitioners.

There are six general principles for carrying out research in the field of road safety[1].

- Freely available and easily accessible data.
- Plurality of research organisations.
- Open peer review process and open dissemination of results.
- Separation of the research and evaluation functions.
- Multiplicity of funding of R&D.
- Research as a tool to identify emerging problems.

The Horizon 2020 should address safety needs to keep a balance between high-tech solutions and other solutions such as innovative road design and new techniques and technologies for enforcement. ETSC sets out its priorities for future EU funded research and development below.

[1]Transport Safety Organisations In Private and Public Sector, ETSC Review 2003.

Indicators and Benchmarking

ETSC strongly believes in indicators, based on the attained level of attributes leading to a desired final outcome. EU funded R&D should support the development and maintenance of indicators. Specifically to enable the achievement of the ambitious target of a 50% reduction in road deaths by 2020, the Commission should invest in creating a monitoring framework that includes a set of sub-targets and indicators. A common set of performance indicators would be essential, together with a well-functioning Road Safety Observatory.

The EU's Road Safety Policy Orientations 2011-2020 identify common tools for monitoring and evaluating road safety policies. Every country involved in the delivery of the safe road transport system needs to compare itself on an international level. The EU provides the ideal space for Member States to compare themselves to each other (shared target, cohesion objectives, freedom of movement).

Monitoring EU countries' policies in relevant areas helps national policymakers to identify fields in which better progress is possible. The EU is already collecting data on accident outcomes and accident circumstances within the CARE database. However, monitoring countries' performance only on the basis of collision outcomes is not enough. The EU should encourage Member States to monitor normal traffic through a set of performance indicators and make use of the results of the EU funded research project SafetyNet. Safety Performance Indicators allow actions to be targeted in key areas systematically and implementation of measures to be monitored.

ETSC would also encourage the wider use of 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.

Horizon 2020 should:

- 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.
- 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.
- Promote wider use of in-vehicle Event data recorders

Horizon 2020: Safer Car Initiative

The EU is seen as a centre of excellence and innovation in research and development in the area of vehicle safety. Effective vehicle safety design result relies upon continuing research and development, understanding the source and mechanism of injury protection in a

range of crash conditions, regular monitoring of performance in real world conditions, and confirmation that new technologies are used and accepted[2]. Taking into account the importance of the automotive sector for the economy, EU funded research and development of safety topics should continue as this investment also sustains this important competitive advantage.

ETSC proposes to create a major and dedicated Research and Development Initiative for Safer Car (on the model of the Green Car Initiative) This would promote research on key safety technologies such as co-operative systems and protected road user passive and active safety systems. It would support and evaluate the deployment of the most life-saving safety technologies and create a market for safety. Demonstration activities and wider support are needed to promote consumer demand and reduce costs.

Another issue that deserves closer attention is 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.

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)".* 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 alcohol interlocks starting with target groups (commercial vehicles and public transport vehicles including buses especially transporting children, dangerous good trucks 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. Alongside, investing in research on 'non-intrusive' alcohol interlocks, the EU should in the medium term introduce legislation making non-intrusive alcolocks mandatory for all drivers.

Distraction

Europeans citizens are getting more used to the fact of being in constant communication with one another be it via mobile phone, smart phone and social media or email. However, distraction on the roads is a major source of concern. Driver distraction is

[2] http://erso.swov.nl/knowledge/fixed/50_vehicle/Vehicles.pdf

thought to play a role in 20-30% of all road collisions[3]. There is a long list of distractions, and these can undermine the driver or the rider's ability to perform the driving task. Distractions that concern pedestrians and cyclists[4] making phone calls, is also a concern[5].

Horizon 2020 should:

- Create a major and dedicated Research and Development Initiative for Safer Car
- 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 their fast-tracked deployment.
- Promote research on improved car-to-car compatibility
- Further research into the development of non-intrusive alcohol interlocks.
- Tackle the increasing distraction of in-vehicle infotainment and other communication devices.

Safer Roads

On the TEN-T, motorways, rural roads and urban road networks, all EU Member States should have the same high levels of infrastructure safety. The implementation of the new Directive on infrastructure safety has the potential of saving lives and avoiding serious injuries on the TEN-T network. Efforts should be made to address improving safety on the whole motorway network, and on urban and rural and connecting roads.

H2020 research priorities in infrastructure safety should focus on:

- Adapting road infrastructure to unprotected road users and the needs of the ageing society.
- Identifying benefits that ITS and cooperative systems can bring for infrastructure safety management.
- Monitoring real-time road status on evolving towards zero maintenance roads could also bring benefits to avoiding congestion and reducing costs associated with road works.

High Risk Groups

Ageing and Driving

At least 8,260 people 65 years old and over were killed in the EU27 in 2006. While elderly people account for one sixth of European population, every fifth person killed in road traffic is 65 years old or over. For elderly people, the European Commission's Transport

[3] Dews, F. A., & Stayer, D. L. (2009). Cellular Phones and Driver Distraction. In M. A. Regan et al., Driver Distraction Theory, Effects and Mitigation (pp. 169-190). CRC Press.
[4] http://www.swov.nl/rapport/Factsheets/UK/FS_Use_of_media_devices_cyclists.pdf
[5] http://www.etsc.eu/PRAISE-publications.php

White Paper identified several measures such as ensuring fitness to drive, conceiving appropriate infrastructure design and signalling, and providing adequate passive safety devices. It recognises that "an aged society will demand transport services that are safe, secure, comfortable and user-friendly". 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. Providing safe mobility to senior citizens deserves special attention and requires a re-think of policies and strategies. Horizon 2020 needs make sure that the requirements of the elderly for safe driving and mobility are not missing.

Powered Two Wheelers

The European Commission has prioritized the safety of PTWs. In 2006 at least 6,200 Powered Two Wheeler (PTW) riders were killed in road collisions in the EU25 representing 16% of the total number of road deaths while accounting for only 2% of the total kilometres driven (ETSC, 2008). A holistic and comprehensive approach should be adopted in order to reduce the safety disadvantages of PTWs, a group of road users particularly at risk on EU roads. A number of safety features have a great potential to enhance safety and the opportunity to mandate them in future revisions of type approval legislation should be carefully assessed. The opportunity to benefit from the eCall initiative, Intelligent Speed Adaptation (ISA) for PTWs, autonomous emergency braking are all features with high-potential that need to be further investigated.

Cyclists and Pedestrians

The White Paper recognises that: 'in urban areas, walking and cycling, together with public transport, often provide better alternatives not only in terms of emissions, but also of speed[6]: they could readily substitute the large share of trips which cover less than 5km." More should be proposed to protect pedestrians and cyclists, deaths among pedestrians and cyclists decreased by 34% between 2001 and 2009, compared with 39% for car drivers[7]. Safety of walking and cycling should be one of the objectives of safety management and supported by research and development into new innovative approaches.

Frontal Protection for Pedestrians and Cyclists

[6] The recent feasibility study for a central London cycle hire scheme considered that cycling is time competitive with all other modes over distances up to 8km. http://www.tfl.gov.uk/assets/downloads/businessandpartners/cycle-hire-scheme-feasibility-full-reportnov2008. pdf. A web based quantitative study amongst both cyclists and non cyclists undertaken in 2006 also found that speed is perceived to be one of the main positive 'drivers' of cycling to work in Central London. Source: TfL, 2008, Cycling in London.

[7] ETSC (2011) PIN Flash 19 Unprotected Road Users – a Key Concern of Road Safety http://www.etsc.eu/documents/ETSC_PINFlash19_unprotected_road_users.pdf

Pedestrian-friendly legislation aimed at reducing deaths and injuries of pedestrian and other unprotected users should continue to be a fundamental part of the EU's road safety framework. The technical requirements for the construction and functioning of vehicles and frontal protection systems in order to reduce the number and severity of injuries to pedestrians and other vulnerable road users who are hit by the fronts of those vehicles are laid down in a Regulation on pedestrian protection. Passive safety requirements (vehicle design) and also active safety measures such as Brake Assist System (BAS) are included in this Regulation.

Bringing Unprotected Road Users into the Co-operative Systems Approach

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.

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 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.

Noise and Unprotected Road Users

Electric mobility is growing and electric vehicles are likely to form a central part of future transport options. Although the technology is relatively well developed the use of significant volumes of electric vehicles has not yet occurred in Europe and in this regard the potentials on road safety are not fully realised and potential conflicts exist. With the increase of electric and hybrid vehicles on the market which have much lower noise, there is a need to look at the impact that this has on unprotected road users. A new EC proposal addressed the need for a minimum noise threshold for electric and electric-hybrid vehicles. At low speeds electrically powered cars provide a near-silent ride with some research showing that they are silent up to circa 20km/h. When exceeding this speed level, noise emission remains low and is caused mainly by the noise of the tyres. In this regard there is concern that such vehicles cannot be easily perceived by particularly by pedestrians and cyclists, older road users and those with, for example, visual impairments.

Some moves are already being made to tackle the potential increased road risk posed by almost silent vehicles. In Europe, acoustic warning systems and their possible standardisation are in the process of being developed as part of a proposed new Regulation[8] on motor vehicle noise. However, it is still being debated as to whether manufacturers should be obliged to fit such systems or if they should remain voluntary.

[8] 2011/0409 (COD) Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the sound level of motor vehicles.

In order to minimise potential negative impacts future research into such areas is required so that the risk can be clarified. Furthermore, it would be prudent to monitor crashes in which electric vehicles are involved and to analyse developments concerned.[9]

Horizon 2020 should:

- Support and fund projects enabling life-long mobility.
- Stimulate the design of the road environment and development of safer vehicles to fit the abilities of the elderly.
- Prioritise safety systems for PTWs.
- Regularly monitor developments in passive and active safety technologies for the protection of unprotected road users and adopt legislation when necessary.
- Compare the injuries risk posed by car models with good and bad bonnet leading edges identified in EuroNCAP tests.
- Support the development of car windshield airbags as a viable safety measure to improve the protection of pedestrians and other unprotected users struck by cars.
- Look at use of ITS for unprotected road users.
- Identify ITS for unprotected road users that can bring them into the cooperative picture.
- Monitor and propose solutions of conflicts that arise with introduction of electric vehicles that may cause problems for unprotected road users.

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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.

[9] SWOV (2011) Verkeersveiligheidsconsequenties elektrisch aangedreven voertuigen Ing. C.C. Schoon & ing. C.G. Huijskens R-2011-11 http://www.swov.nl/rapport/R-2011-11.pdf