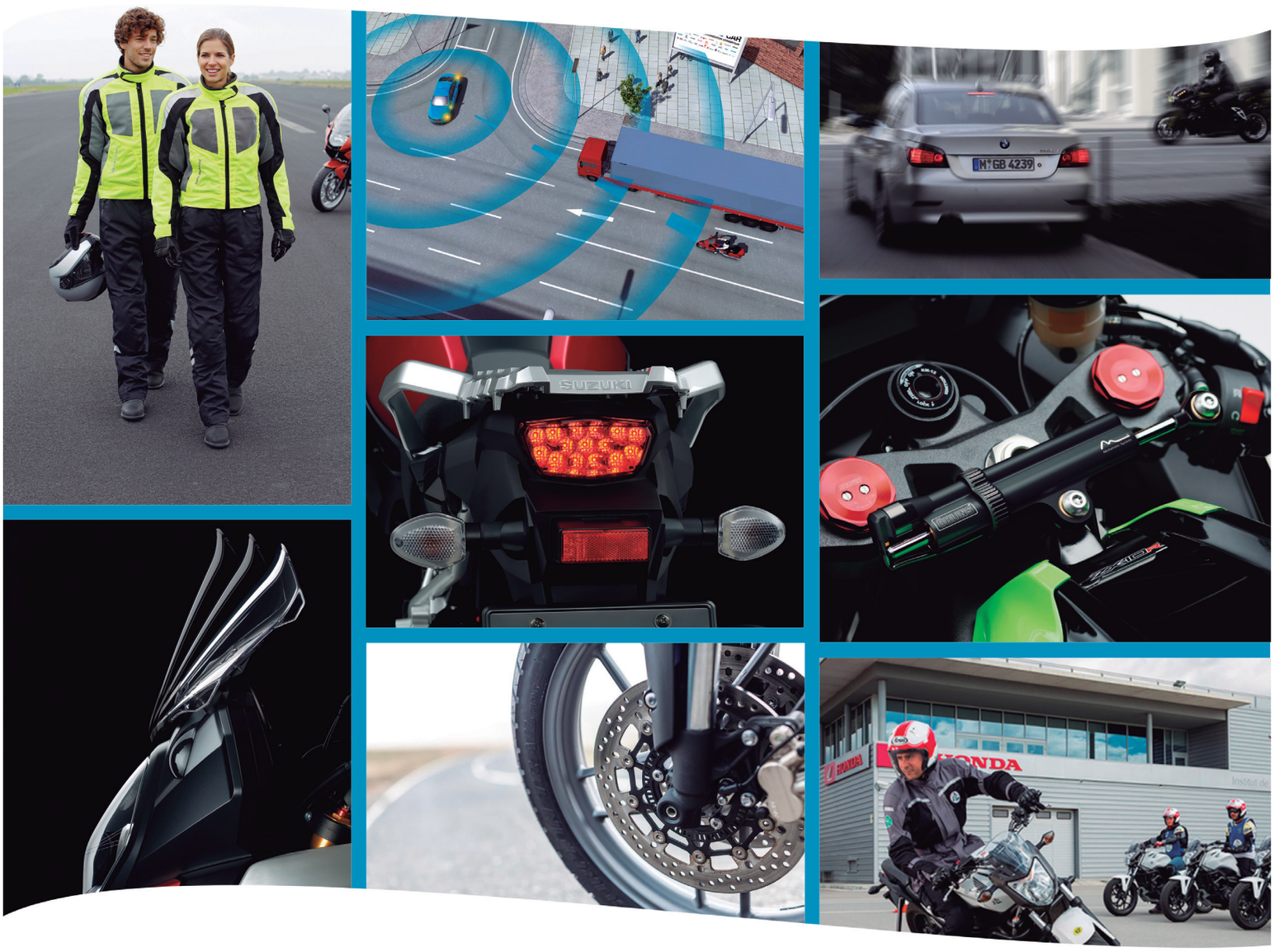
European Association of Motorcycle Manufacturers

acem

The safe ride to the future

The motorcycle industry's commitment to road safety



September 2014

Table of contents

Foreword by ACEM President

Over the last decade we have witnessed a substantial decrease in the number of road casualties affecting powered two-wheelers (PTWs). This decrease, albeit less pronounced than in other means of transport, takes place against a substantial expansion of the PTW circulating park. The motorcycle industry's long-term commitment to road safety has played an important part in achieving this positive result.

In 2001, for example, ACEM members voluntarily committed to fit all of their new vehicles with automatic headlamps on (AHO). In 2004, ACEM signed the European Road Safety Charter committing the manufacturing members to offering at least 50% of their street models with advanced braking systems as an option by 2010. After this initial target was surpassed, ACEM manufacturers set a further objective: 75% of street motorcycle models offered on the market in 2015 will be available with an advanced braking system as an option or as standard equipment.

Subsequently, some of these industry commitments were incorporated into Regulation 168/2013 (the type-approval regulation). Furthermore, ACEM strongly advocated for the strengthening of other safety provisions of this text including anti-tampering and market surveillance activities.

The important progress made on road safety, however, should not be a reason for complacency. Road fatalities still affect a high number of vulnerable road users, particularly powered two-wheeler riders. This is an issue that requires decisive action. To effectively address this major challenge, industry efforts must be complemented with action by other key stakeholders. We all have a responsibility for road safety – either as transport providers, road users or road authorities.

For this reason, better and more effective partnerships, particularly between vehicle manufacturers and policy-makers, must be established. We must build on the political momentum generated by the UN Decade of Action for Road Safety[1] and the European Commission's objectives to reduce the number of road deaths on Europe's roads by half[2] . We must redouble our efforts, at European, national and local level, in order to create a safer environment for PTW users.

By improving road safety levels we will also be able to further reap the considerable benefits that motorcycling brings to society. Motorcycling offers quality of life, among other things, through better access to jobs and services, affordable mobility, and the enjoyment of sports, leisure and tourism.

1. United Nations Decade for Action. Resolution A/RES/64/255 of 10 May 2010, the UN General Assembly.
2. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Towards a European road safety area: policy orientations on road safety 2011-2020.

Moreover, motorcycles produce lower carbon emissions in aggregate than cars, help to reduce traffic congestion, and resolve parking issues. These large societal benefits are sometimes overlooked in the public debate.

I am particularly grateful to all the people who contributed to developing *The safe ride to the future*. This report not only elaborates on past and ongoing safety initiatives, but also contains proposals that are a crucial step in making Europe's roads better and safer for all of us.

Stephan Schaller

ACEM President
BMW Motorrad President

Executive summary

- Data from the International Road Traffic Accident Database shows that between 2010 and 2012, the number of riders killed in Europe decreased from 5,275 in 2010 to 4,566 in 2012, a reduction of 13.4%. An analysis by segments shows that deaths of motorcyclists went down by 11.3%, whilst the number of moped riders that suffered fatal accidents went down by almost 27.9%. All this takes place parallel to the substantial growth of PTW use across Europe (25.2% between 2001 and 2012).
- The motorcycle industry has played a key role in this. Continuous improvement in safety features, including advanced motorcycle design, new intelligent features and new braking, lighting and suspension systems have been instrumental to increase motorcycling safety. Different road safety and training campaigns, often led by the motorcycle industry, have also made significant safety contributions.
- Currently ACEM members are working to improve road safety by deploying Intelligent Transport Systems (ITS) on PTWs in Europe. As part of this process, in March 2014 ACEM members adopted a Memorandum of Understanding on ITS. By signing this Memorandum, the motorcycle industry agreed to initiate the deployment of safety-relevant cooperative ITS on PTWs in Europe and committed to have at least one of their models available for sale with a cooperative ITS, either as standard equipment or as optional equipment, by 2020.
- Furthermore ACEM is currently conducting research on an embedded eCall system for motorcycles. The minimum technical requirements needed for such a system have already been defined and research activities are ongoing in order to address the unsolved technical challenges.
- Another key factor to improve safety records for PTWs is training. It is vital that riders receive the appropriate training so that they can ride confidently and safely. In order to help PTW users make informed decisions about their training, ACEM and the German Road Safety Council[3] have joined forces to start promoting high quality post license training schemes across the EU through DVR's Quality Seal. Moreover, other similar quality labels are currently being developed in the EU. Along with the DVR Quality Seal, these schemes could also help to increase the visibility of the best training programmes available and pave the way towards more uniform quality standards for training in Europe.

3. DVR, Deutscher Verkehrssicherheitsrat.

- Over the last decade substantial progress has been made in terms of reducing the number of fatal accidents involving riders. However, there is still room for improvement. The motorcycle industry has taken up the challenge to make a positive difference for motorcyclists across the EU. For this reason, ACEM will organise, in close cooperation with industry associations and other key stakeholders, a series of thematic workshops. Its objective will be to gain a better understanding of what actions can be taken at local, regional and national level in order to improve safety outcomes for PTW riders.
- Some of the topics to be covered by the workshops will include: mainstreaming of PTW needs into national transport strategies, prevention of safety failures through periodical technical inspections, fight against illegal tampering and implications of design and maintenance of road infrastructure on road safety.

Introduction

Powered-two and three-wheeler user[4] safety is an absolute priority for the motorcycle industry. Over the last decades ACEM members have made considerable efforts to develop technologically advanced vehicles with enhanced safety characteristics. The motorcycle industry has also taken the lead on road safety campaigns and promoted pre- and postlicense training among users. This effort has been instrumental in substantially reducing the number of fatal accidents involving powered two- and three-wheeler users in the EU.

As the latest data available from the International Road Traffic Accident Database[5] shows, the number of fatal accidents involving powered-two and three-wheeler users decreased from 7,554 to 4,566 between 2000 and 2012. This represents a reduction of 39%. More recently, between 2010 and 2012, the number of riders killed decreased from 5,275 in 2010 to 4,566 in 2012, which represents a reduction of 13.4%. An analysis by segments shows that deaths of motorcyclists went down from 4,303 in 2010 to 3,815 in 2012, a reduction of 11.3%. In the same period, the number of moped riders that suffered fatal accidents in the EU went down from 975 to 703, a reduction of almost 27.9%. All this takes place parallel to the substantial growth of PTW use across Europe. Between 2001 and 2012 the number of PTWs on Europe's roads increased from 29,230,320 in 2001 to 36,598,620 in 2012 (25.2%).

Although this downward trend is encouraging, it should not be a reason for complacency. ACEM believes that the number of fatalities amongst PTW users can, and must, be further reduced. The industry is also a supporter of the Commission's policy objective of halving the overall number of road deaths in the EU by 2020 which began in 2010.

ACEM members have a long road safety track record, based on innovation. However this is only one part of the integrated approach that is required to responsibly address the issue of road safety. A genuine integrated approach to road safety should include not only vehicle technology but also human behaviour and infrastructure. Therefore industry-led initiatives must be complemented by decisive public action. In particular, decision makers should address strategic policy areas including: enforcement of road traffic rules, riders' behaviour on the road and infrastructure design and maintenance. These areas should be addressed through inclusive policy plans at local, regional and national levels.

Safer motorcycling leads to more sustainable motorcycling and the realisation of the key benefits that motorcycles can bring to transport and the economy. The core motorcycle industry employs about 125,000 people in the EU and the aggregated turnover of the sector (manufacturing, plus direct upstream and downstream activities) amounts to 27 billion euros. Additionally, individual country based economic studies indicate that the economic

4. Throughout this document references made to powered two- powered two- and three-wheelers should be taken to include motorcycles and mopeds, as well as three wheelers.

5. The IRTAD database is an OECD programme that collects international accident, victim and exposure data on a continuous basis. It covers 29 OECD countries including 17 EU Member States.

contribution of the wider activity of motorcycling within society is considerable, with a fiscal multiplier effect that goes far beyond the basic industry figures illustrated above. This is particularly the case when areas such as travel and tourism, accessory manufacture and supply, the aftermarket industry, insurances, sport, fuels and oils are taken into account. All these sectors rely on a vibrant and growing motorcycle industry, with this illustrating how safety and transport policy needs to recognise and support the contribution of motorcycling to jobs, growth and economic recovery.

Furthermore, PTWs are increasingly used by commuters to provide an answer to traffic congestion. In many countries of the EU, for example, leisure machines offer a 'cross over' function, also being used for commuting. In the UK for example, the Government estimates that over 60% of PTW distance travelled is for commuting, utility or socially practical purposes. Further, the majority of motorcycling trips (60%) are for work, business or education purposes compared with only 27% for car trips[6]. PTWs are also used for sport and leisure and attract many around the world for the personal benefits they can bring: social interaction with others, the personal and economic perspective of PTW tourism and the pleasure of riding as an end in itself.

The most sustainable route to safer motorcycling lies within taking a comprehensive approach to safety policy and practice, based on a 'shared responsibility' approach and through exploring proper linkage with 'command' transport policy. Instead of public authorities approaching motorcycling issues via thinking such as 'what do we do about the motorcycle safety problem?', a new approach should be pursued. This will be based around the attitude of: 'Motorcycling carries many socio-economic benefits and an opportunity to offer the public a further alternative to the car for commuting. What do we need to do to support motorcycling, decrease casualties and reduce rider vulnerability?'.

In order to realise this and ensure that safety is managed with an even hand and on a level playing field, the first and most important step is to recognise motorcycling's place within society and the overall transport system. Indeed, the Organisation for Economic Cooperation and Development (OECD) firmly stated this key point in their primary recommendations from the 2008 Lillehammer safety conference. Similar conclusions were reached at "A Shared Road to Safety. A Global Approach for Safer Motorcycling", an event organised by the International Motorcycle Manufacturers' Association during the International Transport Forum, in May 2014.

Such an approach will open up the ability to integrate motorcycle safety as part of broader transport policy/planning and enable a reduction in rider vulnerability and improve accessibility as part of this. This will result in not only fewer motorcycle casualties, but also the important role that motorcycling plays in social, business, practical and leisure transport.

6. United Kingdom Department for Transport, "Transport Statistics Bulletin. Compendium of Motorcycling statistics 2009". The full document is available at http://goo.gl/t2atXR

Document structure

The safe ride to the future is structured in four main sections.

The first one provides an overview of the most significant industry-led initiatives in the field of road safety (e.g. key safety technology developments, advocacy actions, accidentology research).

The second section looks into the future of motorcycling. It discusses the industry's vision of intelligent transport systems and includes a memorandum of understanding agreed upon by ACEM members, which commits industry players to equip new vehicles with ITS features.

The third section of this document explains why there is an urgent need for tailored policy interventions at the national level and outlines upcoming industry initiatives in this area.

The fourth section elaborates on the DVR Quality Seal, an initiative to identify and promote high quality post license training schemes.

Lastly, the conclusions summarise the key points of this document. They also provide concrete policy recommendations to national and European decision-makers, with the aim of improving the road safety outcomes for PTW users.

A long-standing commitment to road safety

The motorcycle industry is committed to continuously improving road safety for motorcyclists and other road users. ACEM manufacturers have achieved high safety levels for their products, and continue to develop new technologies to facilitate the integration of powered two- and three-wheelers into the transport system. ACEM members have taken action to optimise vehicle safety, engaged with key policy-makers and users, and undertook research activities to develop effective safety countermeasures.

A strong commitment to safe and advanced vehicles

ACEM manufacturers work continuously to bring advanced and innovative products to the market while ensuring a high level of safety for users. Manufacturers have mainly focused on four key areas: intelligent transport systems, lighting devices, vehicle suspension, and stability and braking systems.

Recent developments in technology: intelligent transport systems

Intelligent Transport Systems (ITS) can be defined as the application of information and communication technology to different transport modes including road transport. It is a fast moving sector with research progressing constantly and new developments being continuously implemented.

For several years now ACEM manufacturers have been on the forefront of research in the area of rider assistance systems for motorcycles. They are mainly available today on high-end vehicles due to the additional complexity and consumer cost of these systems, or as optional equipment. They include equipment such as anti-lock braking systems (ABS) and traction control systems (TCS), which assist riders in maintaining vehicle control while driving on loose or slippery surfaces.

Other relevant features include tyre pressure monitoring systems (TPMS), electronic adjustable suspension, electronic cruise control, gear shift assistant, fuel economy assistant, proximity activation systems (i.e. keyless riding systems), in-vehicle navigation systems, adjustable vehicle riding modes, etc.

Furthermore, very promising developments are taking place in the field of cooperative ITS. Vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) technologies have a

KTM has fitted its newest model with Motorcycle Stability Control, a new ABS system that allows emergency braking in curves and provides additional stability to the vehicle.

high potential to minimise the risk of accidents by allowing powered two- and three-wheelers to effectively communicate with other vehicles.

ACEM manufacturers have, in close cooperation with the car industry, participated in a number of research projects that aim to develop V2V and V2I applications. Examples of these initiatives include the CAR 2 CAR Communication Consortium, the SIM-TD and the Drive C2X projects.

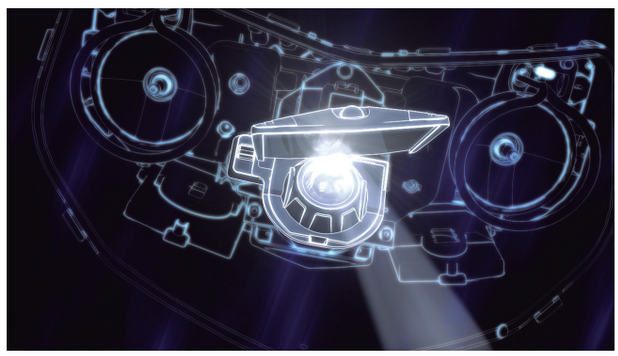
As a result of these efforts integration of PTWs into the transport system could be substantially increased in the future.

All of Peugeot's Metropolis are fitted with daytime running lights in order to increase their conspicuity.

Lighting devices: seeing and being seen

The ability of motorcycles to be detected by other road users is a critical aspect in crash prevention. In-depth studies have repeatedly shown that failure to see the PTW by other road users are a major contributor to urban PTW injuries.

This crash factor can be partially addressed by the introduction of specific technologies that improve the conspicuity of motorcycles. This is why ACEM members committed themselves to equipping all their models including mopeds with automatic headlamp-on technology (AHO) since 2003.



BMW Motorrad adaptive headlights improve road visibility when cornering at night, significantly increasing active safety.

Moreover, the motorcycle industry is also making use of daytime running lights (DRL) and amber position lights (APL). These systems make it easier for other road users to detect powered two- and three-wheelers.

Riding at night or in poor visibility conditions poses an important safety challenge. In view of this, some industry members are already producing vehicles fitted with adaptive lights which make night driving considerably safer. Other ACEM members have committed to incorporating adaptive lights to their newest models.

Additional relevant technologies available in the market include polyellipsoid headlamps, full LED lights (headlights, taillights and indicators), projector headlights and xenon headlights.

Suzuki stop and tail light uses LED technology for greater response and improved reliability.

Vehicle suspension and stability

Vehicle stability while riding a powered two- or three-wheelers is crucial. Highly performing suspension systems are required in order to safely adapt to different road surface conditions. Suspension systems also contribute to smooth handling and braking, and provide comfort to riders by keeping them isolated from road bumps.

Over the years ACEM manufacturers have developed a wide range of innovative vehicle suspensions adapted to different motorcycle usages. They include electronic suspension systems (standard or optional depending on the model), speed-sensitive electronic steering stabilisers (standard in various high performance models), semi-active suspension systems (which adapt the response of the suspension to road conditions, vehicle speed and driving style) and self-regulating suspensions.

All of these systems provide for maximum stability and increase users' control of the vehicle.

BRP's vehicle stability system (VSS) combines stability control, traction control, ABS and dynamic power steering to improve the safety of the rider.

Suzuki's traction control system help riders to accelerate, brake and steer properly and efficiently, making riding safer and easier.

Suzuki's adjustable wind protection reduces rider fatigue and improves concentration.

Kawasaki's 3-mode KTRC traction control provides enhanced stability in slippery conditions.

Kawasaki's Ninja ZX-10R is as standard equipped with an Electronic Steering Damper, substantially improving steering control.

Stopping right in time: braking systems

The motorcycle industry introduced the first anti-lock braking systems (ABS) in 1988, long before this area was considered a priority by policy-makers. Since then, the industry has developed different advanced braking technologies, tailoring these devices to the specific needs of consumers. Other advanced braking systems include combined braking systems (CBS), rear wheel lift-off protection, automatic brake force distribution, amplified braking systems and brake by wire. These systems can operate individually or in combination.

Furthermore, ACEM signed in 2004 the European Road Safety Charter committing itself to offering at least 50% of their street models with advanced braking systems as an option by 2010. After this initial target was surpassed, ACEM manufacturers set a further objective: 75% of street motorcycle models offered on the market in 2015 will be available with an advanced braking system as an option or as standard fitting.

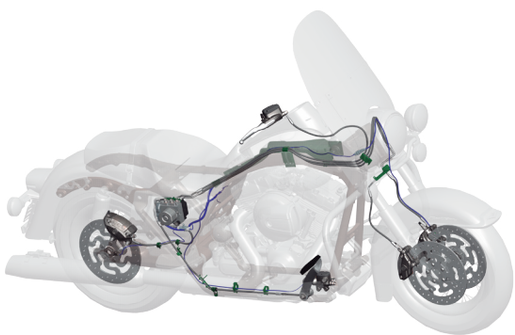
ABS systems will become mandatory for new motorcycles over 125cc from 2016. From that same date, new models up to 125cc will have to be equipped with either a combined braking system, ABS, or both. As a result of the ACEM commitment for the Road Safety Charter some manufacturers have decided to fit with ABS as a standard all of their models.

Moreover, national industry associations have designed schemes that give preferential treatment to ABS-equipped models in national markets. This has allowed some EU countries to achieve a high level of ABS uptake (73% in Sweden and 90% in Germany, for example).

Antilock brake systems, such as this one from Triumph, makes braking in any situation simpler and safer.

Engaging with riders and policy-makers

Rider education, training and continuous information campaigns, complemented by the enforcement of existing rules, are key instruments in achieving a safer road environment. ACEM members work closely with motorcycle users and other stakeholders, and lead on campaigns to improve rider safety and to encourage rider training. Moreover, the industry provides policy-makers with relevant information and formulates policy recommendations in different areas including infrastructure design.



Harley-Davidson's linked brakes combine ABS with electronically linked brakes to dynamically optimize front and rear brake balance.

Engaging with both policy-makers and riders is essential. Only an integrated approach that takes into consideration all the aspects of motorcycling (i.e. vehicle, human and infrastructure factors) can improve road safety for PTW users.

Better skills, better riding

The industry offers specialised and individually tailored rider training courses to meet all needs, from absolute beginners to highly skilled riders. These courses include training on motorcycle uses, such as motorcycling on public roads, touring, off-road enduro riding and race track riding. Furthermore, specific training schemes are developed by industry when new technologies or types of vehicles are introduced onto the market.

The main aim of these courses is to teach participants how to share the road with other road users, how to avoid potentially dangerous situations and how to better maintain control of the vehicle in extreme conditions. They take place under the guidance of certified instructors either in selected riding schools or in training centres established by ACEM members. Particular attention is paid to the training of young people looking to get a moped license or who hold a B license (a passenger car license) and want to follow a preparatory course to become riders.

Some manufacturers have set up specialised training facilities, such as the Honda Safety Institute in Barcelona, Spain.

Moreover, ACEM members have created specific training schemes to ensure that motorcyclists who have stopped riding for a prolonged period of time can come back to motorcycling safely. These efforts are supported by national police forces in several EU countries.

Next to practical training courses, some manufacturers have also developed riding simulators for helping especially novice riders especially, to learn to see potentially dangerous traffic situations without risk. Additionally, basic control skills can be perfected (e.g. hand and foot control coordination (clutch – throttle – gear – brake).

The Honda Riding Trainer offers hazard perception simulation as effective and complementary safety tool in motorcycle training.

National industry associations play a key role in ensuring that training schemes are delivered to a high standard. In Germany, for example, more than 3,500 motorcycle trainings have been assessed in cooperation with relevant national authorities. In Italy in 2012 more than 3,200 young people attended the “Bikers academy” programme which involved a total of 619 driving schools. In the UK, the industry works closely with the Police-led ‘Bikesafe’ initiative which assesses the skills of riders via one-day courses and ride outs. More than 15,000 participants across Europe participated in a training scheme run by one of ACEM members.

Raising awareness about protective equipment

The motorcycle industry has worked closely with protective equipment manufacturers for many years to develop and promote appropriate rider equipment. Research developed jointly by the motorcycle industry and equipment manufacturers has allowed for the development

of new protective equipment products including special clothing designed for hot climates and airbag jackets.

ACEM members and equipment producers continue to develop body protectors, back braces, clothing in reflective colours and new improved helmets. Dedicated protective equipment, including neck braces and armoured clothing has also been developed for off-road, motocross and sport motorcycling.

In 2006, Honda launched the world's first production motorcycle air-bag system on the Honda Goldwing. The system helps to lessen the severity of injuries caused by frontal collisions.

Some motorcycle manufacturers have also designed their own protective equipment, taking into consideration the specific needs of riders and vehicles. Indeed, it is important to stress that the safety gear required to ride safely depends on the type the specific use of each vehicle. Powered two- and three-wheelers ridden in urban areas do not require the same type of protective gear that more powerful motorbikes which can be used for example in rural environments, at higher speeds, or in off-road activities.

Furthermore, manufacturers actively encourage riders to wear appropriate safety gear. Some ACEM members have launched campaigns offering back protectors to everyone who purchased a new motorcycle and distributed tens of thousands of back protectors all over Europe. These efforts are also supported by national industry associations which work closely with clothing manufacturers, insurance companies and national administrations to promote the use of appropriate equipment and offer complete protective package at preferential rates.

Ducati introduced in 2014 an airbag-equipped jacket that is operated wirelessly if sensors on the vehicle detect an accident.

Harley-Davidson has created its own line of riding gear that keeps drivers both safe and comfortable on the road.

BMW has developed an entire range of rider equipment and has done so since the 1970s - from motorcycle helmets to rider suits, boots and gloves.

Working together with public authorities

Establishing a legislative framework that recognises the importance of motorcycling in transport policies is a priority for the motorcycle industry. Such an approach can have a positive impact on rider vulnerability, as well as enabling the greater utilisation by governments and society of PTWs as a mode of commuter transport in particular. National associations actively participate in different public bodies and provide industry expertise to national administrations.

ACEM members have engaged with officials to support efforts to improve national road codes, formulated recommendations to improve European licensing systems and developed, in collaboration with other stakeholders, guidelines to make transport infrastructure friendlier to PTWs. The industry has also advocated for powered two- and three-wheelers to be allowed in bus and taxi lanes in order to increase riders' safety. As a result of these efforts these vehicles have been allowed to drive in taxi / bus lanes in London and Madrid.

Ensuring that legislation is properly enforced is vital in order to protect consumers and fight counterfeiting. ACEM members cooperate with public authorities at European and national level and support market surveillance activities in order to prevent non-compliant and unsafe products from being placed on the European market. The motorcycle industry also provides valuable and up to date information to national and European decision-makers (e.g. number of units sold in national markets, size of the circulating park, etc.).

ACEM members have participated together with relevant national authorities in several road safety campaigns. These campaigns have focused on encouraging drivers to look for motorcyclists on the road. This is particularly important given that a high number of collisions are caused by car drivers noticing very late or even completely overlooking riders. Safety campaigns have also focused on the promotion of voluntary post-license training and of conspicuous and protective gear among riders.

"Occhio alla moto" was a road safety campaign launched by ANCMA-Confindustria to raise awareness of motorcyclists among car drivers.

Developing safety countermeasures to improve road safety

Understanding the causes of motorcycle accidents: the MAIDS study

The industry has a long standing commitment to understanding the circumstances and causes of accidents involving PTWs. Between 1999 and 2004 ACEM, with the support of the European Commission and other partners, conducted an extensive in-depth study of motorcycle and moped accidents during the period 1999-2000 in five sampling areas located in France, Germany, Netherlands, Spain and Italy.

The methodology developed by the OECD for on-scene in-depth motorcycle accident investigations was used by all five research groups in order to maintain consistency in the data collected in each sampling area.

A total of 921 accidents were investigated in detail, resulting in approximately 2,000 variables being coded for each accident. The investigation included a full reconstruction of the accident; vehicles were inspected; witnesses to the accident were interviewed; and, subject to the applicable privacy laws, with the full cooperation and consent of both the injured person and

the local authorities, pertinent medical records for the injured riders and passengers were collected. From this data, all the human, environmental and vehicle factors which contributed to the outcome of the accident were identified.

To provide comparative information on riders and PTWs that were not involved in accidents in the same sample areas, data was collected in a further 923 cases.

MAIDS remains the most important in depth database of powered two- and three-wheelers accidents in Europe. MAIDS results are still being used by researchers and manufacturers to improve knowledge about accidents and to develop appropriate safety countermeasures.

European and in-house research projects

The motorcycle industry is currently involved in the implementation of the UDRIVE project[7]. This initiative, which runs from 2012 until 2016, is a large-scale European naturalistic study[8] into the traffic behaviour of passenger car drivers, truck drivers and motorcyclists. A total of 240 passenger cars, 150 trucks and 40 motorcycles will be followed for the duration of one year. The road users' behaviour in traffic will be continuously registered with several sensors and cameras. This will yield a wealth of data about everyday traffic behaviour as well as about near-crashes and crashes.

In parallel to this, some ACEM members are taking part in the DRIVE C2X study[9]. DRIVE C2X is a comprehensive assessment of cooperative systems through field operational tests. It aims at creating a harmonized Europe-wide testing environment for C2X technologies, i.e. communication among vehicles (C2C) and between vehicles and the infrastructure system (C2I). Cooperative technologies are being deployed under real-world conditions in several European test sites (Finland, France, Germany, Italy, Netherlands, Spain and Sweden). The project supports efforts to standardise and commercialise ITS systems in Europe.

These ongoing initiatives build on a strong tradition of a cooperative industry efforts. ACEM members have participated in research projects focused on the usage of vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) communication systems, such as ConnectedRide[10], SIM-TD[11] and the CAR 2 CAR Communication Consortium[12].

These projects aimed to utilise V2X technology in urban areas to lessen the risk of collisions, especially at traffic junctions in urban areas, which represent more than 50% of powered two- and three-wheelers accident scenarios[13].

7. http://www.udrive.eu/
8. Naturalistic riding studies involve the installation of sophisticated cameras and instrumentation in participants' personal vehicles, providing researchers with thousands of hours of data in order to better understand actual driving behaviour and improve vehicle safety performance.
9. http://www.drive-c2x.eu/project
10. More information on the Connected Ride project is available at http://goo.gl/HmtzQQ
11. More information on the SIM-TD project is available at http://goo.gl/GSbOUw
12. http://www.car-to-car.org
13. 52% of the fatal accidents analysed in the MAIDS study happened in traffic junctions.

Between 2010 and 2012, as part of the MUSS project, the industry carried out research on the benefits of passive safety features in PTWs. Between 2009 and 2011, ACEM participated in the eSUM[14] project, a collaborative initiative between the motorcycle industry, local authorities of the principal European motorcycle cities and universities, which developed a good practice guide and an action pack to promote safer urban motorcycling in urban areas.

In parallel to this, the Safespot project (2009-2011) aimed at improving road by safety using cooperative applications based on data exchange among vehicles and between vehicles and infrastructure through an ad-hoc network.

The Saferider project (2008-2010) studied the potential of ADAS[15] and IVIS[16] integration on motorcycles. The project aimed to develop efficient and rider-friendly interfaces for riders' comfort and safety, and to estimate the safety impact and user acceptance of the prototypes in a series of pilot applications.

The WATCH-OVER[17] initiative (2006-2008) developed a cooperative system for the prevention of accidents involving vulnerable road users in urban and extra-urban areas using short range communication and vision sensors.

eSUM was a collaborative initiative between the motorcycle industry, local authorities of the principal European motorcycle cities and universities, to promote safer urban motorcycling.

Yamaha and Piaggio were involved in the testing of ADAS in simulators and vehicles within the Saferider project.

The SIM project[18] (2006 -2009) focused on active and passive safety aspects, mainly from a PTW point-of-view. As riders are one of the most vulnerable road users, the main objectives of SIM were to identify a suitable safety strategy for them, to enhance preventive and active safety acting on electronic vehicle management and human-machine-interaction and to focus on integral passive safety devices.

14. European Safer Urban Motorcycling (eSUM). More information on the Project can be found at http://www.esum.eu/
15. ADAS. Advanced driver assistance systems.
16. VIS. In-vehicle information systems.
17. http://www.watchover-eu.org/
18. The final report of the Safety in Motion project (SIM) is available at http://goo.gl/wwhxuP

Looking into the future: Intelligent transport systems

In the years ahead, further technological breakthroughs will come through innovative intelligent transport systems (ITS), which will allow vehicles to interact with each other and with surrounding infrastructure.

Some ITS devices have already been successfully introduced on the market by ACEM members. Moreover, the motorcycle industry is engaged in in-house R&D activities and actively participates in EU research projects on cooperative ITS.

ACEM manufacturers have also adopted a Memorandum of Understanding on ITS, committing themselves to install safety-relevant cooperative ITS onto at least one of their models by 2020.

A BMW Motorrad-run project, ConnectedRide, has developed specialised warning systems for bad weather conditions, obstacles and approaching emergency vehicles, among others.

The motorcycle industry's vision on ITS

ITS devices can further enhance road safety

Research shows that one of the most frequent human errors in accidents is the failure of other road users to see PTWs within the traffic environment, due to lack of driver attention, temporary view obstructions or the low conspicuity of the PTW[19]. This problem could be addressed by enabling non-PTW drivers to receive a 'motorcycle approaching indication' (MAI) or in case of an emergency situation, a 'collision warning' message. This form of 'digital' conspicuity of PTWs would result in a higher level of safety for riders. For this reason, the industry sees vehicle to vehicle (V2V) communication as a technology which has a high potential to improve road safety across the EU and may lead to better integration of motorcycles in the transport system.

The HMI developed by Honda provides a visual and an audible warning in safety critical situations. The visual element is located close to the rider's line-of-sight and uses changes in color and intensity to communicate the nature of the threat.

19. The final report of the SIM project is available at http://cordis.europa.eu/publication/rcn/11467_en.html

Some ITS applications have also the potential to improve the environmental performance of vehicles and to help meet the growing demand for mobility by optimizing the use of existing road infrastructure (e.g. by providing information on the shortest routes).

Examples of ITS applications include: collision prevention devices, emergency notification systems and road traffic management systems.

Specific vehicle usages must be taken into account

It is important to bear in mind that powered-two and three-wheelers encompass a wide-range of vehicles that have very different uses. Although the PTW market is often perceived as a whole, in reality, it is characterized by a great diversity of vehicles. Whilst the largest market segment (60%) is represented by urban oriented vehicles with a cylinder capacity below 125cc, PTWs above 500cc represent 25% of the market.

Certain ITS solutions would be better suited to a particular category of PTW because they would provide the most benefit with a cost level coherent to the market segment. Small urban PTWs, for example, could be equipped with ITS devices improving their electronic conspicuity, whilst high-end vehicles could benefit of more advanced optional features.

A mandatory approach, without distinguishing PTW categories, would be counterproductive. As long as core functions and interoperability are preserved, each ACEM manufacturing member should have the freedom to implement the most appropriate technical solutions and optional features, within a competitive business environment.

A Honda Goldwing with simple, logical and intuitive HMI for faster and easier recognition of potential risks, compensating for errors of perception or momentary lacks of concentration by the rider.

Technical considerations of relevance to PTWs

Notwithstanding the above mentioned benefits of ITS, important technical issues must be addressed in order to ensure market uptake. Further ITS deployment will require investments in research technology and infrastructure, as well as a clear and sound legal framework.

The driving dynamics of powered-two and three-wheelers are much more complex than those of automobiles. ITS applications, which may remove or interfere with the rider's control of the vehicle, cannot be utilised in the way they are for automobiles. Autonomous active interventions in the control or dynamics of the vehicle may be dangerous to a PTW rider, as this could destabilize the rider and the vehicle, potentially causing, instead of preventing, an accident. For this reason, ACEM members strongly support the use of warning systems.

Advanced Driver Assistance Systems (ADAS), Adaptive Cruise Control (ACCA) or Autonomous Emergency Braking Systems (AEBS), which have been primarily engineered for use in cars, have the potential to be dangerous if applied to a PTW without the necessary adaptation to

PTW dynamics. Powered-two and three-wheelers require a dedicated approach and specific engineering solutions to optimize the potential of ITS for road safety.

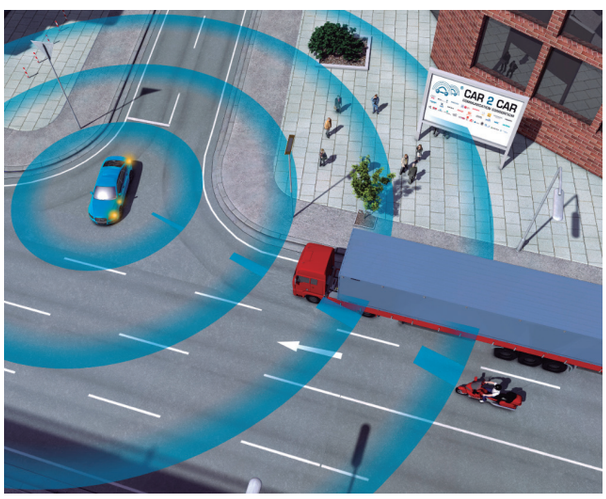
It is also important to stress that these systems will require the development of appropriate human-machine interfaces (HMI). HMI must minimise rider distraction and should be specifically designed with PTW riding in mind. For example, messages should be prioritised so that safety warnings override more general notifications.

ACEM members are committed to ensuring that any safety related co-operative ITS applications are interoperable between both PTW manufacturers, and more importantly, with other road users.

The motorcycle industry will contribute to European and global ITS forums to ensure that cars, trucks and PTWs are all able to communicate using their various ITS applications. It is critical that all PTWs must be able to recognise messages from any other vehicle on the road, regardless of brand, vehicle type, etc. This can be ensured by adhering to established harmonised standards.

Other considerations: liability and training

ACEM members are closely observing the debate surrounding the liability of ITS. The implications of device or system failure; conflict between multiple ITS products; operator information overload; loss of operator attention; incorrect interpretation of information and liability arising as a result of the interaction of both ITS-enabled and conventional vehicles have not yet been clarified in terms of liability.



The CAR 2 CAR Communication Consortium is dedicated to the objective of further increasing road traffic safety and efficiency by means of cooperative ITS with vehicle-to-vehicle communication (V2V) supported by vehicle-to-infrastructure communication (V2I).

Last but not least, it is important to remember that ITS solutions should not be considered as a substitute for appropriate training. It should be ensured that the public does not become dismissive of ITS technology in the early phases of adoption where low penetration rates on the roads may prevent the systems from working to their full potential. At a later stage, it is equally critical that drivers and riders do not become over reliant on safety technologies for warnings of potential dangers.

Training and education will remain the most important factors for safer road use. Drivers and riders will remain responsible for awareness of all other road users around them when manoeuvring.

Towards an eCall system for motorcycles

eCall technology allows for an emergency call to be made, either automatically or manually, from a crashed vehicle immediately after a road collision has occurred. The technology is already available in some cars, and the motorcycle industry has started research into how an embedded eCall system could work on motorcycles. The minimum technical requirements needed for such a system have already been defined and research activities are ongoing in order to address the technical challenges of the system.

One of the objectives of the C2X project is to develop systems that warn drivers about potential collisions with two powered two- or three-wheelers.

The development of crash sensor systems for PTWs is a highly complex task likely to require some years of preparation. Detailed accident analysis assessments, as well as cost-benefit analysis of the systems will be needed in order to develop devices that are reliable, protect consumers and are economically feasible.

Accident-recognition is also an area that will require further efforts. In the case of a severe car accident the driver of a car usually remains inside the vehicle but in the case of a motorcycle accident this situation may be very different. In the majority of cases the rider is usually separated from the vehicle and may come to rest at a distance from the motorcycle. Moreover, there are cases when a motorcycle falls over in a non-accident situation and where clearly there should be no eCall triggered. Also in the case of an accident, the motorcycle and its rider may experience very different events once that accident has started. These and other important challenges have to be properly addressed. In many cases, close cooperation with other stakeholders and organisations will be required.

The industry expects that the ongoing research activities will last for at least the next 18 months. After that, standardisation activities will require about 30 months to be completed. Standardisation will be followed by the development of a technical concept (6 months), the resolution of marketing issues (6 months) and, lastly, the series development phase (24 months). At the end of this process, a reliable and robust eCall system for motorcycles will be available for consumers.

ACEM Memorandum of understanding on ITS

Another important step towards the deployment of ITS was taken in March 2014, when the motorcycle industry adopted a Memorandum of Understanding on cooperative ITS. The objective of this Memorandum is to accelerate and coordinate the deployment of safety-relevant cooperative ITS[20] on PTWs in Europe.

20. Cooperative ITS is defined as a network of systems in which communication partners (vehicles, traffic infrastructure and/or service providers) provide and/or exchange information (i.e. 1- or 2- way of communication).

By signing this Memorandum ACEM manufacturing members agreed to initiate the deployment of safety-relevant cooperative ITS and committed to have at least one of their models available for sale with a cooperative ITS application available either as standard equipment or as optional equipment by 2020.

The Memorandum is an expression of the individual and collective commitment of the ACEM manufacturing members to build on the work of the C2C Communication Consortium (C2C-CC) and to realise a shared objective to the benefit of everyone. Specifically but not uniquely, ACEM manufacturing members aim for PTWs, as vulnerable road users, to achieve electronic conspicuity as foreseen in the second phase of the C2C-CC's MoU in collaboration with other vehicle manufacturers.

Initiation of market introduction will require the finalisation of ongoing activities on standardisation, validation and field operational tests, which are expected to be completed by 2015. It will also require the completion of a number of related activities by other players including infrastructure organisations and public authorities.

The need for more tailored safety policies

Despite overall progress there is a need for more tailored safety interventions

Between 2000 and 2012 the number of fatal accidents involving powered-two and three-wheeler users in the EU fell by 39%. More recently, between 2010 and 2012, this figure decreased by 13.4%. Although this trend is certainly encouraging, data from the International Traffic Safety Data and Analysis Group (IRTAD) shows that considerable disparities in terms of road safety remain between EU Member States. In a few countries, fatalities of motorcyclists increased between 2000 and 2012.

These variances must be understood in terms of road users' behaviour, differences in terms of training, law enforcement and quality of road infrastructure, among other factors. The motorcycle industry strongly believes that these elements must be closely looked at, taking into consideration the specific safety needs of different administrative levels (local, regional and national). This approach would allow to generate more durable and cost-effective safety improvements.

ACEM members also believe that all relevant stakeholders (i.e. public authorities, manufacturers, national associations as well as non-governmental and users' organisations) should come together to identify, adapt and apply measures that have a high potential to reduce the number of fatal accidents in the EU. The motorcycle industry can certainly provide expertise on vehicle safety technology, protective equipment and future technological developments, among others. But it is also vital that public decision-makers develop and implement sound local, regional and national PTW safety strategies.

Evidence suggests that Member States that have developed specific road safety strategies tend to have better road safety outcomes. Conversely, restrictive policy or simply ignoring motorcycling could result in reducing awareness from other road users, putting riders at higher risk.

Thematic workshops, the first step towards more tailored safety policies

The motorcycle industry will organise, in close cooperation with industry national associations and key stakeholders, thematic workshops in different parts of the EU. The main objective of these workshops will be to create a favourable environment for improving the safety of riders in the EU. ACEM has already had preliminary discussions with some organisations in order to promote this approach, essential for road safety.

Some of the key topics to be covered in these workshops will include:

- **Mainstreaming of motorcycling into transport policies.** In order to improve road safety results government policies need to properly 'mainstream' motorcycling as part of their overall transport policy. This inclusive approach would allow the proper development of measures which would improve safety, support riders and help realise the positive potential of PTWs for society as a whole. The adoption of a specific PTW strategy by local, regional and national administrations would also maximise the opportunities that exist to reduce urban traffic congestion and pollution – an area where PTWs can play a significant role. Conversely, ignoring PTWs in transport policy has the negative consequence of sustaining an environment for PTW users which is subject to greater vulnerabilities than should exist, and opportunities to improve safety are therefore lost.

The city of Barcelona increased road safety levels by introducing advancced stop lines at junctions.

- **Successful local strategies to increase PTW safety.** Successful examples of integration of PTWs into the transport system do exist in many European cities. In London and Madrid, for example, the opening of bus lanes to PTWs has substantially reduced the number of PTW collisions and has optimised the use of existing infrastructure. The city of Barcelona introduced "advanced stop lines" at some junctions to provide a special stop space for PTW riders at traffic lights. This reduced conflicts between PTWs and cars, with very positive results. National policy plans should also consider strategies to improve the enforcement of legislation on speed, drink and driving, helmet use, tampering and riding without a proper PTW license. Addressing these issues could save a considerable number of lives every year and contribute to achieving the European target of reducing road fatalities by 50% by 2020.
- **Safer infrastructure for motorcycling.** Road infrastructure is at the core of road safety, especially for PTW riders. Policy-makers need to ensure that infrastructure is well maintained, receives the necessary investment and creates a safer environment for all types of road users, particularly for vulnerable road users such as PTW riders. Consideration of PTW safety at the road design stage is essential to ensure that infrastructure is motorcycle friendly. Relevant aspects of well-designed infrastructure include good PTW visibility, obstacle free zones, use of appropriate road surface materials and predictable road geometry.
- **Raising awareness among road planners of the needs of PTWs.** The characteristics and infrastructure requirements of PTWs should be part of the basic training of road designers, highway and traffic engineers. The standardisation of data collection procedures for infrastructure-related accidents and the identification of sections with

high accident concentrations can also help to reduce the number of serious and fatal accidents involving PTWs. ACEM has published an Infrastructure Guidelines Handbook that provides vital information on how to successfully integrate PTWs in infrastructure management. This document has been prepared by industry experts, road and traffic engineers, urban planners, and policy makers[21] .

ACEM has produced a set of guiedlines for policy-makers and urban planners to make transport infrastructure friendlier to PTWs.

- **Ensuring appropriate and high levels of training.** Studies consistently show that significant improvements in motorcycle safety can be made through better riding skills as well as increased and better hazard perception and safety awareness. The motorcycle industry strongly believes that novice riders and B license holders who drive PTWs should be subject to compulsory training. Public authorities should encourage riders with appropriate incentives to undergo voluntary post-licensing training in order to keep their skills honed to a high level. Moreover, training programmes should educate other road users, particularly car drivers, on the presence and vulnerability of motorcycles.

- **Vehicle technology and periodical technical and roadside inspections.** Evidence shows that defective or poorly maintained vehicles can lead to a higher safety risk. However, only half of the EU Member States have set up compulsory periodic technical inspections for powered-two and three-wheelers. The establishment of these mandatory safety checks in these countries would enhance the maintenance and repair of vehicles, prevent safety failures due to inadequate maintenance (e.g. failures or poor condition of lighting, tyres or braking systems) and assist in the prevention of irresponsible tampering. Furthermore, periodic controls would also offer a cost-effective measure to address pollutant emissions, which are mainly generated by older and poorly maintained vehicles. The motorcycle industry is ready to support any efforts by national administrations to introduce periodic roadworthiness tests for powered-two and three-wheelers by providing the necessary technical expertise and advice. In addition to this, national governments should reinforce roadside inspections of all vehicles in order to identify vehicles which could represent a hazard to traffic safety, when relevant safety requirements are not fulfilled.

21. These guidelines are available on ACEM's website, at http://goo.gl/6uYe1D

- **Improved knowledge on accident causation and rider behaviour.** Accident in-depth studies and naturalistic riding studies are essential in order to develop appropriate countermeasures that avoid or minimise the risk of accidents. They provide detailed insight into normal riding tasks, near-missed accidents and accidents causation factors. In-depth and naturalistic studies should be encouraged and implemented at European, national, regional and local level. This would allow public authorities that lack vital information to devise more effective safety measures as well as realistic policy objectives.
- **Improvement of data gathering processes.** The improvement of data gathering processes is essential to adopt policies based on solid evidence. In this regard, it is important to stress that many national authorities do not collect exposure data, something which is essential in order to make complete and comprehensive road safety analysis.
- **Statistics on PTW use.** Statistics suggest that greater PTW use can lead to considerable safety gains as the proportion of PTWs on the road rises. Indeed, more PTW use can lead to far fewer casualties. The safety experience of higher levels of PTW traffic in different European countries suggests that when motorcycle use increases to 10% of the vehicle stock, sharp falls in casualties start to occur.

ACEM members strongly believe that addressing these and other relevant topics together with major stakeholders will be instrumental in reducing PTW fatal accidents across Europe. Furthermore, these exchanges can pave the way for concrete actions reflecting the national context and situation in the future.

Towards a European Training Quality Label

Appropriate training, a key element to improve road safety

The human factor has been shown repeatedly to be the most critical factor in accidents involving powered-two and three-wheelers. For this reason the motorcycle industry encourages continued outreach to new and existing motorcycle riders on the importance of life-long rider training, including pre-licensing and voluntary post-licensing formulas.

Pre-license training provides the basic skills and awareness needed for novice riders to use their vehicles safely on the road. Subsequently, more advanced post-license courses can provide riders with additional opportunities to increase their proficiency and safety as well as their hazard perception skills. Post-license training plays a key role in improving road safety, particularly for people who are upgrading to a more powerful motorbike, who are returning to riding after an extended period of time, or for those who want to improve their riding skills and perception abilities.

In addition, a variety of training options are offered within the context of motorcycle sports on dedicated tracks and off-road terrains. This allows riders to greatly enhance their skills and control of the vehicle.

The industry recognises the importance that training plays for enhancing safer motorcycling. ACEM members have offered for many years, and continue to do so, high quality and well-tailored voluntary training options across the EU. Furthermore, between 2004 and 2007, the industry participated in the Initial Rider Training Project, which developed a modular curriculum for training motorcyclists in Europe.

BMW Motorrad offered its first rider training courses back in the 70's. Today it maintains a worldwide network of partners who provide practically oriented courses delivered by qualified instructors to small groups of participants.

However, most of the training that riders have access to, both at pre- and post-license level, is not delivered by manufacturers but by training schools. These rider training courses vary widely between countries and schools due to the different training requirements, particular uses of vehicles in the country and vehicles made available to the trainee riders, among other factors. Moreover, the quality of the thousands of different training schemes across the EU is heterogeneous. And given their number, it is difficult for riders to identify the best options and make informed decisions.

To address this issue the German Road Safety Council (DVR, Deutscher Verkehrssicherheitsrat) and ACEM have joined forces to start promoting high quality post license training schemes across the EU.

Helping riders to identify better training options

DVR is an organisation based in Germany that brings together more than 200 members including the German Federal Ministry of Transport, transport-related Ministries of the Federal States, insurance companies, vehicle manufacturers, passenger transport operators and international organisations, among others.

DVR has developed a Quality Seal for certifying the quality of practical driving training courses and programmes. This quality label indicates that the awarded scheme complies with a set of standards defined. These criteria are separated into four pillars: relevance of the programme content, methodology used to deliver the training, technical expertise and communication skills of the trainers, and internal procedures to ensure consistent and high-quality teaching.

In addition to this, a list of exclusion criteria has been defined by DVR. These are a set of rules that disqualify prospective training schemes from receiving the DVR-Quality Seal (e.g. training schemes that serve mainly sportive purposes, insufficient practice in road traffic conditions, etc.).

The DVR Quality Seal ensures that the training is delivered in a fully-fledged manner whilst granting training schools the required flexibility to design a curricula adapted to the needs of riders and their vehicles. It is also important to stress that the quality label is awarded to the programme, not the individual or institution offering the training.

If the training programme meets the requirements of the label, DVR representatives will assess practical training sessions delivered by the applicant institution. If this second assessment has a positive result, the programme will receive the quality seal.

It is worth noting that awarded training schemes will undergo annual checks to ensure that they still comply with DVR training requirements. Moreover, all the institutions whose programmes have received the Quality Seal will be included in a database available at DVR's website in order to increase the transparency of the process and to provide relevant information to consumers.

The DVR label is open to any organisation that is based in Europe and is willing to submit their training programmes for evaluation (e.g. riding training schools, manufacturers, public bodies).

Institutions interested in the quality label will receive, as a first step, a list of criteria that their programmes have to comply with. They will be given time to analyse their internal procedures

Logo used to certify that a motorcycle training scheme has received the DVR Quality Seal.

and existing practices and, if necessary, modify them to reach the quality standards certified by the label. An Independent Quality Label Commission will be in charge of assessing the information received by DVR.

The DVR Quality Seal has been very successful in Germany, where it helped many companies to identify high-quality training schemes for their employees. The fees of these trainings were covered by statutory insurance companies.

Promoting better training in Europe

The motorcycle industry is strongly committed to promoting high quality training in the EU in order to increase road safety. ACEM will build on DVR's expertise on road safety and training delivery to promote programmes that provide real added value for riders.

The objective is to help them to choose training options that allow them to ride confidently, enhance their skills and promote defensive riding in road traffic conditions. The awarded schemes should also help participants to become aware of their own abilities, behaviours and attitudes, and to identify areas where additional practice is needed.

In the medium and long-term the DVR Quality Seal, as well as other similar quality labels, some of which are currently being developed, could increase the visibility of the best training programmes available, paving the way towards higher quality standards for training in Europe.

Conclusions and policy recommendations

Road safety is one of the major challenges faced by the EU. Substantial improvements have been achieved in this area in recent years, but much remains to be done. The motorcycle industry believes that the number of fatalities amongst PTW users can, and must be further reduced. For this reason, it is essential that all stakeholders (i.e. industry, and public authorities as well as users and non-governmental organisations) join forces to promote an integrated approach to road safety.

Road safety initiatives and policies must take into consideration vehicles' safety features as well as users behaviour and infrastructure design and maintenance. It is only by working together in these three areas that the number of accidents that affect motorcyclists will be further reduced.

- **The industry is committed to improving road safety through better technology.** Today's motorcycles bear little resemblance to the machines that were circulating on Europe's roads 20 years ago. Advanced motorcycle design, new intelligent features as well as new braking, lighting and suspension systems have led to a substantial increase in motorcycling safety. ACEM members will remain at the forefront of progress in technology innovation and will continue to develop technologies that minimise the risk of accidents on Europe's roads.
- **Motorcycling should be mainstreamed into transport policies.** Whilst many improvements have been made to vehicle safety, with further developments likely to follow as PTW technologies evolve, a true solution to safer riding requires the involvement of public decision makers. Given that the number of PTW vehicles on Europe's roads can be expected to continue growing – probably at a faster rate as the economy recovers – it is important to ensure that they are adequately integrated into the transport system. Appropriate policies should be developed by European and national policy-makers. These inclusive policies should recognise that PTWs are a key mode of transport which fulfils a number of important and diverse roles – in many cases particularly important to local economies and citizens' mobility. As such, they should be integrated into policies and initiatives aimed at creating a safer environment for users. The promotion of PTW usage in transport policy can have a considerable and positive impact on reducing traffic density in heavily congested cities and can bring economic gains through access to jobs and social mobility where other transport modes are unavailable, impractical or too expensive.
- **Training remains vital to improve safety for PTW users.** ACEM manufacturers continuously invest in research and development and build some of the safest vehicles in the world. However, safe vehicles must be driven safely. It is for this reason that ACEM strongly supports both pre- and post-license training for motorcycle riders. Training is also an effective approach for instilling appropriate behaviours and attitudes

in all road users. Improved driver training can reduce the number of driver errors and increase overall road safety also. It is furthermore crucial that other road users have an appreciation of the dangers of misjudging the speed or behaviour of a PTW rider – including the common error of failing to see an approaching PTW. Training for all types of license holders should include awareness of the characteristics and behaviours of other vehicles. This should include the common causes of accidents, such as perception failures or misjudgements of capabilities, understanding of vehicle blind spots, or the differences in stopping distances. Campaigns encouraging riders to improve their skills and hazard perception, as well as campaigns encouraging car drivers to pay attention to motorcyclists on the road have been instrumental in improving road safety. They will certainly continue to be in the future.

- **High quality training schemes should be promoted.** Post-license training plays a key role in improving road safety, particularly for people who are upgrading to a more powerful motorbike, who are returning to riding after an extended period of time, or for those who want to improve their skills. However, the quality of post-license training schemes across the EU is heterogeneous. Also, given their number, it is difficult for riders to identify the best options and make informed decisions. For this reason, ACEM and the German Road Safety Council (DVR, Deutscher Verkehrssicherheitsrat) have started promoting high quality training schemes through the DVR Quality Seal. Moreover, other similar quality labels are currently being developed in the EU. Along with the DVR Quality Seal, they could also help to increase the visibility of the best training programmes available and pave the way towards more uniform quality standards for training in Europe.

- **There is a need for more tailored safety policies.** The motorcycle industry has taken up the challenge of further reducing the number of fatal accidents involving riders. ACEM will organise thematic workshops in close cooperation with industry national associations in order to gain a better understanding of what actions can be taken at local, regional and national level to improve safety for PTW riders. Moreover the motorcycle industry believes that all relevant stakeholders (e.g. users' organisations, public authorities and non-governmental organisations) should take an active role and coordinate their efforts to further reduce PTW casualties.

- **ITS can help to improve road safety records in the future.** ACEM members are committed to developing new ITS safety solutions and to bringing them to market. The industry is currently participating in different European projects that aim to test cooperative ITS in real-life conditions, and joint industry research is ongoing on an eCall system for motorcycles. Furthermore, ACEM members have signed a Memorandum of Understanding on ITS committing themselves to install safety-relevant co-operative ITS onto at least one of their PTW models by 2020. It is important to stress, however, that not all ITS solutions may be suitable for all PTW categories. The industry must be able to explore, within a competitive business environment, the appropriate technical solutions for different types of PTWs and their different uses. Lastly, ITS systems should under no circumstances negatively affect the riders' control of the vehicle.

European
Association of
Motorcycle
Manufacturers

Association des Constructeurs Européens de Motocycles
European Association of Motorcycle Manufacturers

Avenue de la Joyeuse Entrée, 1
Brussels, 1040, Belgium

P. : +32 (0)2 230 97 32
F. : +32 (0)2 230 16 83
E. acem@acem.eu

www.acem.eu