



The
Motorcycle
Industry In
Europe



The safe ride to the future

The motorcycle industry's commitment to road safety

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ABBREVIATIONS

ABS	Anti-lock braking system
ACC	Adaptive Cruise Control
ACEM	European Association of Motorcycle Manufacturers
ADAS	Advanced driver assistance systems
AEBS	Autonomous emergency braking systems
AMVIR	Association of Motor Vehicles Importers Representatives (Greece)
ANCMA	Association of Manufacturers of Bicycles, Motorcycles and Accessories (Italy)
ANESDOR	National Association of Companies in the Two-Wheeler Sector (Spain)
C2CC	Car-to-car Communication Consortium
CBS	Combined braking systems
DVR	Deutscher Verkehrssicherheitsrat. German Road Safety Council
HMI	Human-machine interface
IRTAD	International Road Traffic and Accident Database
ITF	International Transport Forum
ITS	Intelligent transport systems
IVIS	In-vehicle information systems
MAI	Motorcycle approaching indication
MCIA	Motorcycle Industry Association (UK)
MoU	Memorandum of understanding
OECD	Organisation for Economic Cooperation and Development
PPE	Personal protective equipment
PTW	Powered-two wheeler
PZPM	Polish Automotive Industry Association
TCS	Traction control systems
TPMS	Tyre pressure monitoring systems
V2I	Vehicle-to-infrastructure
V2V	Vehicle-to-vehicle

FOREWORD BY ACEM PRESIDENT



Over the last decade we have witnessed a substantial improvement in motorcycle safety. The latest data available from the IRTAD¹ shows that the number of fatal accidents involving powered-two wheeler users decreased from 7,612 to 4,262 between 2000 and 2014, a reduction of 44%. All this takes place parallel to the substantial growth of powered-two wheelers across Europe, which went from about 28.3 million vehicles in 2000 to 36.1 million in 2014, an increase of 27.6%.

Although these statistics are certainly encouraging, they should not be a reason for complacency. Our industry strongly believes that further efforts are needed to reduce road fatalities and serious injuries, as both the European Commission and the United Nations have pointed out².

This is why, in addition to manufacturing some of the safest and most advanced vehicles in the world today, we are already preparing our industry for the future. The industry has adopted a Memorandum of Understanding on Intelligent Transport Systems, and is working together with the car industry in the Car2Car Communication Consortium. Also, a few months ago, three ACEM manufacturers decided to go a step further and launched the Connected Motorcycle Consortium, a platform open to members in the motorcycle and automotive industry to carry out joint R&D activities in the field of C-ITS.

Motorcycle training is another priority for our industry. Motorcyclists must be able to make better and informed decisions about their training so that they can ride confidently and safely. For this reason, together with the German Road Safety Council, we have launched a European Training Quality Label for post-license training. We have already received the first applications, and we hope that this project will make a positive difference for motorcyclists across Europe.

But in order to achieve lasting safety improvements, further cooperation between all relevant stakeholders is needed. We all have a responsibility for road safety – either as transport providers, road users or road authorities. This is one of the reasons why throughout 2015 ACEM organised a series of thematic workshops in different European countries to identify opportunities to further improve motorcycle safety at national level. And this is also why we continue working within the International Motorcycle Manufacturers Association³ to promote policies that enhance motorcycle safety, not only in Europe but also beyond its borders.

All of these efforts will be instrumental in making Europe's roads better and safer for all of us. And they will also help us to further reap the considerable benefits that motorcycling brings to society: quality of life through better access to jobs and services, affordable mobility, the enjoyment of sports, leisure and tourism, and reduced traffic congestion levels, to name just some of them.

A handwritten signature in blue ink, appearing to read 'S. Schaller'. The signature is fluid and cursive, written on a white background.

Stephan Schaller ACEM President, BMW Motorrad President

¹ The International Road Traffic Accident Database is an OECD initiative. It collects international accident, victim and exposure data on a continuous basis. 29 OECD countries, including 17 EU Member States, are covered in the database.

² Communication from the European Commission to the European Parliament and the Council. Towards a European road safety area: policy orientations on road safety 2011-2020. COM (2010) 389.

³ IMMA is the association which represents the manufacturing industry of powered-two wheelers at the global level. The association deals with a wide range of areas including: global technical regulations, road safety policy, and vehicle construction requirements.

EXECUTIVE SUMMARY

- Data from the International Road Traffic Accident Database shows that between 2010 and 2014, the number of fatal powered-two wheeler accidents in Europe decreased from 5,276 in 2010 to 4,262 in 2014, a reduction of 19.2%. An analysis by segments shows that fatal motorcycle accidents went down by 17.3%, whilst the number of moped fatal accidents went down by almost 36.2%. All this takes place parallel to the steady growth of the powered-two wheeler fleet across Europe (5.9% between 2010 and 2014).
- 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 further improve road safety by deploying Intelligent Transport Systems (ITS) on powered-two wheelers 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 powered-two wheelers 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.
- ACEM members are 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.
- Furthermore, building on the Memorandum of Understanding on ITS as well as on the work of the Car2Car Communication Consortium, three ACEM manufacturers launched in October 2015 the Connected Motorcycle Consortium, a platform open to members in the motorcycle and automotive industry to carry out joint R&D activities in the field of C-ITS.
- The motorcycle industry is also taking the lead in the promotion of motorcycle training. In order to help powered-two wheeler users make informed decisions about their training, ACEM and the German Road Safety Council⁴ have joined forces to start promoting high quality post license training schemes across the EU through a European Training Quality Label.
- Other similar quality labels are currently being developed in the EU. Along with the European Training Quality Label, these schemes will help to increase the visibility of the best training programmes available and pave the way towards more uniform quality standards for training in Europe.

4 DVR, Deutscher Verkehrssicherheitsrat.

- Strengthening cooperation between key stakeholders will also make a positive difference for motorcyclists across the EU. For this reason, ACEM organise, in close cooperation with industry associations and other key stakeholders, five motorcycling safety events in Warsaw (May), Athens (June), September (Milan), November (Madrid) and December (Paris).
- These exchanges are paving the way new actions that complement European policies and long-term strategic goals and that better reflect the specific national road safety contexts.



INTRODUCTION

Powered-two wheeler user 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 post license training among users. This effort has been instrumental in substantially reducing the number of fatal accidents involving powered two-wheeler users in the EU.

As the latest data available from the International Road Traffic Accident Database shows, fatal accidents involving powered-two wheeler users decreased from 7,612 to 4,262 between 2000 and 2014, a reduction of 44%. More recently, between 2010 and 2014, the number of powered-two wheeler riders killed decreased from 5,276 in 2010 to 4,262 in 2014, a reduction of 19.2%.

An analysis by segments shows that deaths of motorcyclists went down from 4,304 in 2010 to 3,561 in 2014, a reduction of 17.3%. In the same period, the number of moped riders that suffered fatal accidents in Europe went down from 975 to 622, a reduction of 36.2%. All this takes place parallel to the substantial growth of powered-two wheeler use across Europe. Between 2000 and 2014 the number of powered-two wheelers on Europe's roads increased from 34.1 million vehicles to 36.1 million (+5.9%).

Although the decrease in the number of fatal accidents is encouraging, it should not be a reason for complacency. ACEM believes that the number of fatalities amongst powered-two wheeler users can, and must, be further reduced. The industry is also a firm 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 motorcycle industry supports about 165,300 jobs 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 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, powered-two wheelers 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 powered-two wheeler 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 trips⁵. Powered-two wheelers 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 motorcycle 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 an event organised by the International Motorcycle Manufacturers' Association during the International Transport Forum, in May 2014⁶.

Document structure

The *Safe ride to the future* is structured in five 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 European Training Quality Label, an initiative that aims at promoting high quality post license training schemes.
- The fifth section of the *Safe ride to the future* provides concrete policy recommendations to national and European decision-makers to improve road safety outcomes for motorcyclists across Europe.

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

6 During this event, IMMA presented a document titled 'A Shared Road to Safety. A Global Approach for Safer Motorcycling'. This report is available at IMMA's website: <http://www.immamotorcycles.org/>

1. A LONG-STANDING COMMITMENT TO ROAD SAFETY

ACEM manufacturers have achieved high safety levels for their products, and continue to develop new technologies to facilitate the integration of powered two-wheelers into the transport system.

The industry has taken action to optimise vehicle safety, engaged with key policy-makers and users, and undertook research activities to develop effective safety countermeasures.

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 high potential to minimise the risk of accidents by allowing powered two-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 FP6 project Safespot, the CAR 2 CAR Communication Consortium, the SIM-TD and the Drive C2X projects. As a result of these efforts integration of powered-two wheelers into the transport system could be substantially increased in the future.

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 powered-two wheeler by other road users are a major contributor to urban accidents.

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



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

models including mopeds with automatic headlamp technology (AHO) since 2003. 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-wheelers. Some industry members are already producing vehicles fitted with adaptive lights which automatically adjust headlights to curves in the road, making 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.

Vehicle suspension and stability

Vehicle stability while riding a powered-two wheeler 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



Kawasaki's Ninja ZX-10R is as standard equipped with an Electronic Steering Damper which substantially improves riders' control of the vehicle.

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 speed-sensitive electronic steering stabilisers, semi-active suspension systems (which adapt the response of the suspension to road conditions, vehicle speed and driving style) and self-regulating suspensions.

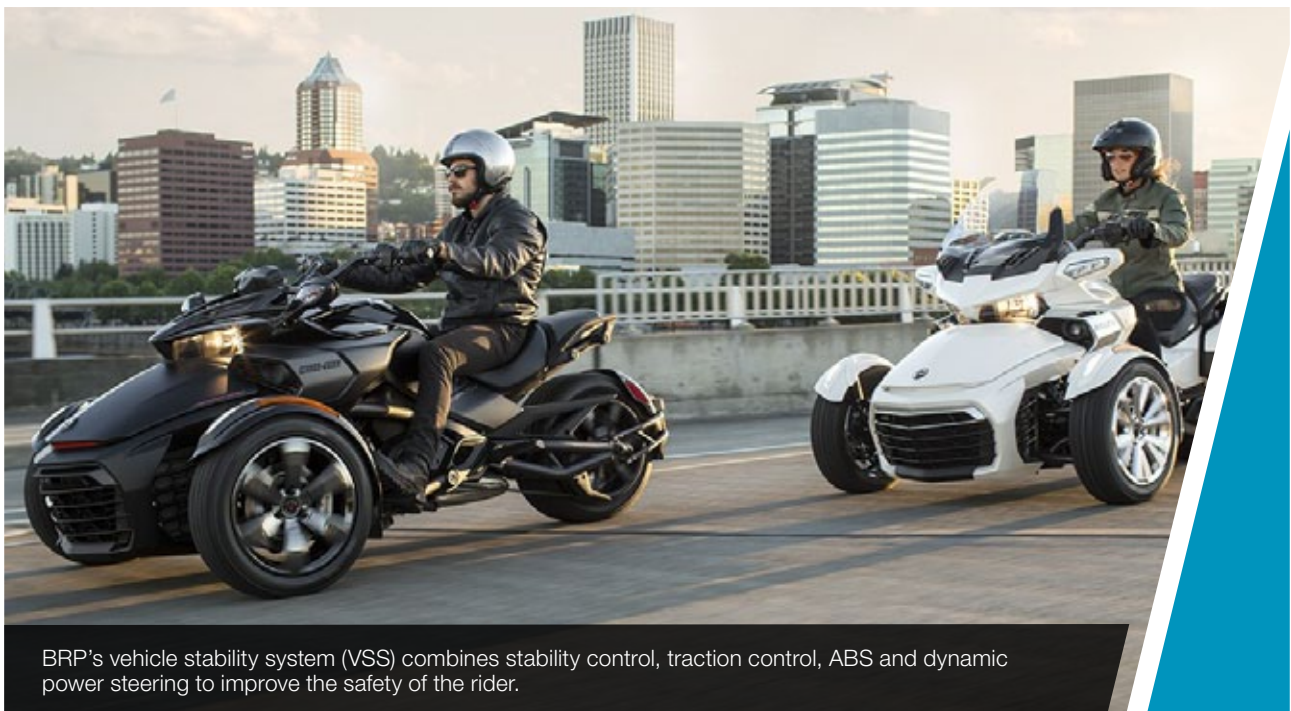
All of these systems provide for maximum stability and increase users' control of the vehicle.

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. In 2004 ACEM signed 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.

As of 2016 ABS systems will become mandatory for new motorcycles over 125cc. 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 models⁷.

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).



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

⁷ In addition to ABS and combined braking systems (CBS) other technologies are available in the market: rear wheel lift-off protection, automatic brake force distribution, amplified braking systems and brake by wire. These systems can operate individually or in combination with others.

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.

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)).

National industry associations play a key role in ensuring that training schemes are delivered to a high standard. 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.



As part of their Refresh project, ANCM-Confindustria and the Italian Motorcycle Federation have organised several motorcycle training sessions in Italy.

Raising awareness about protective equipment

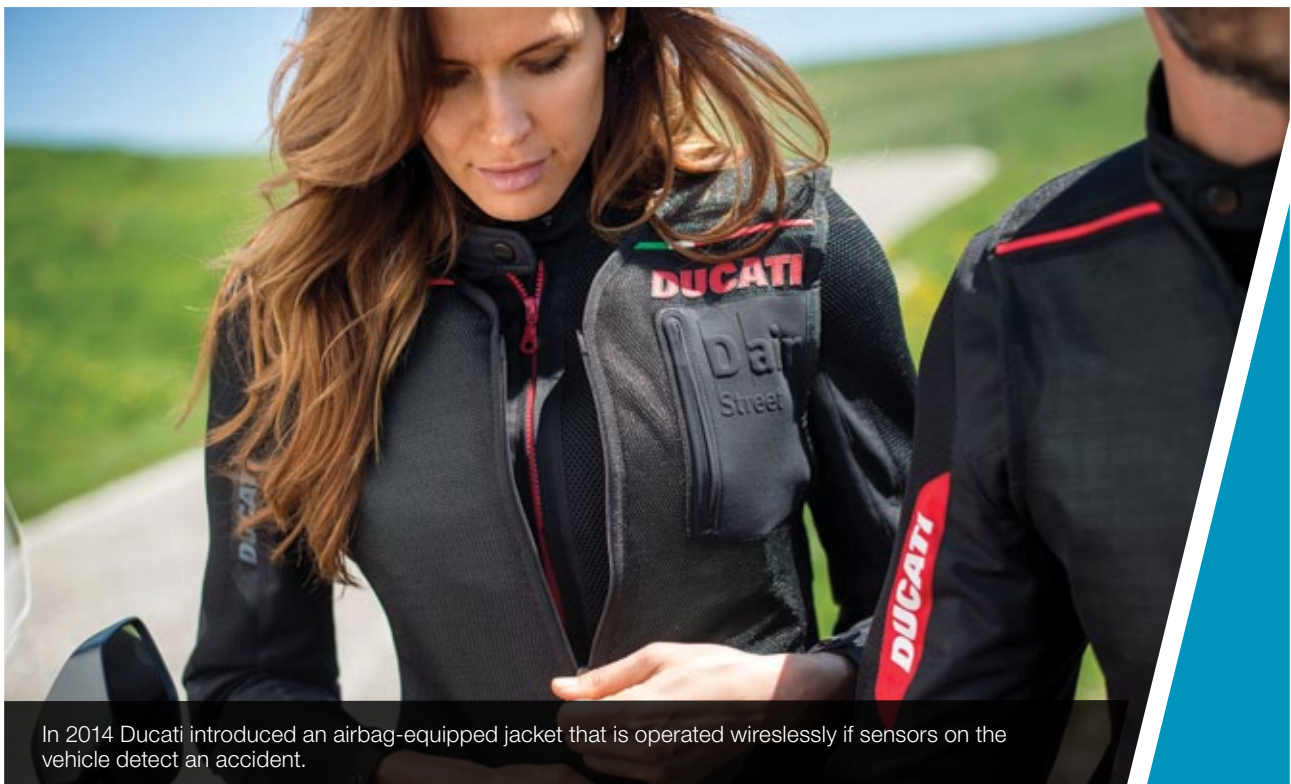
The motorcycle industry has worked closely with protective equipment manufacturers for many years to develop and promote appropriate rider equipment. Research developed jointly by the motorcycle industry and equipment manufacturers has allowed for the development of new protective equipment products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

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-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.

Notwithstanding this, it is important to stress motorcycle and moped riders have very different needs and preferences regarding personal protective equipment. European rules must allow products which enable riders to take a modular approach to personal protective equipment – picking the right garments for their size, comfort and level of activity.



In 2014 Ducati introduced 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 rides both safe and comfortable on the road.

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 powered-two wheelers 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 powered-two wheelers. The industry has also advocated for powered two-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.

Understanding the causes of motorcycle accidents

Having a solid understanding on the mechanics of powered-two wheeler accidents is essential to develop efficient safety policy measures.

The motorcycle industry is currently supporting in the implementation of the UDRIVE project. This initiative, which runs from 2012 until 2016, is a large-scale European naturalistic study⁸ 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.

ACEM is also supporting the 'SaferWheels' project, an in-depth study led by Loughborough University on powered two-wheeler and bicycle accidents, as well as the MOTORIST project, which looks at strategies for making the use of powered-two wheelers safer.

The motorcycle industry's commitment to understanding the circumstances and causes of accidents involving powered-two wheelers is not new. Between 1999 and 2004 ACEM, with the support of the European Commission and other partners, conducted the first extensive in-depth study of motorcycle and moped accidents: MAIDS⁹. A total of 921 accidents were investigated in detail in five sampling areas located in France, Germany, Netherlands, Spain and Italy. The study, which used a methodology developed by the OECD for on-scene in-depth motorcycle accident investigations, identified all the human, environmental and vehicle factors which contributed to the outcome of the accident.

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



MAIDS remains the most important in-depth database of powered-two and three-wheelers accidents in Europe.

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 MAIDS stands for 'Motorcycle Accidents in Depth Study'.

European and in-house research projects

Between 2010 and 2012, as part of the MUSS project, the industry carried out research on the benefits of passive safety features in powered-two wheelers. Between 2009 and 2011, ACEM participated in the eSUM 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 advanced driver assistance systems (ADAS) and in-vehicle information systems (IVIS) 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 SIM project (2006 -2009) focused on active and passive safety aspects, mainly from a motorcycle 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.

The WATCH-OVER 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.



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.

2. 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.

The motorcycle industry's vision on ITS

Research shows that one of the most frequent human errors in accidents is the failure of other road users to see powered-two wheelers within the traffic environment, due to lack of driver attention, temporary view obstructions or the low conspicuity of the powered-two wheeler. This problem could be addressed by enabling non-motorcyclists to receive a 'motorcycle approaching indication' (MAI) or in case of an emergency situation, a 'collision warning' message.

This form of 'digital' conspicuity of powered-two wheelers 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.

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 wheelers encompass a wide range of vehicles that have very different uses. Although the powered-two wheeler market 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, powered-two wheelers above 500cc represent 25% of the market.

Certain ITS solutions would be better suited to a particular category of vehicle because they would provide the most benefit with a cost level coherent to the market segment. Small urban powered-two

wheelers, 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 vehicle 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.



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

Technical considerations of relevance to powered-two wheelers

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 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 motorcyclist, 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 (ACC) 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 motorcycle without the necessary adaptation to its dynamics. Powered-two 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 motorcycling 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 cooperative ITS applications are interoperable between motorcycles and other road vehicles.

The motorcycle industry will contribute to European and global ITS forums to ensure that cars, trucks and powered-two wheelers are all able to communicate using their various ITS applications. It is critical that all powered-two wheelers 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.

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 capable of sending relevant data to a public safety answering point (PSAP) could work on motorcycles.

The minimum technical requirements needed for such a system have already been defined. Current research activities are focusing on areas such as accident analysis, accident-recognition and the development of crash sensor systems. This is essential for developing a robust triggering mechanism since there are cases when a motorcycle falls over in a non-accident situation and when clearly no eCall should be sent to the public answering point.

An important part of these issues are being addressed within the framework of the I_HeERO project¹⁰, where industry experts are working together with other stakeholders and organisations. The industry expects this work will set the basis for a reliable and economically feasible eCall system for motorcycles that can operate across the European Union using the 112 emergency telephone number. It may also pave the way for a future industry standard for eCall devices.

¹⁰ The I_HeERO project ("Infrastructure Harmonised eCall European Pilot") is aimed at the preparation of public-safety answering points in Member States for the deployment of eCall systems. I_HeERO operates in 11 Member States, includes 58 commercial partners, and counts 26 associated partners. It is funded under the Connected Europe Fund Annual Programme and will run between 2015 and 2017.



Harmonised eCall European Deployment

Within the framework of the iHeERO project, ACEM members are analysing the requirements for an in-motorcycle embedded eCall system capable of sending data to a public safety answering point (PSAP).



BMW Motorrad has announced that it will launch in 2017 an eCall system for motorcycles capable of sending out position data to a BMW call center (third party service).

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 was to accelerate and coordinate the deployment of safety relevant cooperative ITS¹¹ on powered-two wheelers in Europe.

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 (C2CCC), in which some ACEM members participate, and to realise a shared objective to the benefit of everyone. Specifically, but not uniquely, ACEM manufacturing members aim for powered-two wheelers, 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.



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.

¹¹ 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).



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

Cooperating with other stakeholders in the field of ITS

Working with other stakeholders is essential to ensure the successful deployment of ITS solutions. This is the reason why ACEM actively participates in the European Platform for the Deployment of C-ITS.

This forum, which gathers public and private stakeholders, including public authorities, vehicle manufacturers, suppliers, service providers, and telecommunications companies, has a very important objective: ensuring that the C-ITS solutions which will be deployed in Europe in the future are fully interoperable.

Initiation of market introduction will require the finalisation of ongoing activities on standardisation, validation and field operational tests as well as the completion of a number of related activities by other players including infrastructure organisations and public authorities.

This cooperation is also vital to ensure that powered-two wheelers achieve electronic conspicuity, as foreseen in the second phase of the C2C Communication Consortium's Memorandum of Understanding.



ITS deployment will require the development of adequate human-machine interfaces, such as this one from Yamaha.

The Connected Motorcycle Consortium

The motorcycle industry, together with car and truck makers and other stakeholders, has been working for several years on common specifications and standards for ITS devices within the Car2Car Communication Consortium. However, some of the specific characteristics of powered-two wheelers required a dedicated platform.

Building on the ACEM Memorandum of Understanding on ITS, the works of the Car2Car Communication Consortium and previous research projects (simTD, DRIVE C2X), BMW Motorrad, Honda and Yamaha announced the creation of the Connected Motorcycle Consortium, CMC, in October 2015.

The CMC is an R&D platform to foster cooperation in research and development in the field of C-ITS. It is open to a wide range of organisations including motorcycle OEM, automotive companies, automotive part suppliers and research institutions. The key objective of the CMC is to promote timely and comprehensive use of C-ITS systems offering the potential to improve safety for motorcyclists.

The aim of the platform is not to manufacture off-the-shelf C-ITS devices but to better coordinate partners' research efforts in areas such as accident analysis and simulation, developing hardware concepts for vehicles, and improving existing safety applications in powered-two wheelers. The CMC also aims at developing prototypes of C-ITS devices which will be assessed through field operational tests.



3. THE NEED FOR MORE TAILORED SAFETY POLICIES

Different road safety performances across the EU

European Union rules on type-approval of L-category vehicles are directly enforced by national administrations and strictly followed by the European motorcycle industry. This results in very high safety standards of all vehicles entering into circulation in the EU.

In spite of this, considerable disparities in terms of road safety remain between EU Member States, as the OECD and the European Commission's services have pointed out in several occasions¹.

The differences in safety levels for motorcyclists across the EU can be explained by several factors. These include aspects such as road users' behaviour, different levels of training, quality of infrastructure and even helmet wearing rates. All of these elements must be closely looked at in order to develop more tailored and efficient safety interventions.

Working together to achieve better road safety results

Evidence suggests that Member States that have developed specific motorcycle safety strategies tend to have higher motorcycle safety levels. Conversely, restrictive policy or simply ignoring motorcycling could result in reducing awareness from other road users, putting riders at higher risk. Public decision-makers should develop and implement sound local, regional and national motorcycle safety strategies.

Furthermore, 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 make a valuable contribution by providing expertise on a wide range of areas including: vehicle safety technology, motorcycle training, personal protective equipment and future technological developments, among others.

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.

¹ See for example: European Commission. Road safety in the European Union. Trends, statistics and main challenges. Brussels, 2015. http://ec.europa.eu/transport/road_safety/pdf/vademecum_2015.pdf

The first steps towards more country-tailored safety policies

A first step in this direction was taken in 2015 with the launch of ACEM's country-specific approach. As part of this initiative, ACEM organised five motorcycling safety events throughout 2015 in Warsaw (May), Athens (June), September (Milan), November (Madrid) and December (Paris).

The main objective of these workshops was to exchange experiences and good practices and to identify opportunities for improvement, rather than prescribing off-the-shelf actions. The meetings brought together experts from different organisations including public authorities from the ministries of transport and infrastructure, law enforcement authorities, representatives from different user organisations, road safety non-governmental organisations, transport research institutes, and insurance companies.

Some of the key topics covered during the meetings included: motorcycle training, national regional and local motorcycling safety plans, infrastructure design and maintenance and enforcement of traffic regulations.

ACEM members strongly believe that addressing these and other relevant topics together with major stakeholders will be instrumental in reducing motorcycle accidents across Europe. Furthermore, these exchanges can pave the way for concrete actions that complement European policies and long-term strategic goals, and that reflecting the specific national road safety context and situation in the future.

Interestingly, a similar approach was recently adopted by the European Commission's Directorate-General for Mobility and Transport².



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.

² European Commission's Directorate-General for Transport. "Country visits to kick-start discussion and inspire new thinking". DG MOVE newsletter N° 20. 2015.

Improving road safety across the European Union

Several initiatives to improve motorcycle safety have been launched in Europe during 2015. Some of these initiatives are part of ACEM's road safety strategy. Others, although not directly led by the industry, are fully supported by the sector.

- **France.** Between 2016 and 2020 the French Directorate for Road Safety and Traffic will authorise motorcyclists to split lanes under certain conditions. The French administration will assess whether this riding practice can enhance traffic fluidity and improve motorcycle safety in 11 departments. If the results prove to be satisfactory, lane splitting may be extended to the rest of the country.
- **Italy.** ANCMA-Confindustria, the body that represents the motorcycle industry in Italy, and the Italian Motorcycle Federation, with the support of the Italian Ministry of Infrastructure and Transport, started organising in 2015 training sessions in different parts of Italy. The 'Refresh' project, which will run until 2016, is specifically designed for riders who are returning to motorcycling after an extended period of time and for people who ride motorcycles of up to 125cc using their B license.
- **Spain.** A similar initiative was launched by ANESDOR, the Spanish motorcycle industry trade, and the Catalan Traffic Service in 2015. The project, called 'Training 3.0.', aimed at improving motorcyclists' riding skills in different parts of Catalonia. All riding sessions were video-recorded, shown to participants and analysed. Motorcyclists received detailed and tailored feedback from specialist motorcycle trainers and members of the regional Catalanian police, the Mossos d'Esquadra.
- **Greece.** AMVIR, the Greek motorcycle industry association, is supporting the efforts of the Greek Ministry of Infrastructure, Transport and Networks to develop an online platform with road safety education materials (e.g. books, road safety courses, videogames). The key objective of the platform is to create awareness among high-school students, parents, professors, and driving and riding trainers to ensure safety on roads.
- **Poland.** PZPM, the motorcycle industry association in Poland, is working together with public authorities and other stakeholders to develop an online road safety platform, which will collect data and best practices on road and motorcycle safety. The information will also be made publicly available to promote safer motorcycling.

Working for motorcycle safety at international level

ACEM members have engaged with OECD and ITF officials to support their efforts to promote or improve national motorcycle safety policies. Some of ACEM recommendations were incorporated into the first OECD-ITF report dedicated solely to motorcycle safety: Improving Safety for Motorcycle, Scooter and Moped Riders.

As this report rightly states: “There would be many benefits, in terms of mobility and traffic management as well as traffic safety, in a better integration of powered-two wheelers into mobility plans and in the development of national and local transport strategies”.

ACEM is also a member of the International Motorcycle Manufacturers Association which works to promote policies that enhance motorcycle safety at international level.



Powered-two and three-wheeler vehicles must be included in mainstream transport policy in order to improve the safety of vulnerable road users.

4. TOWARDS A EUROPEAN TRAINING QUALITY LABEL

Better training, safer riding

The human factor has been shown repeatedly to be the most critical factor in accidents involving powered-two 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 supported in the Initial Rider Training Project, which developed a modular curriculum for training motorcyclists in Europe.

Helping riders to identify the best training options

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 ACEM and the German Road Safety Council³ have joined forces to start promoting high quality post license training schemes across the EU through a European Training Quality Label which certifies the quality of practical driving training courses and programmes.

Applications to the Quality Label opened in April 2016, and discussions with the first applicants are already ongoing.

³ The German Road Safety Council, Deutscher Verkehrssicherheitsrat (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.

How does the European Training Quality Label work in practice?

The European Training Quality Label is a label that helps riders to clearly and easily identify high-quality post-license training programmes in their countries. The scheme 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).



- **Applications.** 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 and existing practices and, if necessary, modify them to reach the quality standards certified by the Label.
- **Award criteria.** The European Training 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.
- **Exclusion criteria.** These are a set of rules that disqualify prospective training schemes from receiving the European Training Quality Label (e.g. training schemes that serve mainly sportive purposes, insufficient practice in road traffic conditions, etc.).
- **Independent expertise.** An Independent Quality Label Commission will be in charge of assessing the information sent by the applicant. If the training programme meets the requirements of the label, independent experts will assess practical training sessions delivered by the applicant institution. If this second assessment has a positive result, the programme will receive the European Training Quality Label.
- **Flexibility.** The European Training Quality Label 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. The Quality Label is awarded to the programme, not the individual or institution offering the training.
- **Transparency.** All the institutions whose programmes have received the European Training Quality Label will be included in an online database in order to increase the transparency of the process and to provide relevant information to motorcyclists.
- **Periodic annual checks.** Awarded training schemes will undergo annual checks to ensure that they still comply with the Label training requirements.

Promoting better motorcycle training in Europe

The motorcycle industry is strongly committed to promoting high quality training in the EU in order to increase road safety. ACEM fully supports programmes that provide real added value for riders.

The objective is to help motorcyclists 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 European Training Quality Label, as well as other similar quality labels, some of which are currently being developed, will increase the visibility of the best training programmes available, paving the way towards higher quality standards for training in Europe.



ANESDOR and the Catalan Traffic Service closely work together to improve motorcyclists' riding skills within the project Training 3.0.

Working together with other stakeholders

In addition to launching a European Training Quality Label, the motorcycle industry has partnered with different institutions to increase the quality of motorcycle training delivered at national level.

- In Italy the “Bikers academy” initiative has helped 6,000 youngsters to improve their riding skills and knowledge about road safety. This programme is supported by ANCMA-Confindustria, the Italian associations representing driving and riding schools as well as the Italian Ministry of Infrastructure and Transport.
- In the UK, the British Motorcycle Industry Association, MCIA has set up the Motorcycle Industry Accreditation Centre (MCIAC) which provides a new training and assessment programme for motorcycle instructors and motorcycle training businesses, certified by the UK Institute of the Motor Industry. MCIA also works closely with the Police-led ‘Bikesafe’ initiative which assesses the skills of riders via one-day courses and ride outs.
- The Spanish motorcycle industry association ANESDOR and the Catalan Traffic Service launched in late 2015 the project ‘Training 3.0.’, which aimed at improving motorcyclists’ riding skills in different parts of Catalonia.
- In Germany more than 3,500 motorcycle trainings have been assessed in cooperation with relevant national authorities in different Länder.



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

5. POLICY RECOMMENDATIONS

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 motorcyclists 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.

Mainstreaming motorcycling into transport policies

Whilst many improvements have been made to vehicle safety, with further developments likely to follow as safety technologies evolve, a true solution to safer riding requires the involvement of public decision-makers. Given that the number of powered-two wheelers 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 powered-two wheelers 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 motorcycle 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.

Conversely, ignoring powered-two wheelers in transport policy has the negative consequence of sustaining an environment for Motorcyclists which is subject to greater vulnerabilities than should exist, and opportunities to improve safety are therefore lost

Successful examples of integration of powered-two wheelers into the transport system do exist in several countries. Projects such as RIDERSCAN and eSUM have produced comprehensive compilations of available best practices⁴.

⁴ The eSUM project (2009-2011) was a collaborative initiative between the motorcycle industry, local authorities of the principal European motorcycle cities and universities. It developed a good practice guide and an action pack to promote safer motorcycling in urban areas. RIDERSCAN (2011-2014) aimed at gathering existing information on motorcycle safety in the EU, creating a cross-border knowledge-based network and discussing possible European safety actions. RIDERSCAN was cofunded by the European Commission and ran by the Federation of European Motorcyclists Association.



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.

Promoting rider training and motorcycle awareness

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 motorcyclist – including the common error of failing to see an approaching motorcycle.

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.

Training programmes should also educate other road users, particularly car and lorry drivers, on the presence and vulnerability of motorcyclists. Both the MAIDS and OTS studies show that ‘the major collision partner in motorcycle accidents are passenger cars, accounting for approximately two-thirds of accidents’⁵.

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. Post-license training plays a key role in improving road safety, particularly for people who are upgrading to a more powerful motorbike or who are returning to riding after an extended period of time.

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.

⁵ Transport Research Laboratory (TRL). ‘Comparative analysis of motorcycle accident data from OTS and MAIDS’. Published Project Report PPR 168.

Ensuring that vehicles are properly maintained

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 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 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.

Keeping road infrastructure safe for motorcyclists

Road infrastructure is at the core of road safety, especially for motorcyclists. 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 motorcyclists.

Consideration of motorcycle safety at the road design stage is essential to ensure that infrastructure is motorcycle friendly. Relevant aspects of well-designed infrastructure include good motorcycle visibility, obstacle free zones, use of appropriate road surface materials and predictable road geometry. Furthermore, the characteristics and infrastructure requirements of powered-two wheelers should be part of the basic training of road designers, and 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 powered-two wheelers.

ACEM has published an Infrastructure Guidelines Handbook that provides vital information on how to successfully integrate powered-two wheelers in infrastructure management. This document has been prepared by industry experts, road and traffic engineers, and urban planners⁶.

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



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

Better research, better data, better policies

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.

The improvement of data gathering processes is also essential to adopt policies based on solid evidence. In this regard, national authorities should collect exposure data to develop sound motorcycle safety policies, in line with recommendations made by the European Road Safety Observatory.

Statistics suggest that greater powered-two wheeler use can lead to considerable safety gains. The safety experience of higher levels of powered-two wheeler traffic in different European countries suggests that when their use increases to 10% of the vehicle stock, sharp falls in casualties start to occur.

Implementing country-tailored safety policies

All relevant stakeholders (e.g. users' organisations, public authorities and non-governmental organisations) should take an active role and coordinate their efforts to further improve motorcycle safety in Europe.

Taking into consideration the specific safety needs of different administrative levels (local, regional and national) would allow to generate more durable and cost-effective safety improvements.

Higher compliance with speed, alcohol, license and mobile use legislation can also bring substantial road safety benefits. Moreover, road safety and training campaigns can make valuable safety contributions, particularly those that encourage drivers to look for motorcyclists on the road and riders to undertake adequate training.

The importance of achieving high levels of helmet wearing cannot be overemphasised. Although all EU countries require both motorcyclists and passengers to wear helmets and wearing use in the EU is on average relatively high, there is room for improvement in some countries.⁷

⁷ According to the International Transport Forum of the OECD helmet wearing rate in the EU is on average 95%. In Greece "helmet wearing rate is 75% for drivers and 46% for passengers". OECD & International Transport Forum. 2014 Road Safety Annual Report. OECD, Paris.



Improving data gathering processes is key to collect the data necessary to develop sound motorcycle safety policies.

6. CONCLUSIONS

There are about 36 million powered-two wheeled vehicles on Europe's roads. This number can be expected to continue growing in the coming years, probably at a faster rate as the economy recovers. For this reason, it is essential to develop sound and inclusive transport and safety policies that fully take motorcycling into account.

Conversely, a 'business as usual' strategy could result in reducing awareness from other road users, particularly car and lorry drivers, putting motorcycle users at higher risk. This certainly would not be a desirable scenario.

















ACEM is convinced that advanced vehicle technology, including new ITS solutions, can make a valuable contribution to motorcycle safety, but this can only go so far. Well-designed and properly maintained infrastructure as well as responsible and well-trained road users, are also part of the solution. Only a genuinely integrated approach to motorcycle safety can deliver tangible and lasting safety improvements.

All stakeholders including industry, policy-makers and users' organisations, are part of the solution. By working together, it will be possible to create safer environment for motorcyclists across Europe.



7. ACEM MEMBERS

Manufacturers

					Kawasaki
					
		 *	 *	 *	

*Guest Member

National Associations



www.acem.eu

European Association of Motorcycle Manufacturers
Association des Constructeurs Européens de Motocycles

Avenue de la Joyeuse Entrée 1,
1000 Brussels, Belgium

P. +32 (0)2 230 97 32 E. acem@acem.eu



The
Motorcycle
Industry In
Europe