



Position papers 2026



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*Motorcycling must be recognized as a full and legitimate transport mode within mobility, transport, infrastructure, and road safety policies. Today's transport and road systems are largely designed around four-wheeled vehicles and do not yet fully accommodate the specific characteristics and safety needs of motorcycles.*

*Over time, this must change. Motorcycles need to be systematically integrated into all strategic and guiding documents related to road design, infrastructure development, and traffic safety, enabling investments that adapt the Safe System to motorcycles and ensure equal protection for all road users.*

*There are approximately 40 million motorcycles in circulation in Europe. In Rome alone, around 750,000 motorcycles are used on a daily basis for commuting to work and other everyday transport needs. Motorcycles are an important part of the citizens mobility system, whether it is about commuting or leisure.*

*Motorcyclists always place their own safety as the highest priority. Naturally, this leads to a number of requests for safer riding conditions in an environment that is largely designed for four-wheeled cars, buses, trucks, cyclists, and pedestrians.*

*To support authorities and policymakers in making well-informed smart decisions for the benefit of all road users, including motorcyclists, the European motorcycle organisations jointly developed this set of position papers.*

*I am pleased to have lead a team of specialists from the Federation of European Motorcyclists' Associations (FEMA), the Fédération Internationale de Motocyclisme (FIM), and the National Motorcyclists Council (NMC) from the United Kingdom. Together, this alliance represents 77 motorcycle rider organisations, speaking with one united voice.*

*These position papers are based on millions of kilometres of riding experience, scientific research, and most importantly common sense, combined with a strong commitment to creating a safe environment for all road users, for those living alongside our roads, not forgetting a healthy industry.*

*We encourage you to use these positions when designing and shaping our society. Should you have any questions, please do not hesitate to contact us.*

*Jesper Christensen,*

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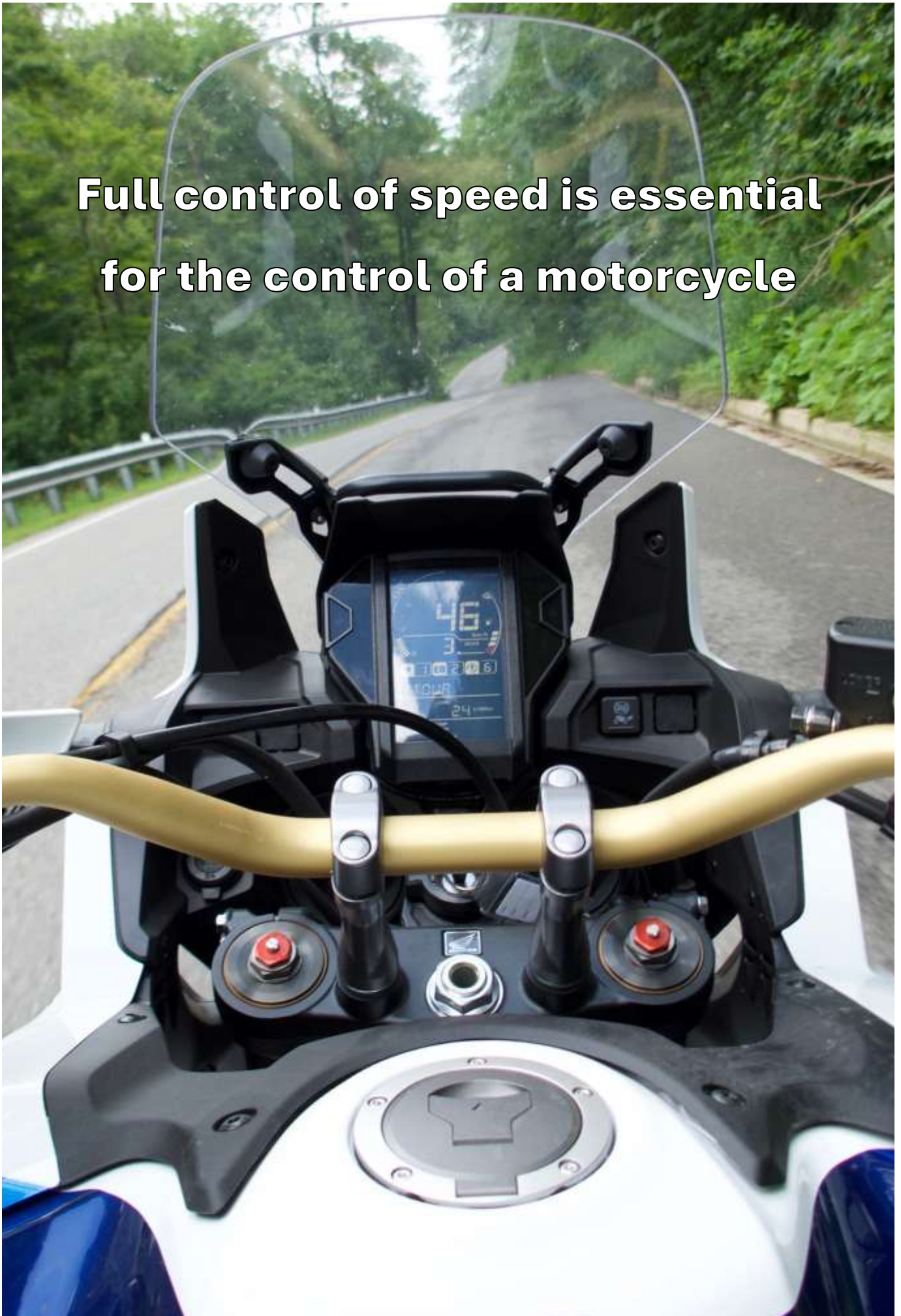
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**Full control of speed is essential  
for the control of a motorcycle**



## INTELLIGENT SPEED ASSISTANCE (ISA)

### In general

From 2022 new cars are fitted with an intelligent speed assistant (ISAs) system. This system will alert drivers in a haptic way when they are speeding. Motorcyclists need to be aware of a possible introduction for powered two-wheelers (PTWs) too.

### What is ISA

The working of ISA is that a vehicle is fitted with a camera that recognizes traffic signs and/or a database of traffic signs locations connected to a satellite receiver. When this system notices that a vehicle is speeding, either the engine power is temporarily limited (intelligent speed adaptation or ISAd) and/or the driver is warned by a visual or acoustic signal or in a haptic way (intelligent speed assistance or ISAs). In present schemes, the driver is always able to override the system and it is always possible to switch it off.

### Speed and collisions

Speed is a complex factor. According to the International Transport Forum (ITF), it can influence the crash process at three different stages:

- At the driving phase, the driver can be in a situation to which he cannot react in time.
- At the emergency phase, inappropriate speed can prevent the driver from efficiently regulating the vehicle direction and decelerate properly to compensate for a delicate situation.
- At the collision phase, speed can drastically increase the crash severity due to the kinetic energy dissipated during the crash.

ISA is expected to reduce collisions by 30% and fatalities by 20% by mass installation in vehicles. It also helps drivers and riders to avoid speeding tickets and focus more on the road instead of the speedometer.

### ISAs or ISAd for PTWs

- PTWs have different dynamics than cars. Full control of speed is essential for the balance and control of PTWs and the direction in which it goes. A system that prohibits acceleration (ISAd) is dangerous for motorcyclists due to reduced active safety and therefore not acceptable.
- ISAs for PTWs should only be implemented when it is beneficial for road safety.
- ISAs that only require more effort from the rider to accelerate (through a greater resistance of the throttle) when he/she is speeding or going to speed is too dangerous and therefore not acceptable.
- Any form of ISAs should only be implemented when it is tested thoroughly first and these tests prove that there is no extra risk for the rider.
- Installation of an ISAs device should not come at high costs and should not be heavy.
- Any kind of ISAs should be overridable and the rider must be able to switch it off.
- ISA systems should be designed and fitted in a standardized way and work in the same way on all PTWs.

**Any system must be able to detect motorcycles before being introduced**





## ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)

### **In general**

Advanced Driver Assistance Systems (ADAS) cover a wide range of systems and applications and provide personal assistance to car and other large vehicle drivers. ADAS can draw attention to approaching traffic and stationary or slow-moving vehicles, signal road users in the drivers' blind spot and provide prior knowledge of the traffic situation ahead. Some systems actively interfere by braking, by applying additional braking force or interfering with the steering or speed of the vehicle. In a number of situations and in certain circumstances, ADAS can completely take over the task of the driver. ADAS can work autonomously or in connection with other vehicles (V2V) or with the infrastructure (V2I/I2V).

### **Effects of ADAS on powered two-wheelers (PTWs)**

- Riders benefit from improved visibility when ADAS is fitted in cars, especially in combination with V2V connectivity like those developed by the Connected Motorcycle Consortium (CMC) of which FIM Europe and FEMA are members.
- ADAS devices can also prevent accidents where drivers are not aware of motorcyclists, especially in situations where a car is crossing the lane of oncoming traffic, or when a car driver's vision is obscured at crossings.
- In the transition period when many PTWs belong to a declining number of non-automated and non-connected vehicles, this can cause risks if ADAS devices in cars assume connectivity and digital visibility.
- ADAS can lead to an overflow of information, thus leading to distraction and diversion.

### **Conditions for ADAS to be safe and acceptable for PTWs**

- PTWs differ from other non-connected road users like bicycles and pedestrians in speed and acceleration. ADAS devices must be developed with all kinds of vulnerable and non-connected road users in mind, should always be tested with PTWs and must comply with UNECE regulations.
- ADAS devices must be developed and tested with non-ADAS equipped road users in mind.
- Optional retrofitting of devices, such as beacons, on motorcycles must be possible and allowed to enhance (digital) conspicuity.
- Don't use public roads as a test track. All ADAS and other Automated Vehicle systems must not be introduced without the full testing of the ability of such systems to detect motorcycles. This principle needs to be established as part of a policy of 'Safety Principles' for Advanced and automated vehicle systems.



**ARAS must not take over the throttle  
and steering from the rider**

## ADVANCED RIDER ASSISTANCE SYSTEMS (ARAS)

### **In general**

ARAS covers a wide range of systems and applications that provide personal assistance to riders. ARAS can draw attention to approaching traffic, signal road users in the riders' blind spot, assist the rider in directing his attention to relevant information, provide prior knowledge of the next traffic situation or warn the rider of obstacles in his path. ARAS can work autonomously or in connection with other vehicles (V2V) or infrastructure (V2I/I2V).

### **Effects of ARAS on PTWs**

- Existing vehicle safety systems, such as ABS, lean ABS (or cornering ABS) and traction control, have already proved beneficial to motorcycle road safety. Other devices can be just as beneficial if the rider is allowed a full control of the throttle, both deceleration and acceleration, braking and steering.
- Systems can give warnings to riders about speed limits, oncoming curves, traffic jams ahead, damaged roads etc. However, this can also result in information overload. Special attention is needed for fully functional human machine interfaces (HMIs) that filter the needed information and cause no danger by their design.
- The situation may occur where many PTWs belong to a declining number of non-automated and non-connected vehicles, which can cause risks if ITS devices of other vehicles assume connectivity and digital visibility.

### **Conditions of ARAS to be safe and acceptable for PTWs**

- ARAS devices for PTWs must not take over the control of throttle and steering from the rider with present technology.
- Mandatory devices must be tested on benefits for comfort and road safety and should not be implemented unless it is certain that they do not affect safety in a negative way.
- Roads should always remain accessible for vehicles that are not controlled by electronic systems and are not connected with other vehicles and/or infrastructure.
- Retrofitting of devices that connect PTW with other vehicles and/or infrastructure should be possible and allowed but should not be mandatory.
- Data must be secure, controlled by the vehicle owner and privacy should be guaranteed.



**Motorcycles have a longer lifecycle  
than other vehicles which reduces  
the CO<sub>2</sub> emission overall**





## POWERED TWO-WHEELERS AND DECARBONISATION

### **In general**

With around 315 million existing vehicles in the EU, measures to decarbonise transport rapidly must also focus on the existing fleet rather than only rely on replacing older vehicles with zero emission alternatives. Transport plays a significant part in CO<sub>2</sub> emissions and therefore the European Commission and the government of the United Kingdom plan to eliminate sales of vehicles without zero CO<sub>2</sub> tailpipe emission from 2035 as part of policies to reduce CO<sub>2</sub> emissions to zero by 2050. In the UK this explicitly includes motorcycles.

We recognise the need for decarbonisation. This can be done in several ways. In our view, measures to reduce the emission of CO<sub>2</sub> should be technologically neutral.

### **Decarbonisation of powered two-wheelers**

- Batteries which can provide a substantial range and power are very heavy which in turn can have a negative effect on handling and safety of the vehicle. Therefore, current battery technologies suit electrification of limited range PTWs for use in urban areas. Long range motorcycles that are used for touring, travelling, and other more demanding activities (like emergency services) still need an internal combustion engine in the short to medium term.
- Motorcycles have become much cleaner in the last decades and have become even cleaner with the implementation of the Euro 5 emission limits in 2020. With non-carbon fuels, the well-to-wheel performance may be cleaner than alternatives like battery electric propulsion based on the low share of renewables in some EU member states.
- Techniques combining Fischer-Tropsch and carbon capture have already shown good potential to replace liquid fuels with zero- or low-carbon alternatives. This would help rapidly decarbonise the existing fleet if it can be scaled commercially. Developments of other alternative fuels are also looking very promising. For that reason, the authorities should keep an open mind to all solutions.

### **Contribution of motorcycles to a cleaner environment**

- Authorities should keep in mind that PTWs already have a very low contribution to CO<sub>2</sub> emissions both in use and manufacture.
- PTWs need less space for parking and in traffic which in turn contributes to a better flow for other traffic and thus fewer emissions.
- Less energy and material are needed to produce and scrap PTWs. Motorcycles also have a longer lifecycle than other vehicles which reduces the CO<sub>2</sub> emission overall.

**Provide incentives for powered two-wheeler electrification, including infrastructure deployment**



## ELECTRIFICATION OF POWERED TWO-WHEELERS

### **In general**

Electrification is becoming an essential pathway for reducing emissions in urban and inter-urban mobility. However, PTWs face unique constraints differing from cars: limited space for battery capacity, strict weight and balance requirements, and a highly diverse riding culture (e.g. urban scooters to touring motorcycles). Electrification must therefore respect technical viability, rider safety, affordability and accessibility for users who may not have home-charging options. Multiple technological paths - including fixed and swappable batteries - should remain available.

Electric PTWs must deliver safe and predictable handling despite added battery weight. Smaller urban PTWs are well-suited to removable or swappable battery packs, while larger motorcycles may benefit from fixed-battery architecture in the near term. Manufacturers should optimise models specifically for electric powertrains rather than adapting ICE platforms. To ensure customer confidence, swappable systems must be standardised in terms of battery geometry, electrical interfaces, safety protocols and communication interfaces. Interoperability across brands is essential for a viable and widely available swap-station network.

### **Requirements and considerations**

- Cities and regions should plan for dual infrastructure: public and semi-public charging for fixed-battery motorcycles and strategically located swap stations for urban and commuter PTWs.
- Swap-station operators must ensure robust safety standards, battery traceability, fire-risk mitigation, and integration with renewable energy and second-life applications.
- Payment systems should be interoperable and simple, and should also be useable without a specific app.
- Electric PTWs have lower operational emissions, but lifecycle sustainability requires responsible battery sourcing, modular design, reuse and recycling.
- Swappable systems can extend battery lifespan through graded-use strategies and easier end-of-life management.

### **Policy & regulatory recommendations**

- Maintain a technology-neutral approach allowing both fixed and swappable batteries.
- Support battery standardisation frameworks at European and international levels.
- Provide incentives for PTW electrification, including infrastructure deployment.
- Create regulatory clarity on battery-swap safety, certification, charging infrastructure and access to repair/diagnostic data.
- Integrate PTWs into broader urban mobility strategies, recognising their low space and energy footprint.
- To promote the use of electric motorcycles, authorities should consider free charging.



**Provide incentives for developing  
sustainable fuel production**



## USE OF ALTERNATIVE FUELS FOR PTWs

### In general

Reducing greenhouse-gas emissions from transport requires a broad portfolio of solutions. While electrification will play a significant role, particularly in urban mobility, alternative fuels provide an essential complementary pathway for segments where battery electrification remains technically or economically challenging. PTWs used for long-distance travel, sport, leisure and rural mobility may benefit significantly from hydrogen, low-carbon fuels, synthetic fuels and biofuels. These technologies allow continued use of existing vehicle fleets while reducing lifecycle emissions.

Recent commitments in motorsport, including the adoption of advanced sustainable fuels in MotoGP and other FIM-sanctioned championships, demonstrate that alternative fuels can deliver high performance while supporting substantial CO<sub>2</sub> reduction. These developments accelerate innovation, improve fuel availability and offer real-world testing environments relevant to everyday riders. Alternative fuels, including e-fuels (synthetic fuels produced with renewable energy), advanced biofuels, low-carbon gasoline blends and other drop-in replacements, can be used within current combustion-engine PTWs with minimal modification. This limits costs for users, avoids premature scrapping of existing motorcycles and maintains access for riders who depend on PTWs for mobility.

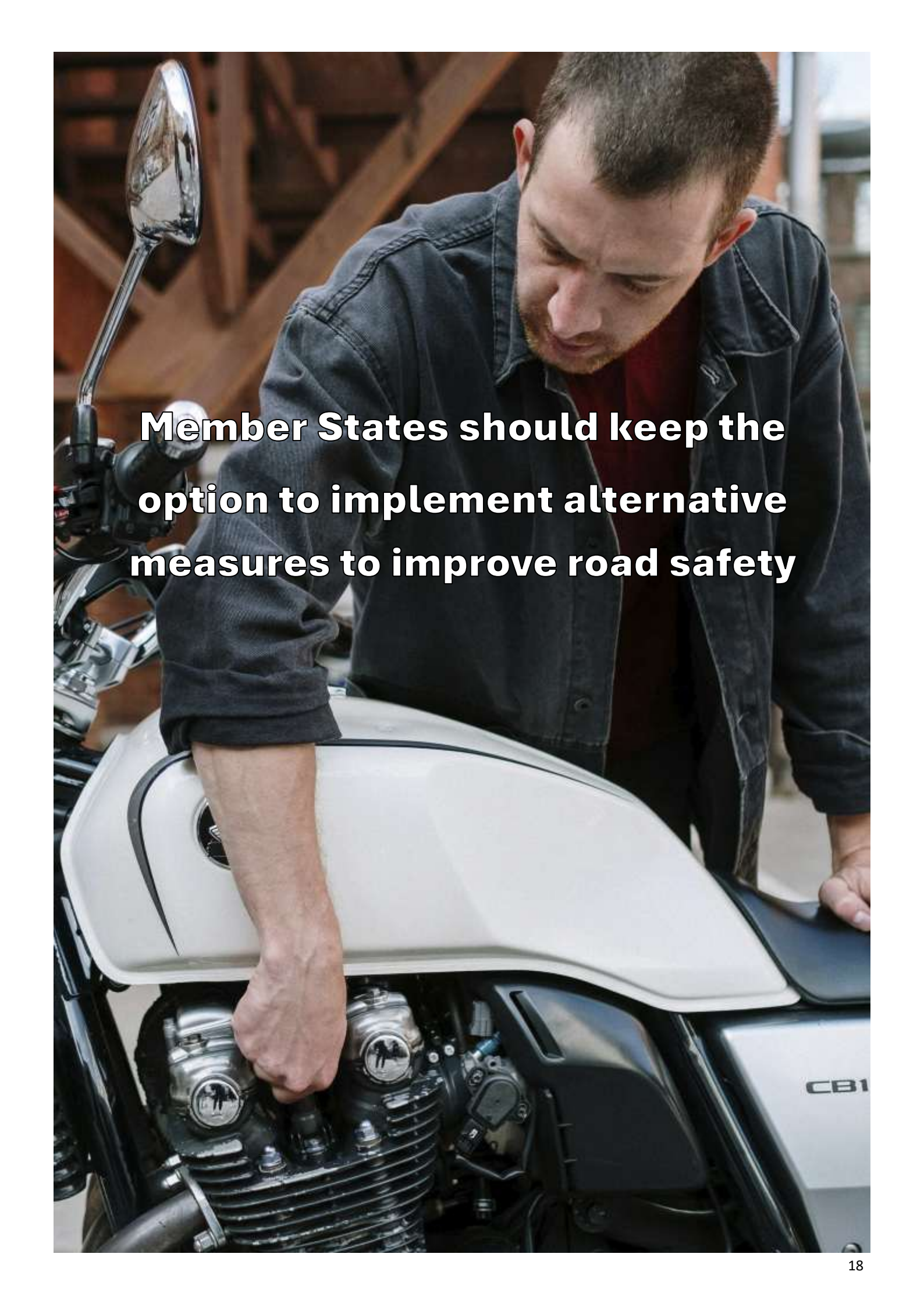
### Considerations

- Alternative fuels must demonstrate verifiable lifecycle CO<sub>2</sub> reduction, full traceability and compliance with sustainability criteria.
- Fuels should be drop-in compatible with the existing PTW fleet to avoid costly technical upgrades.
- Regulators should ensure fuel-quality standards that protect engine durability, safety and rider confidence.
- Development of alternative fuels should prioritise scalability, affordability and fair access across regions, urban and rural alike.
- Investments in production capacity for synthetic and advanced biofuels are needed to ensure availability and price stability.

### Recommendations

- Adopt a technology-neutral regulatory approach acknowledging alternative fuels as a valid decarbonisation path for PTWs alongside electrification.
- Recognise renewable, low-carbon and synthetic fuels within climate and emissions legislation to allow their contribution to decarbonisation targets.
- Support European and international standards for sustainable fuel production, certification and distribution.
- Provide incentives for developing and scaling sustainable fuel production, especially e-fuels using renewable electricity.
- Ensure long-term regulatory certainty, enabling manufacturers, fuel producers and riders to invest and plan confidently.



A man with short brown hair and a beard, wearing a dark denim jacket over a red shirt, is leaning over a white motorcycle. He is focused on the engine, with his right hand near the cylinder head. The motorcycle has a white fuel tank and a black seat. The background shows a wooden structure, possibly a building or a fence. The text "Member States should keep the option to implement alternative measures to improve road safety" is overlaid in white, bold, sans-serif font.

**Member States should keep the option to implement alternative measures to improve road safety**

## PERIODICAL TECHNICAL INSPECTIONS (PTI)

### **In general**

Evidence does not support the claim that a periodical technical inspection (PTI) significantly reduces motorcycle crashes. Mechanical defects account for only a small proportion of incidents (<1%). Most crashes are linked to human error, road conditions, or interactions with other vehicles. Of the ten Member States with the lowest motorcycle fatality records, four do not have a PTI regime.

FEMA, FIM Europe and NMC are not opposed to PTI in principle, but by aligning resources with the most effective interventions, authorities can deliver meaningful safety improvements while respecting the practical realities of motorcycle use in Europe.

Introducing mandatory PTIs for motorcycles could impose substantial costs with minimal safety benefits. For Member States without an existing motorcycle PTI regime, the capital expenditure required to establish testing infrastructure could be disproportionately high compared to the marginal safety gains.

Member States with already tailored motorcycle PTI policies, have designed these based on their specific safety needs, geography and weather conditions. For large or sparsely populated countries, centralised PTI facilities may be inaccessible for extended periods due to seasonal conditions. A blanket EU approach risks penalising more remote riders, increasing costs and compliance challenges with no added benefit.

### **Evidence-based cost-benefit perspective**

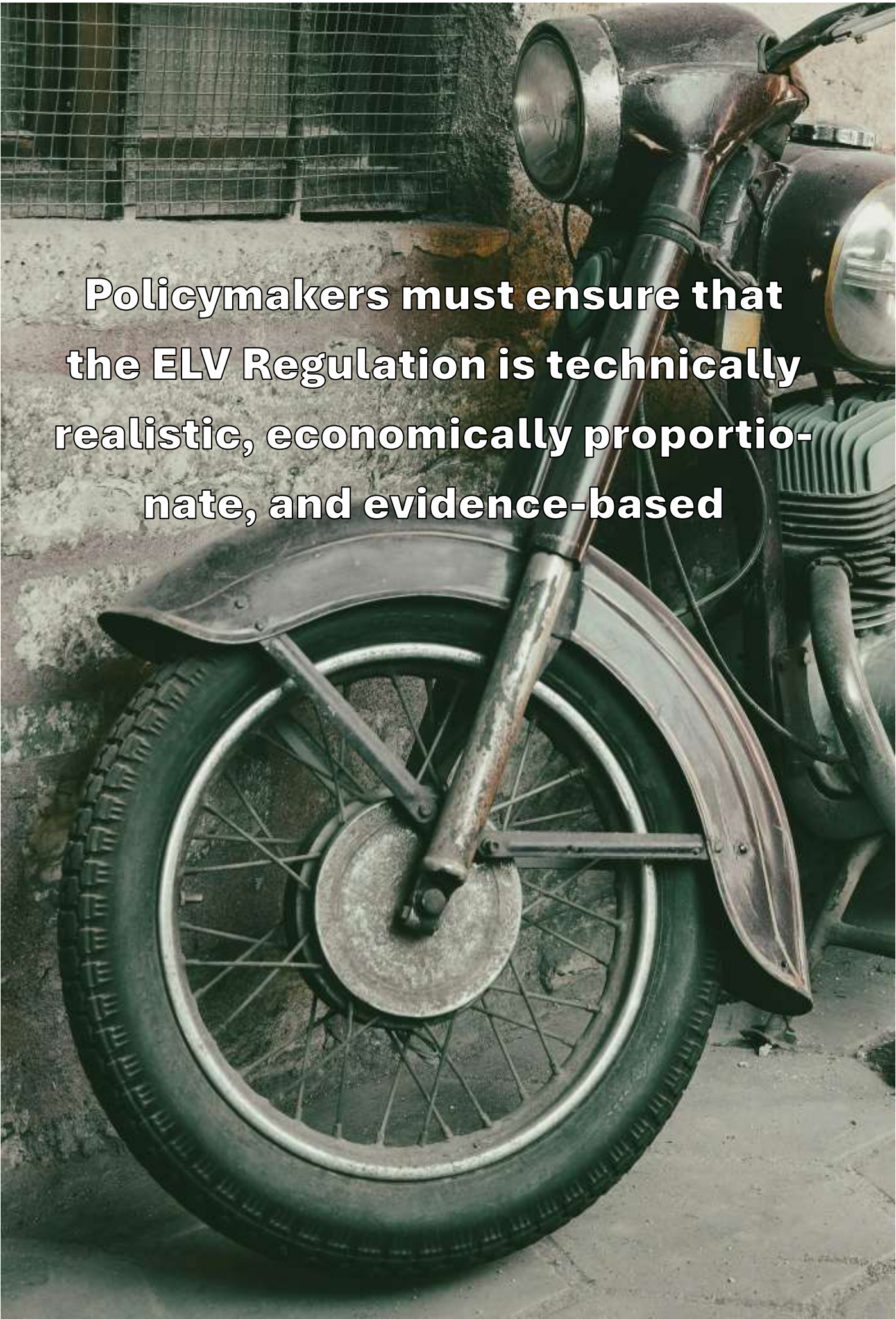
Large-scale accident causation studies consistently find that mechanical failures - those likely to be caught through PTIs - account for only a small fraction of PTW crashes. The MAIDS study attributed primary causation to technical failures in just 0.7% of motorcycle accidents. Similarly, the GIDAS database found such defects in 3% of cases, and the NTSB/MCCS data from the U.S. supports this trend. Even when technical issues are present, they are often post-crash findings, not proven causal factors. Conversely, human factors like rider behaviour, other road users' failure to detect PTWs, and visibility issues are responsible for up to 87% of PTW accidents.

In contrast, training programmes, public awareness campaigns, and infrastructure design (such as safe junctions, crash barriers, or improved road surfacing) have proven to be more effective and cost-efficient. Studies have shown that structured rider education programs can reduce crash rates by up to 35%, and campaigns aimed at increasing PTW conspicuity have measurable effects on collision avoidance. These initiatives are often cheaper to implement, more positively received by the rider community, and directly target the primary causes of PTW crashes.

### **Key points:**

- Member States should retain flexibility to determine the most appropriate approach based on national conditions, road safety data, and infrastructure realities.
- Member States should keep the option to implement alternative measures to improve road safety for motorcyclists, as an alternative to PTI.
- A mandatory periodical technical inspection (PTI) regime for motorcycles and mopeds is difficult to justify in terms of costs versus benefit. PTI would impose significant costs onto Member States, while delivering little extra in terms of road safety.
- Only evidence-based measures should be taken. As there is no proof of a significant safety gain, particularly given the costs of creating a regime, PTI should not be harmonised.



A vintage motorcycle, possibly from the mid-20th century, is shown from a front-three-quarter view. It features a large, round headlight, a prominent front fender, and a wire-spoke front wheel. The motorcycle is parked on a concrete surface next to a wall with a metal grate. The text is overlaid on the image, centered in the upper half.

**Policymakers must ensure that  
the ELV Regulation is technically  
realistic, economically proportionate,  
and evidence-based**

## END-OF-LIFE VEHICLES (ELV)

### In general

European motorcyclists fully support the European Union's objectives on circular economy, resource efficiency, and environmental protection. However, the End-of-Life Vehicles Regulation risks imposing disproportionate and car-centric obligations on motorcycles, despite their fundamentally different technical, economic, and environmental profiles.

Motorcycles are an essential element of affordable, low-emission and space-efficient mobility across Europe. Policymakers must ensure that the ELV Regulation is technically realistic, economically proportionate, and evidence-based for this vehicle category.

### Motorcycles differ from passenger cars in ways that are directly relevant to ELV legislation:

- They contain significantly lower material volumes, particularly plastics and composite materials.
- They are less standardised, with higher diversity of components and lower production volumes.
- Their dismantling and recycling chains are dominated by SMEs, not large industrial operators.
- They are already subject to high rates of reuse, refurbishment, and parts recycling through established aftermarket practices.

### Key concerns

- Current ELV targets are derived from four-wheeled vehicle data. For motorcycles, these targets are often technically unattainable or economically unjustifiable, risking market distortions without measurable environmental gains.
- The motorcycle sector relies heavily on small and medium-sized enterprises. Excessive administrative obligations under Extended Producer Responsibility (EPR) schemes threaten market diversity, cross-border trade, and independent dismantling and repair businesses.
- Rising compliance costs will be passed on to consumers, undermining motorcycles' role as an accessible and lower-impact transport option, particularly for citizens with limited mobility alternatives.
- Policymaking in this area continues to rely on incomplete or inappropriate datasets. Without motorcycle-specific data, regulatory assumptions remain flawed.

### Recommendations

- Explicitly recognise motorcycles as a distinct vehicle category.
- Introduce motorcycle-specific recovery and recycling targets, grounded in real dismantling and material-flow data.
- Apply proportional EPR obligations, with simplified compliance pathways for SMEs.
- Support reuse and repair, recognising that extending vehicle life is often the most effective circular-economy outcome for motorcycles.
- Mandate the collection of separate motorcycle end-of-life data, enabling evidence-based future revisions.
- Avoid unintended consequences that could reduce motorcycle availability, increase costs, or push end-of-life vehicles into informal channels.



A close-up photograph of a motorcycle's rear section. The focus is on the exhaust system, which features a silver-colored metal pipe with a black carbon fiber heat shield. The exhaust pipe has the text "SPRUE" and "TECHNOLOGY" visible on it. Below the exhaust, the rear wheel is visible, showing a multi-spoke alloy rim, a chain drive, and a large, perforated disc brake. The brake caliper is silver and has the "NISSIN" brand name on it. The background is slightly blurred, showing some greenery and a white fence.

**Promote responsible rider behaviour  
through education and cooperation  
with motorcycle organisations**



## POWERED TWO-WHEELERS AND SOUND

### In general

Environmental noise is a legitimate concern, particularly in urban and peri-urban areas. Road traffic noise is generated by all motorised vehicles, and powered two-wheelers (PTWs) are part of this mix. Motorcyclists recognise that excessive noise is unacceptable and that irresponsible behaviour by a small minority can harm the social acceptance of motorcycling.

PTWs represent only a limited share of overall road traffic noise. Measures addressing sound emissions must therefore be proportionate, evidence-based and technology-neutral, and must avoid targeting specific vehicle categories without justification. The European Union already has comprehensive legislation on vehicle sound levels through type-approval and in-use compliance rules. The main challenge is not missing regulation, but insufficient and inconsistent enforcement.

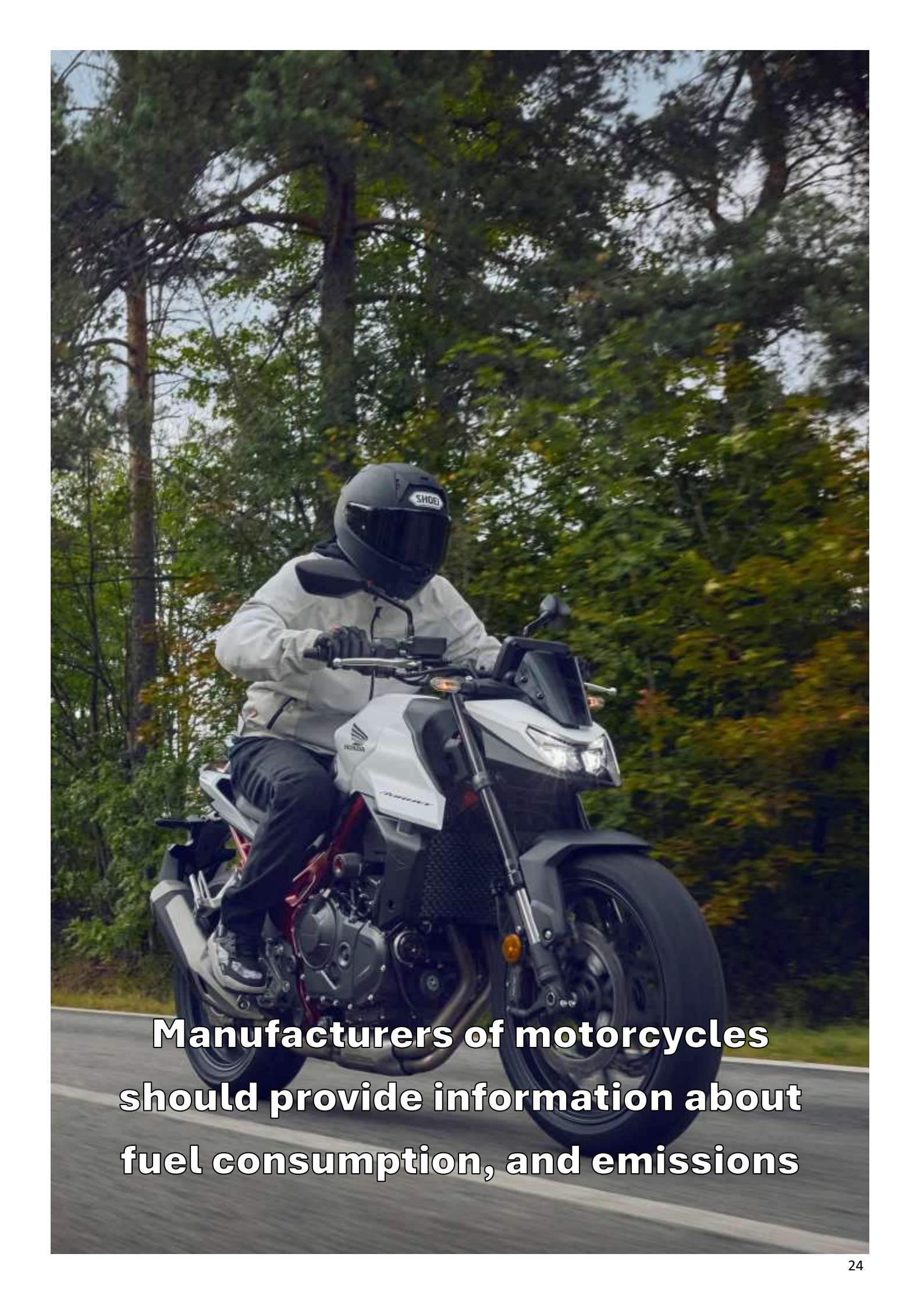
New sound-related restrictions risk legal uncertainty and reduced acceptance. Riders are responsible for keeping vehicles compliant and riding responsibly. Authorities are responsible for fair, consistent and equal enforcement for all motorised road users.

Sound emissions depend on both vehicle design and rider behaviour. Awareness campaigns and cooperation with rider organisations can support enforcement and reduce nuisance. Technical enforcement tools, such as noise cameras, may be acceptable if they enforce existing legal limits, apply equally to all traffic, and are scientifically validated, proportionate and legally robust.

Electrification of PTWs, particularly in urban use, already reduces sound emissions and will further lower traffic noise over time. This development should be supported while maintaining a technology-neutral approach and avoiding penalties for compliant vehicles.

### Conclusions and recommendations

- Do not introduce new sound-related restrictions where adequate legislation already exists.
- Prioritise consistent enforcement of existing sound and vehicle compliance rules.
- Apply regulations equally to all motorised road users, including roadside checks against illegal exhaust systems.
- When the sound of a motorcycle or aftermarket silencer is above the limit, the vehicle or the silencer should not get type approval and should not be sold.
- Support neutral technical enforcement tools, such as noise cameras, applied equally to all traffic.
- Promote responsible rider behaviour through education and cooperation with motorcycle organisations.
- Recognise electrification as a long-term contributor to reduced traffic noise without penalising compliant vehicles.

A motorcyclist wearing a white jacket, black pants, and a black helmet with a 'SHOEI' logo is riding a white Honda motorcycle on a paved road. The motorcycle has 'HONDA' and 'Pioneer' branding. The background consists of a dense line of green trees, suggesting a forest or park setting. The image is slightly blurred to convey a sense of motion.

**Manufacturers of motorcycles  
should provide information about  
fuel consumption, and emissions**

## POWERED TWO-WHEELERS AND THE ENVIRONMENT

### **In general**

The European Union has laid down several goals to decrease the emission of CO<sub>2</sub>, PM, and NO<sub>x</sub>. National and local authorities are also trying to reduce CO<sub>2</sub>, PM, and NO<sub>x</sub> emissions. Some have already banned or are planning to ban older vehicles, including PTWs, or demand high tolls to enter cities, e.g. Paris and London. Furthermore, taxation schemes are being developed that are based on fuel consumption, exhaust emissions and sound. These developments demand an appropriate answer from the motorcycle industry and motorcyclists to preserve a role in future mobility schemes.

### **Contribution of PTWs to a cleaner environment**

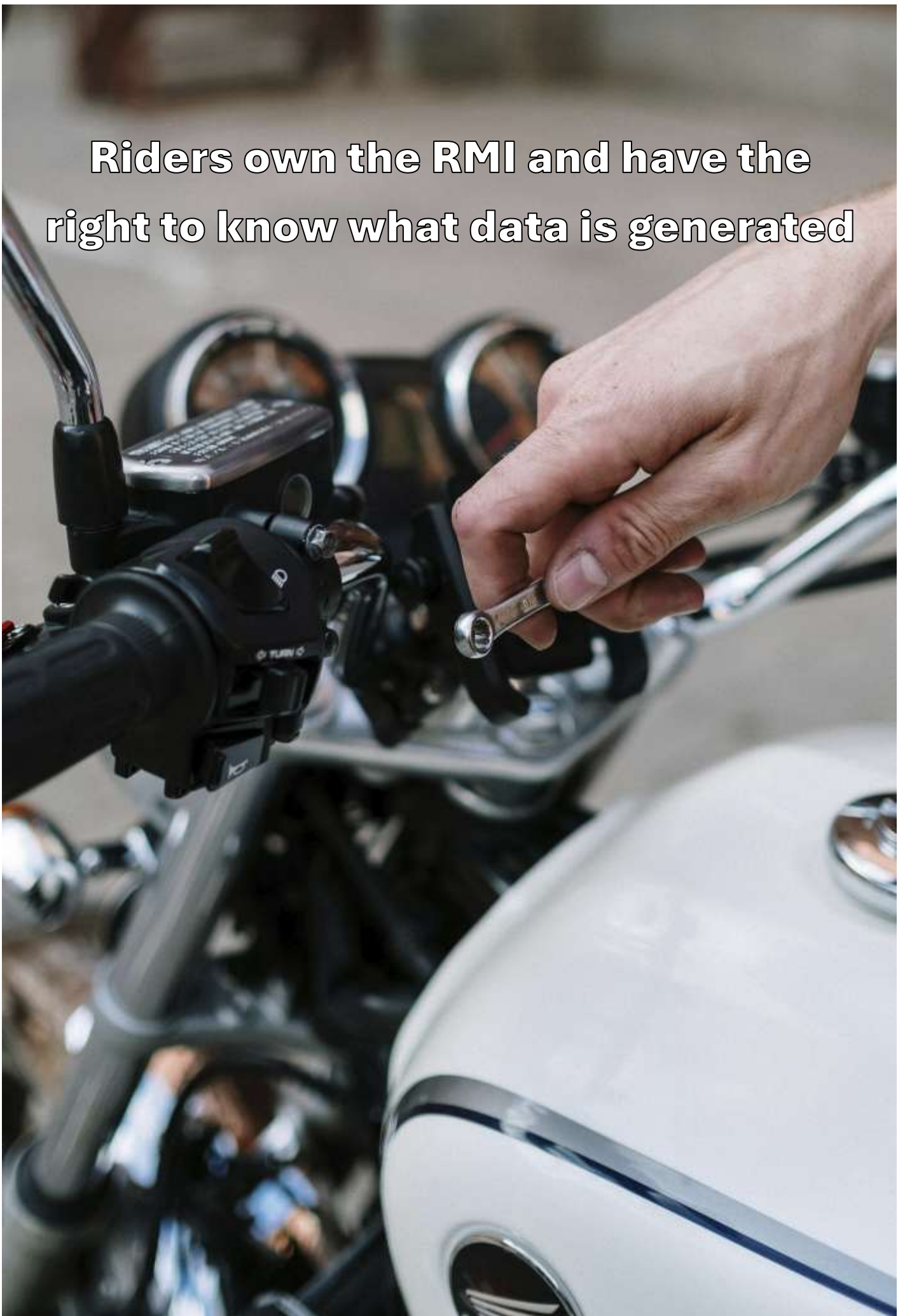
- PTWs are smaller and lighter than cars and therefore already contribute to less fuel consumption and less pollution. They need less space in traffic and parking, which also contributes to a better flow in traffic and thus less pollution.
- Because PTWs can keep moving where cars are stuck in traffic jams, they use less fuel and pollute less.
- Motorcycles have become much cleaner in the last decades and have become even cleaner with the implementation of the Euro 5 emission limits in 2020.
- Because PTWs are smaller than cars, less energy and material are needed to produce and scrap PTWs.
- Electric PTWs for urban use are much cheaper than electric cars. This will be even greater with swappable batteries as agreed by the PTW manufacturers.

### **Actions to make PTWs cleaner**

- PTW riders should be aware of the fuel consumption and emissions of their motorcycles and make a balanced choice when they purchase a new motorcycle. To be able to do this the manufacturers of motorcycles should provide consumer-information about fuel consumption, CO, NO<sub>x</sub>, and CO<sub>2</sub> emissions.
- PTW riders should be aware that their behaviour affects their surroundings, especially the sound emissions, and therefore need to behave in a responsible way.
- Manufacturers of PTWs should continue developing cleaner PTWs by enhancing the environmental performance of internal combustion engines, and at the same time develop zero emission engines.
- Charging for electric PTWs should be encouraged by implementing simple and universal payment systems and creating secure and dedicated charging and parking facilities for PTWs.
- The development of a circular system to process old batteries is crucial.



**Riders own the RMI and have the right to know what data is generated**



## REPAIR AND MAINTENANCE INFORMATION (RMI)

### In general

Repair and maintenance information (RMI) is information that is stored on manufacturer websites and in electronic devices which are part of the vehicle. RMI can be accessed by universal or special connectors or online. RMI means all information required for diagnosis, servicing, inspection, periodic monitoring, repair, re-programming, or re-initialising of the vehicle, which the manufacturers provide for their authorised dealers and repairers, including all subsequent amendments and supplements to such information. This information includes all information required for fitting parts or equipment on vehicles.

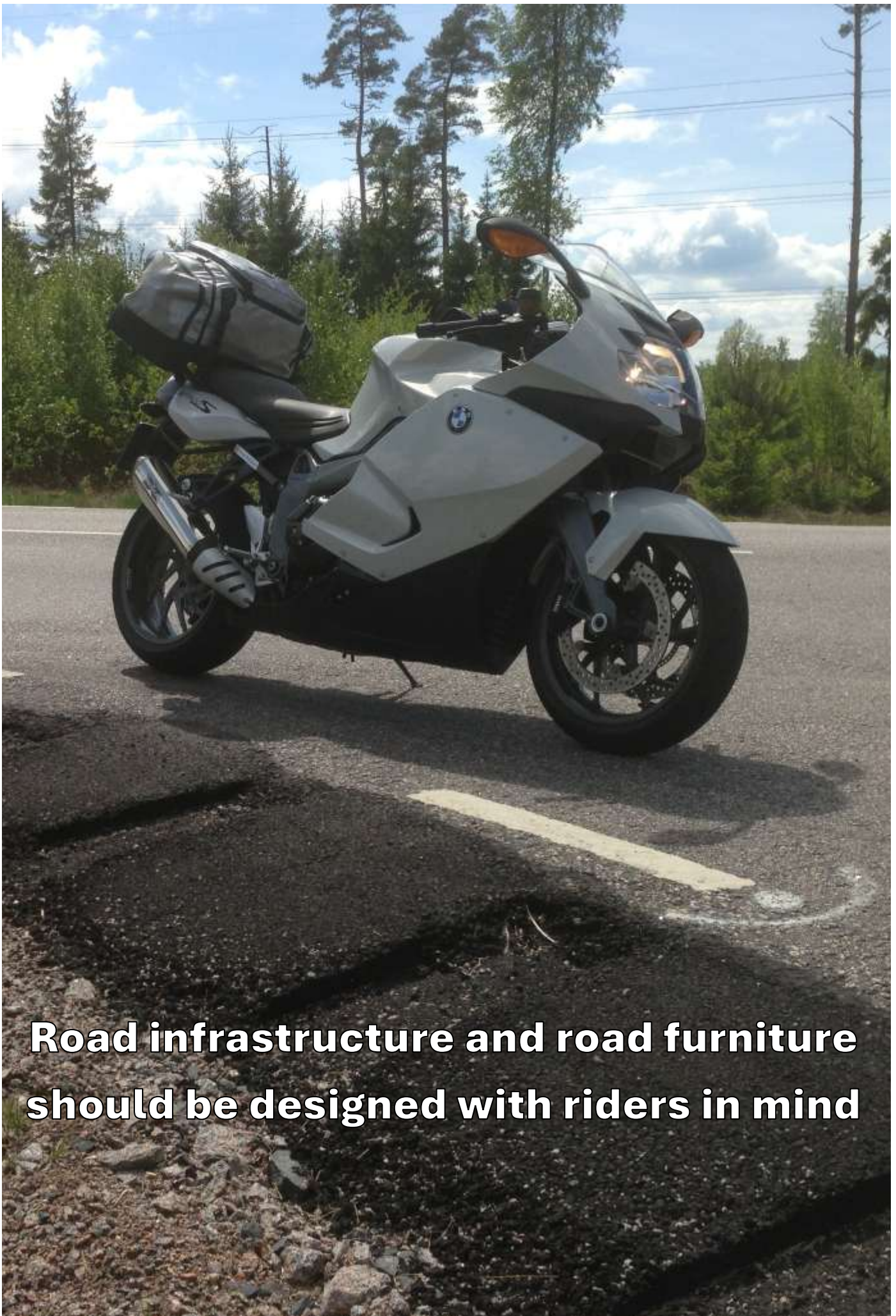
### Why is RMI important for the rider?

- RMI is vital for the functioning of the powered two-wheeler (PTW) and therefore for the rider.
- Without access to the RMI, repair shops, roadside assistance services and owners of vehicles who, for whatever reasons, do their own maintenance and repairs, may not be able to maintain and repair their vehicle.
- RMI stores a large amount of data on the vehicle itself. Such data can be accessed via an external device or might even be transmitted to the manufacturer over-the-air. Therefore, ownership of data and privacy are at stake.
- The rider needs to be able to perform repairs and maintenance where it is very hard or even not possible to have this done in a workshop, such as an emergency repair on the side of the road.

### How to handle RMI

- Riders own the RMI and have the right to know what data is generated and how it is used.
- Riders must have the ultimate right to decide who has access to the RMI and what is being done with it.
- RMI should be accessible by the owner, or anyone who is delegated to this by the owner, by way of a standardized connector, at no extra cost.
- The access to RMI should be secured, especially against cyberattacks. No unauthorized access to the data of the PTW or interference with the handling of the motorcycle must be possible through the RMI interface.
- RMI must be made available to all independent repairers, not only to authorised brand dealerships. Manufacturers should provide third-party workshops with the same technical data, diagnostic tools, software updates, spare-part specifications and training materials needed to service, maintain and repair the vehicle. Access, including to machine-software updates, should be offered on reasonable terms, enabling competition in the aftermarket, safeguarding consumer choice, and supporting repairability throughout the vehicle's lifetime.
- As in the Motor Vehicle Block Exemption, PTW warranty agreements should not lock users into only being able to use authorised dealers. This is particularly relevant in a smaller market where vehicles may end up far from an authorised dealer.





**Road infrastructure and road furniture  
should be designed with riders in mind**



## SAFE INFRASTRUCTURE FOR POWERED TWO-WHEELERS

### **In general**

Road infrastructure is developed with four-wheeled vehicles in mind. The design of roads, the tests of roadside and median barriers, poles, road surfaces and everything else that is part of or next to a road is done from the perspective of car drivers. Powered two-wheelers (PTWs) are by their design different from cars and have different needs.

PTWs are more sensitive than cars to badly maintained or repaired road surfaces and poorly applied markings on the road. Motorcyclists require predictability and road surfaces with a good friction co-efficiency. Road restraint systems, curbs, poles, and other obstacles that may be beneficial, or just not dangerous to other road users, are often a hazard for motorcyclists and increase the injury risk in case of an accident.

### **Why better infrastructure**

- Inadequate and/or badly maintained infrastructure is a common factor of crashes in which PTWs are involved. It is one of the main causes of severe injuries and deaths of motorcyclists, even when it is not the cause of the crash.
- Additional costs to improve road infrastructure standards to meet the needs of vulnerable road users, including PTW riders, is by far outweighed by the benefit of saving lives on European roads. Funds spent on infrastructure are not costs but investments in lives, life quality and in financial revenues.

### **High-risk spot safety management**

- As PTW accidents are rare occurrences and spread over the road network, it is virtually impossible to identify a high-risk spot simply by the number of accidents. Therefore, road authorities should adopt relevant national systems, which should be evaluated by iRAP, that are aimed at identifying the high-risk spots, as these consider additional factors, including traffic volume, to assess risk.
- High-risk spot management should be part of the safety policy of the European Union and non-EU governments and pay special attention to vulnerable road users, including riders of powered two-wheelers, and should include all public roads.

### **How infrastructure should be improved**

- New standards should be adopted for roadside and median barriers to make them safer for PTW riders.
- All unnecessary objects along the road must be removed where possible, to create an obstacle free roadside and to provide free sight for all road users. Objects that cannot be removed should be shielded in a proper and safe way.
- Where road markings are necessary, they should be made of a material with the same skid resistance as the pavement, and the thickness of the material should be limited. This skid resistance should be maintained for as long as the marking exists.
- The road should be free of raised lane separations that cannot be ridden over, especially at roundabouts.
- Road layout, and the development, installation and maintenance of road infrastructure and road furniture should be designed with PTWs in mind.

A motorcyclist wearing a white helmet and a reflective silver jacket is riding a black and orange Yamaha motorcycle on a winding road. The sun is low in the sky, creating a strong lens flare and casting a long shadow of the rider on the road. The background shows a blurred forest and a metal guardrail.

**Standards for roadside barriers  
should be adopted to make them  
less dangerous for motorcyclists**

## ROAD SAFETY BARRIERS

### **In general**

Road safety barriers (crash barriers) are usually developed for, and tested with, cars and trucks. For these vehicles especially, they can improve safety as they prevent them from hitting objects near the road or colliding with oncoming vehicles. However, by their design and features they can also create a hazard for powered two-wheelers (PTWs).

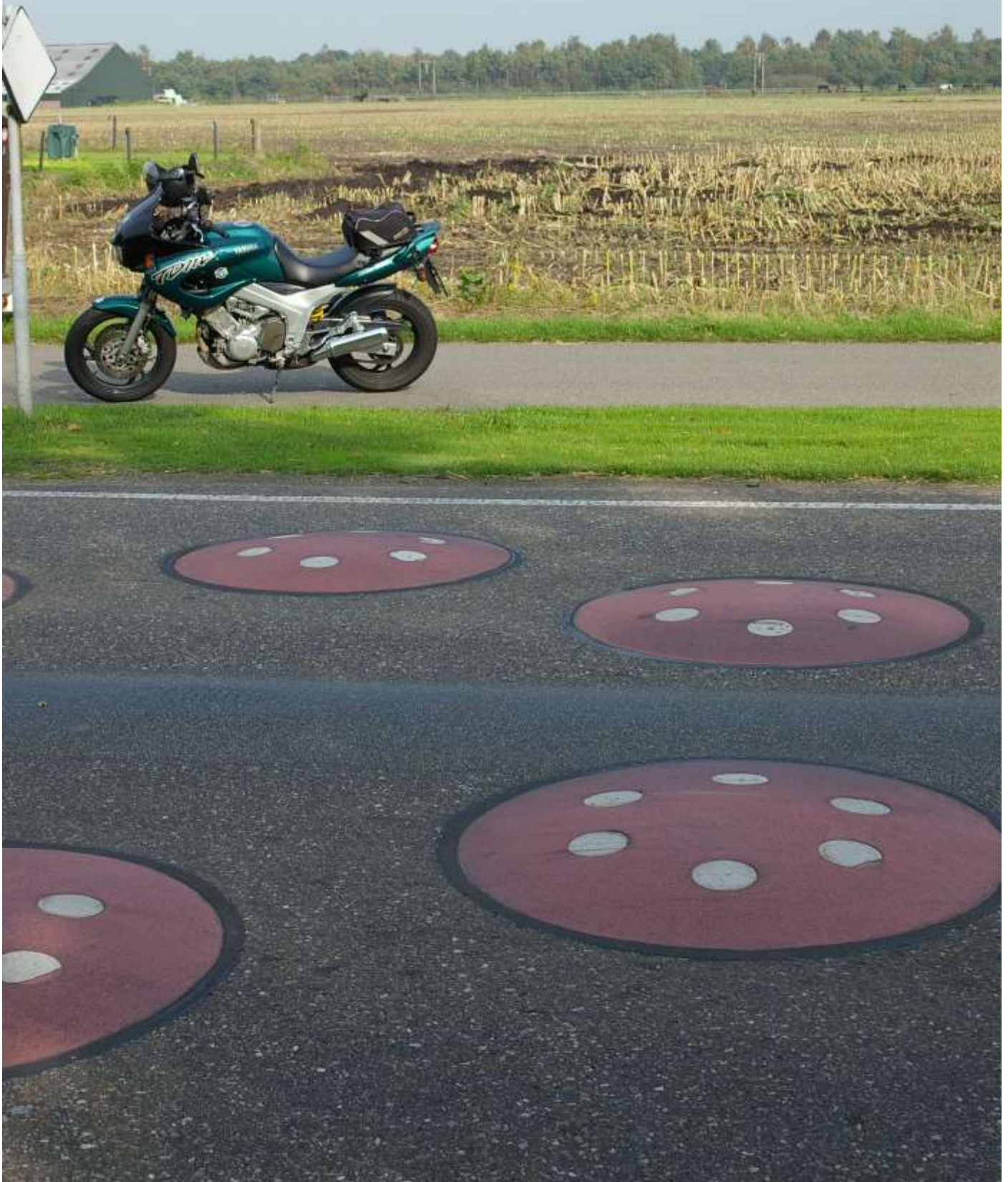
Motorcyclists have less chance of surviving a collision with a barrier than car drivers. Barriers must therefore only be installed when necessary and must be safe for motorcyclists. The cost of improving standards for roadside and median barriers to meet the needs of vulnerable road users, including riders of PTWs, is far less than the benefit of saving lives or preventing serious injuries on European roads. Road safety barriers must be safe for all road users.

### **How road restraint systems should be improved**

- Road safety barriers, of whatever type, should only be installed where there is a real risk for a collision with an object or oncoming traffic and no other solution - like removing the objects - is possible.
- New barriers need to be developed after extensive research of collisions of PTWs. New standards for roadside and median barriers should be adopted to make them less dangerous for motorcyclists. The existing Technical Specification CEN/TS 17342:2019-10 should be further developed and turned into an EN standard.
- New standards must include protection against hitting unprotected posts and top- and back-side protection for PTW-riders. Discontinuous protection of posts only improves the safety of PTW-riders when the collision speed is very low. Therefore, only continuous protection of the posts should be allowed.
- No new cable barriers (i.e. wire rope fences) or other barriers with unprotected posts should be installed. When old unsafe barriers need to be replaced, they must be replaced by a safer barrier type.
- Whenever a barrier is installed, the distance from the road should be as large as possible. This allows for evasive manoeuvres and maximum emergency braking in the event of a collision which might reduce the force of the collision impact with the barrier.
- Existing barriers in outer curves or other locations with heightened risk must be retrofitted with Motorcycle Protection Systems (MPS).
- Introduce a common European classification system for crash barriers, based on vulnerable road users (VRU) collision friendly features.
- Paved roads should be free of debris, including grit.
- Roads must be fitted with frangible signposts.



Calming devices should ensure  
enough grip under all circumstances



## TRAFFIC CALMING DEVICES

### **In general**

Inappropriate speed is one of the most important causes of accidents, especially on urban roads or smaller roads in rural areas. Signs are often not enough to reduce speed and enforcement is either not possible or the costs are too high. For this reason, the road authorities often choose to install traffic calming devices. These can be optical (road markings), horizontal (road width restrictions/chicanes) or vertical (speed bumps/rumble strips). Speed bumps and similar calming devices must only be installed on roads with a lower speed limit. The EU sets the framework for vehicle safety and overall road safety, influencing traffic calming devices through technology mandates and policy, while Member States decide where, when, and how to physically implement them as part of national/local traffic management.

### **Why traffic calming devices can be dangerous for powered two-wheelers**

- Powered two-wheelers (PTWs) are balancing vehicles, and a sudden vertical or lateral momentum can cause loss of balance.
- A sudden vertical momentum can be caused by excessive gradient or height of a speed bump, or vehicle speed that is too high under the circumstances but can be still within the limits.
- PTWs are single-track vehicles. This means that they lose grip much easier than multi-track vehicles. Loss of grip can be caused by a slippery surface, but also by the sloping ends of a speed bump that does not cover the entire width of the road or by the sloping ends of cushion shaped, or rounded speed bumps.
- When a PTW does not approach a speed bump at an appropriate angle, the PTW can lose grip, or balance. This happens when a speed bump is installed in or near a bend, or when the speed bump has an abnormal shape.
- Horizontal calming devices can be dangerous when the shape is not in accordance with the current national regulations or the allowed speed, when the markings are not clear under all circumstances or are situated in a bend or in a place with an inadequate view.

### **How to install traffic calming devices that are safe for PTWs**

- Calming devices should always be designed and installed in a way that is in accordance with the current national regulations and the allowed speed.
- The calming devices should be well marked and signed and placed correctly, so they are visible for the road users under all circumstances.
- Calming devices should never be situated in or shortly behind a bend.
- The material of the calming devices should ensure enough grip under all circumstances, especially with wet roads.
- The gradient and height of a vertical calming device should never be greater than is strictly necessary.
- The vertical calming device or speed bump should never have a slope that runs lateral to the direction of an oncoming PTW, because this can lead to loss of balance.





**Initial training must teach the skills to safely operate a motorcycle, not just the skills needed to pass a test**



## INITIAL TRAINING, LICENCING, AND ADVANCED TRAINING

### **In general**

High quality, cost effective initial rider training is probably the most important measure for improving powered two-wheeler (PTW) safety. Every European citizen who wants to start riding a PTW should have easy access to training and testing.

Today training and testing has become complicated and overly expensive, with unproven safety value - in some countries, especially Nordic, it has resulted in a significant percentage of fatal accidents among riders who didn't have a valid license.

Repeating the same test between the categories, as much as three times on progressive access, does nothing to create an environment of continual improvement. The requirement should be for just a single comprehensive test, with training 'upgrades' for progression between the categories where this route to the full-A licence is chosen.

There are also serious concerns that the framework is not gender neutral, as the weight of minimum test vehicles in the full-A category (180kg) discriminates against those of smaller or lighter stature. The pass rate among women in particular decreases with the higher demands from the EU for test vehicles from A1 to A2 to A.

The specific demands on test vehicles in combination with a focus on the manoeuvre tests in the final license examination are often reasons for unnecessary failures. The test should be more reflective of real-world riding conditions, with a focus on road safety, hazard perception and hazard avoidance. Currently, there is too much focus on just the technicalities of machine control, such as moving a motorcycle on or off its stand.

### **How to improve initial rider training**

- Initial rider training must teach the skills, knowledge and attitude needed to safely operate a PTW on public roads, not just the skills needed to pass a licence test.
- Initial rider training should derive from the EU/FEMA/FIM/ACEM Initial Rider Training Programme and should be updated to form an agreed national curriculum for category A.
- The licence test should focus on real world riding conditions, rather than mainly machine control. Candidates should only be required to undertake it once. A stepped access with only one practical and one theoretical test after a cost-effective training coached by trained instructors might encourage riders to start riding on smaller and less powerful bikes.
- Risk awareness and risk management should be part of the training and licence tests.
- All training, testing and demand for test vehicles should be gender neutral.
- Instructors and examiners should be practising riders. They should have participated in an officially recognised instructors /examiner's training programme derived from the agreed national curriculum for category A.
- The FIM/ACEM Training Quality Label for advanced rider training should receive support from Member States, so that more riders are encouraged to further develop their skills and road safety knowledge after getting their licence.

**Motorcyclists are road users with specific needs that must be taken into account**



## POWERED TWO-WHEELERS SAFE SYSTEM

### **In general**

Safe systems are an approach to road safety management, based on the principle that our lives and health should not be compromised by our need to travel. A powered two-wheeler (PTW) safe system is especially aimed at the needs of motorcyclists. Road safety is a human right of all road users. In the Lillehammer ITF/OECD conference in 2008, and repeated in the Motorcycle Workshop 2021, it was clarified that it is a fundamental PTW safety requirement that PTWs should have a place in overall transport policy and infrastructure policy management. This still hasn't happened.

PTW-riders are often excluded in guidelines for construction and maintenance. As a result, infrastructure and road furniture aren't developed to include the needs of PTW-riders. PTW-riders have no protective cage like motorists; thus accident prevention measures are even more important than injury reduction measures. Next to infrastructural issues, there is need for improved basic and advanced training for motorcyclists as the basic and advanced rider training is still focused on technical skills and less on risk awareness. Another aspect that needs attention is the development of ITS (Intelligent Transport Systems) for cars that should consider PTWs better.

### **How PTW safe systems can be developed**

- PTW riders are road users with specific needs that must be taken into account in the Safe System Approach.
- Accident prevention measures are even more important than injury reduction measures.
- PTW-riders should be included in national guidelines for planning, constructing and maintaining roads and road infrastructure.
- Improving safety for motorcyclists implies setting up a continuous dialogue and co-operation between the stakeholders, including PTW-riders, policy makers, researchers and PTW manufacturers.
- All measures need to be founded on evidence-based scientific research into driver and rider behaviour, and before-and-after evaluations should be conducted.
- Funding effective road safety activities.
- Launching public awareness campaigns for drivers and riders.
- Better training systems for riders with focus on risk awareness, risk avoidance and risk management.
- Make PTWs safer by the use of appropriate and tested intelligent transport systems.
- ITS developments for cars and trucks should always include PTW-riders and other road users.
- (C-)ITS devices for other vehicles should always be developed keeping in mind that PTW are not often equipped with (C-)ITS devices.
- Motorcycling should be recognized as a key transport mode within transport and road safety policies, so enabling investments in creating a motorcycle safe system.





**Motorcycles are an important means of motorized transport for many people commuting to work**

## POWERED TWO-WHEELERS AND MOBILITY

### **In general**

The current focus of the European mobility strategies is on public transport, cycling and walking. However, public transport cannot be commercially viable everywhere in urban, suburban and rural areas. Cycling and walking are useful for limited distances but there will always be a role for individual motorised personal transport. Therefore, we foresee a growing role for PTWs, especially motorcycles.

This role is not usually foreseen by transport authorities which often entirely overlook the useful contributions that PTWs can make, particularly in urban areas. Many local and national authorities have no strategy for PTWs and often overlook them in more general transport strategies. Guidance to national and local governments on Sustainable Urban Mobility Plans should consider the role that PTWs can play and emphasise the positives and mitigate the negatives.

- PTWs are often the only affordable form of personal motorized transport for many people, both in developed and in emerging countries. PTWs are an important - if not the only - means of personal motorized transport for many people commuting to work, thus escaping social exclusion.
- PTWs can go to places which other vehicles can only reach with greater difficulty or with greater delay. This makes PTW important vehicles in all areas for the police, emergency services, healthcare and other professionals.
- PTWs use less room and therefore need less parking space and as a result motorcyclists save time and distance.
- PTWs for use in urban areas can be easier and cheaper to electrify than cars.

### **How can PTWs contribute to improved mobility?**

- Less congestion by allowing PTWs to use bus lanes where possible.
- Provision of PTW parking facilities at transport interchanges.
- Less congestion by acceptance of filtering through slow moving traffic and advanced stop lines for bicycles and PTWs.
- Support for moped and scooter sharing schemes in urban areas.
- Less need of parking spaces by acceptance of parking of PTWs on wider pavements if not hindering pedestrians, users of mobility scooters, and cyclists.
- Motorcycle parking should be provided for free to users.
- Less need of car parking spaces by creating safe and secure PTW parking spaces.
- Less congestion through privileged inner-city access for PTWs.
- Tax incentive schemes and awareness campaigns highlighting the advantages of PTWs.
- Less pollution and less emissions by using “greener” PTWs: less energy consuming by internal combustion engines with use of low-carbon fuels, fuel cell powered engines, battery powered electric engines.
- Make motorcycling safer by use of appropriate (connected) intelligent transport systems (C-ITS), improved rider training, safer infrastructure, and better awareness by other road users.

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