Event Data Recorders and Powered Two-Wheelers: introduction

- Advanced emergency braking (cars)
- Alcohol interlock installation facilitation (cars, vans, trucks, buses)
- Drowsiness and attention detection (cars, vans, trucks, buses)
- Distraction recognition / prevention (cars, vans, trucks, buses)
- Event (accident) data recorder (cars and vans)
- Emergency stop signal (cars, vans, trucks, buses)
- Full-width frontal occupant protection crash test - improved seatbelts (cars and vans)
- Head impact zone enlargement for pedestrians and cyclists -safety glass in case of crash (cars and vans)
- Intelligent speed assistance (cars, vans, trucks, buses)
- Lane keeping assist (cars, vans)
- Pole side impact occupant protection (cars, vans)
- Reversing camera or detection system (cars, vans, trucks, buses)
- Tyre pressure monitoring system (vans, trucks, buses)
- Vulnerable road user detection and warning on front and side of vehicle (trucks and buses)
- Vulnerable road user improved direct vision from driver's position (trucks and buses)

New European General Safety Regulation, including ADAS and EDR

This publication is the first in a row, concerning the development, regulation and implementation of Event Data Recorders for Powered Two-Wheelers (P2W). Please accept this as an invitation to connect and collaborate, aiming at a profound contribution to safety of P2W-riders.

General Safety Regulation
Event Data Recorders (EDR) will soon become mandatory in the EU for new cars, vans, heavy goods vehicles and buses, as a part of a package of safety measures in the General Safety Regulation (GSR), approved by European Parliament on the 16th of April 2019. The new regulation will require new vehicles to be fitted with a large number of Advanced Driver Assistance Systems (ADAS) and also an Event Data Recorder (EDR). Powered Two-Wheelers haven't been taken in account yet, but surely this will come in the future.

Event Data Recorder (EDR)
EDR is a device or function that records the measurements, in chronological order before, during, and after an event happens, such as collision involving the deployment of an air bag, of vehicle speed and other vehicle conditions.
Information obtained from EDR will give information on accident causation. This will allow researchers to better assess the effectiveness of countermeasures, manufacturers to improve future vehicle design and it will allow to determine the liability for the accident more accurately and objectively determined, therefore reducing time and legal costs and providing road users and society with access to justice.

Powered Two-Wheelers (PTW)
The term "Powered Two-Wheeler" (PTW) covers a wide diversity of vehicles. The products are divided into different segments such as moped, scooter, street, classic, super-sport, touring, custom, supermoto and off-road motorcycles.
PTWs are one of the most affordable forms of personal transport in many parts of the world. In various regions, PTWs are also the most common type of motor vehicle.

In the international regulatory environment, in particular UNECE, PTWs are referred to with the term: 'vehicles of category L'. At first, we focus at the category L3, motorcycles: a two-wheeled vehicle with an engine cylinder capacity in the case of a thermic engine exceeding 50 cm3 or whatever the means of propulsion a maximum design speed exceeding 50 km/h. See the UNECE Consolidated Resolution on the Construction of Vehicles [3] for further information.

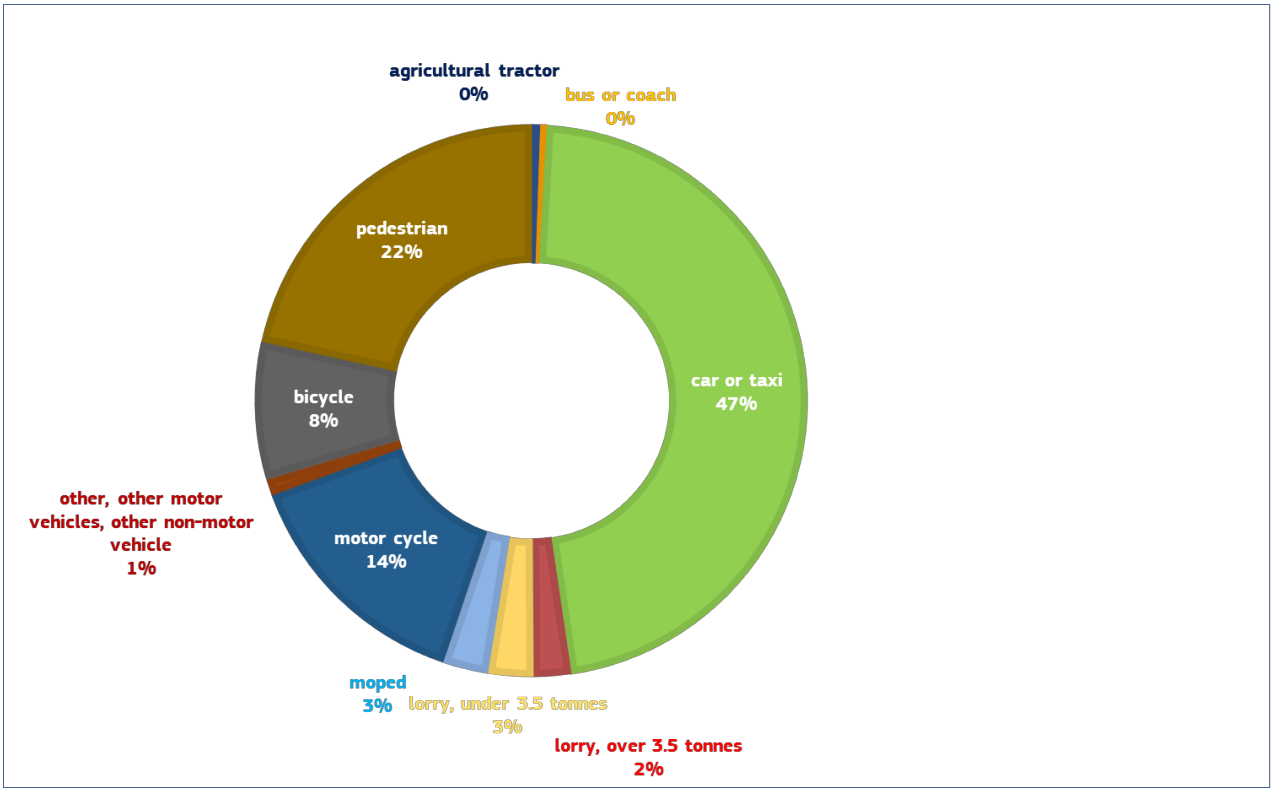
Urge

The urge or necessity for applying EDR in cars has meanwhile led to regulation at the European level. That reducing the number and severity of motorcycle accidents requires serious attention, according to recent figures from SWOV [1] about accident statistics in the Netherlands, to outline the comparison between motorcycles and other modalities.
'In the Netherlands 1,4 million people have a motorcycle licence, but as there are 656,000 registered motorcycles, less than half own a motorcycle. These motorcyclists travel an average 1,200 to 3,400 km per year, which means that most do not really build a routine. Between 2010 and 2014, the risk of a fatal traffic crash (per distance travelled) was 30 times higher for motorcyclists than it was for drivers.' More recent figures: in the Netherlands there were 123,930 registered traffic accidents in 2017, of which 510 (0.4%) with fatal outcome and 11,622 (32%) hospital admissions. Broken down by a few modes of transport:

NB: keep in mind: in 2017 the share of passenger kilometres per car was 75% (146.53 billion km), per motorcycle 0.4% (0.84 billion km):

1st involved	Number of accidents	Casualties		Other serious injuries	
Cars	65,102	280	0.4%	5.950	9%
Motorcycles / scooters	1,946	38	2.0%	568	29%
Bicycles	4,914	47	0,9%		32%
Total	123,930	510	0,4	11.622	9%

Thus, in comparison, motorcyclist are much more vulnerable than drivers.



Distribution of fatalities by mode of transport in the EU, 2016 [2]

On European level the numbers are larger of course. This figure above shows the large share of motorcycle fatalities in comparison to the other modes. In 2016 in the Netherlands were 44 (over 9%) motorcycle casualties, out of a total of 467 for all modalities. In Europe it is 3,633 out of 25,041, thus 14%.

EUDARTS

This topic is initiated by MODARTS. Within EUDARTS the MODARTS division focuses at EDR for PTW's. The EUDARTS Group (European Data Analysis Research Training & Service)[1] is an association with experts and trainers in more than 30 countries and cooperates with 23 European police forces and 500+ private enterprises.
MODARTS aims to facilitate and encourage the development and usage of EDR in PTW's and will offer services in the field of diagnosis and analyses, training & service in respect to EDR for PTW's. This is our contribution to safety of –in various regions- the most common type of motor vehicle.

References

[1] SWOV (Dutch Institute for Road Safety Research), *Road map - Road safety data*, SWOV data sheet, May 2017. SWOV, The Hague.
[2] European Commission, Annual Accident Report. European Commission, Directorate General for Transport, June 2018.
[3] https://ec.europa.eu/growth/sectors/automotive/legislation/motorbikes-trikes-quads_en
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[1] https://www.eudarts-group.com/home