The risk of being killed in a traffic crash is 3.5 times higher for riders or pillion passengers on Powered Two Wheelers (P2W) than for drivers or passengers in motor cars. That is not only due to a higher risk exposure, but also because consequences of a crash are much more severe for P2W riders: 16.5 out of 1,000 P2W crash victims die, in comparison to 4.7 out of 1,000 for motor car crash victims.

In addition to passive crash security features like crumple zones, reinforced passenger compartments, seat belts and airbags that protect motor car occupants, active security systems like ABS and ESP are ubiquitous in motor cars. More advanced driver assistance systems like blind spot monitoring, lane and distance keeping assistants are trickling down from top-of-the-range to economy models, helping prevent crashes in the first place. While passive security is hard to achieve due to the lightweight and minimalistic construction of P2Ws, manufacturers are increasingly providing Advanced Rider Assistance Systems (ARAS) in order to achieve gains in active security.

In the project moTFas the potential of selected ARAS (blind spot monitoring, curve warning, forward collision warning, Cornering ABS, traction and wheelie control, autonomous emergency braking) to avoid/mitigate the consequences of typical P2W crashes was analysed. This was done using methods ranging from the simulation of real crashes – collected in the CEDATU crash database – with and without the specific ARAS engaged, as well as focus group discussions and an online survey (n=400) about the acceptance of such systems, to the analysis of data obtained by logging the activation of the ARAS in racetrack as well as riders’ safety training scenarios.

In the follow-up project MOKABS, the same methods will be applied to an in-depth analysis of Cornering ABS with a stronger focus on its use by real riders in different scenarios, from racetrack riding and riders’ safety training manoeuvres to more naturalistic riding on specific motorcycle routes and individually chosen routes. First results from focus groups about the acceptance of Cornering ABS among motor bikers can already be presented.

In the crash simulation it was found that the efficiency of the forward collision warning and autonomous emergency braking ARAS, to avoid or mitigate typical P2W crashes, is between 38 and 58 percent. In the online survey important findings show participants’ scepticism about technical feasibility of ARAS on motor bikes, which is significantly reduced for riders who had the chance to test the ARAS in practice. Analysis of manoeuvres in riders’ safety training carried out with motor bikes equipped with Cornering ABS showed that – after some getting used to – riders trusted the ARAS enough to employ the brakes as hard as possible, thereby reaping the full benefits of the systems.

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