

Ermittlung des Nutzenpotenzials von Fahrerassistenzsystemen für schwere Lkw auf Basis des Schadengeschehens der Deutschen Versicherer

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Fahrerassistenzsysteme (FAS) halten heutzutage immer mehr Einzug in moderne Kraftfahrzeuge. Um die Auswirkungen von Fahrerassistenzsystemen bei Lkw-Unfällen in Deutschland quantifizieren zu können, hat die Unfallforschung der Versicherer (UDV) eine umfassende Studie durchgeführt. Dieser Studie lagen 443 Kraftfahrzeug-Haftpflicht-Fälle mit Personenschaden und einem Schadenaufwand von mindestens 15.000 Euro zugrunde. Relevante Unfallszenarien wurden identifiziert und die Systemeigenschaften der generischen FAS abgeleitet. Unter Berücksichtigung verschiedener Entwicklungsstufen wurden für diese FAS die theoretischen Nutzenpotenziale mittels systematischer Einzelfallanalyse ermittelt.

An investigation of the potential safety benefits of advanced driver assistance systems for heavy trucks based on an analysis of insurance claims in Germany

Advanced Driver Assistance Systems (ADAS) are crowding the market more and more nowadays. In order to quantify the effects of ADAS on truck accidents in Germany, a comprehensive study was performed, using third-party vehicle claims involving personal injury and at least € 15,000 total claim value. The current study is based on a total of 443 truck accidents. For determining possible effects of ADAS, relevant accident scenarios were identified, and system characteristics for generic ADAS were derived. Different stages of development for some of the systems were defined and evaluated, and the theoretical potential safety benefits of the generic ADAS were determined by systematic case-by-case analysis. As accident opponents for the trucks, all types of road users (cars, trucks, buses, motorcycles, bicycles, and pedestrians) were taken into account. Single truck accidents were also considered. The involved trucks (gross vehicle weight more than 5,000 kg) were divided into three categories: “solo truck”, “truck and drawbar-trailer” and “semi-trailer truck”. The calculated potential safety benefit of the different ADAS – according to the “What would happen if ...” method – is based on the assumption that 100 % of the truck fleet is equipped with these systems and the driver responds ideally when warned. Some results: an autonomous emergency braking system which is able to detect moving and stationary vehicles and obstacles, to warn the driver and to perform a braking manoeuvre autonomously, could prevent up to 12 % of all truck accidents in the data sample compared to just 6 % for a system which is not able to detect stationary vehicles and objects. The safety potential of a “turning-assistant system” and an intelligent rear view system accounts for 5 % avoided accidents related to all truck accidents. Detailed analysis reveals that this amount covers 70 % of all truck accidents against vulnerable road users (VRU). Compared to current rear-view mirror technology, these assisting safety systems are much more effective. The potential safety benefit of a Lane Departure Warning (LDW) System was determined to be up to 2 %. Nevertheless, this small share covers 1/3 of all truck accidents caused by departing the lane. The results of the current study indicate that ADAS do not achieve the same potential safety benefit for

each of the three analysed truck categories. This should be considered in future legislative procedures. Although some of the considered ADAS show a high safety potential concerning VRU, the current European legislation does not consider this fact.

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[Kühn, M.](#); [Hummel, S.](#); [Bende, J.](#): Ermittlung des Nutzenpotenzials von Fahrerassistenzsystemen für schwere Lkw auf Basis des Schadensgeschehens der Deutschen Versicherer. Verkehrsunfall und Fahrzeugtechnik 51 (2013), pp. 128 – 139 (#04)

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Beiträge zum Thema im VuF

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