



IWG AEBS HDV

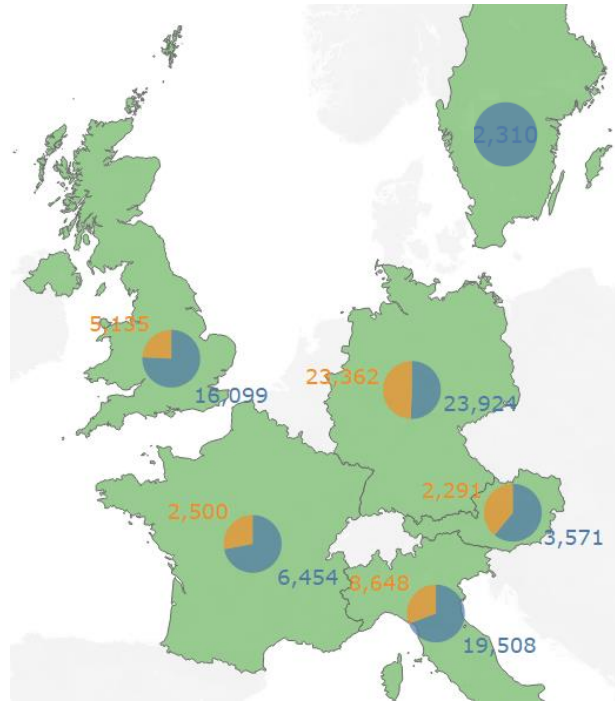
Accident Analysis

Daniel Sander (BASt / Germany)

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2. German Insurers Data
3. Lower Saxony Statistic
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General accident situation for HDV [5]

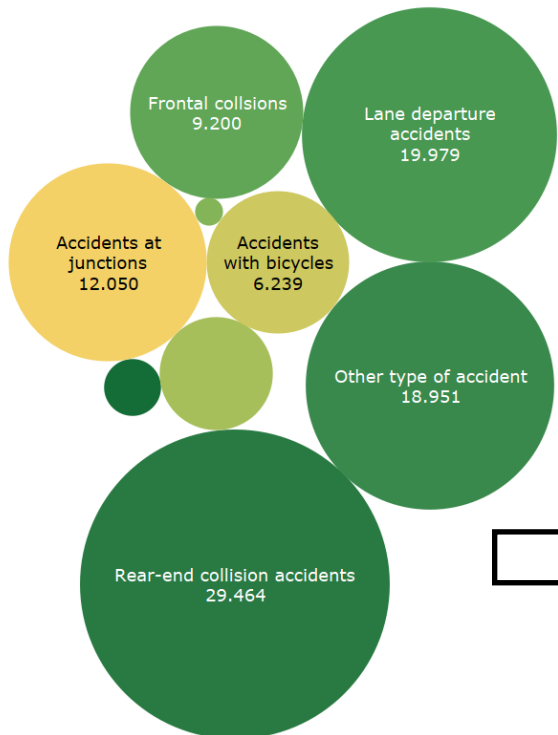


- Nearly 114,000 commercial vehicle drivers involved in accidents with personal injuries (Sum 2016-2018)
- Development of the figures relatively constant for reviewed period

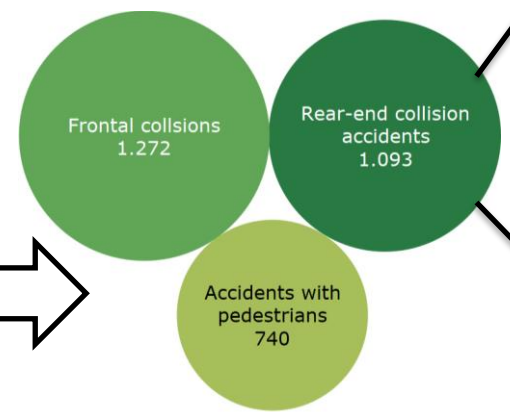
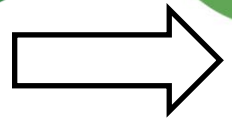
Commercial vehicle > 3.5 t
 Semi-trailer tractor



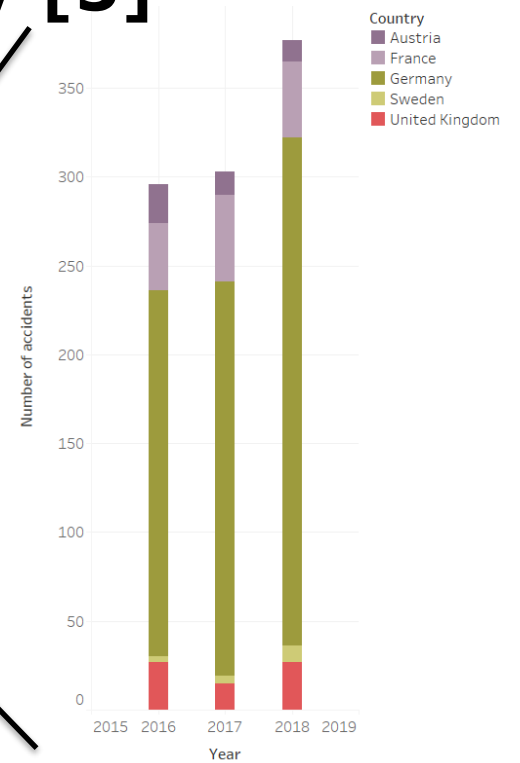
General accident situation for HDV [5]



- Scenario
- Accidents at junctions
 - Accidents with bicycles
 - Accidents with pedestrians
 - Collision with VRU during reversing
 - Frontal collisions
 - Lane departure accidents
 - Other type of accident
 - Rear-end collision accidents
 - Rollover accidents



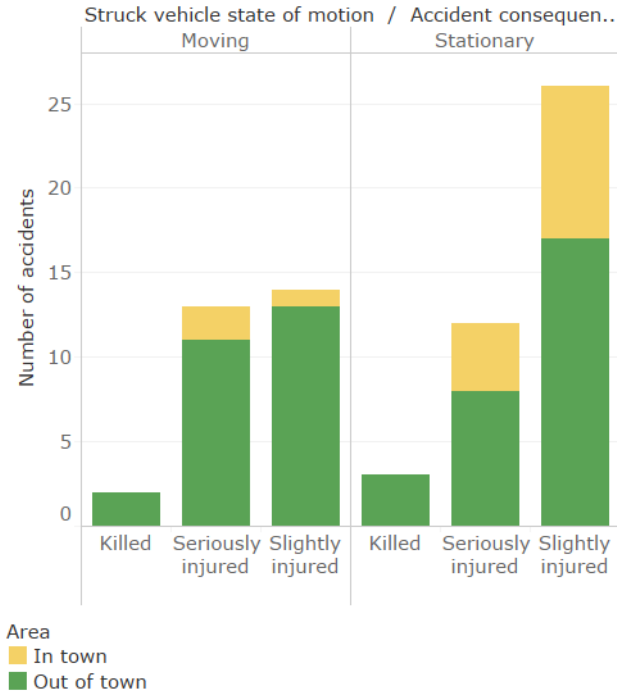
Most frequent accident scenarios with fatalities



Accidents per Scenario

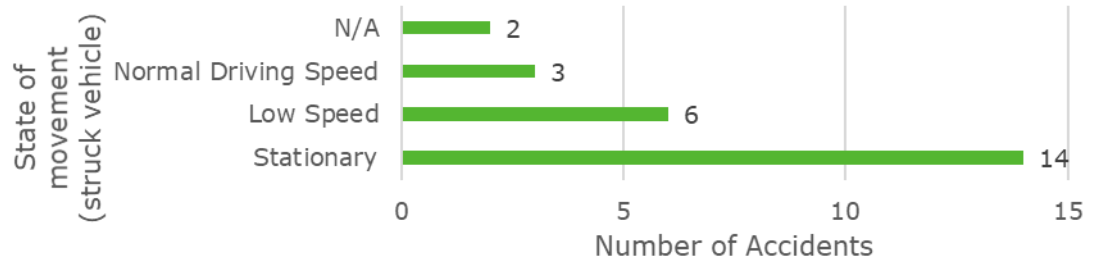
German Insurers Data [4]

UDV investigation of N3-caused Rear-End Collisions



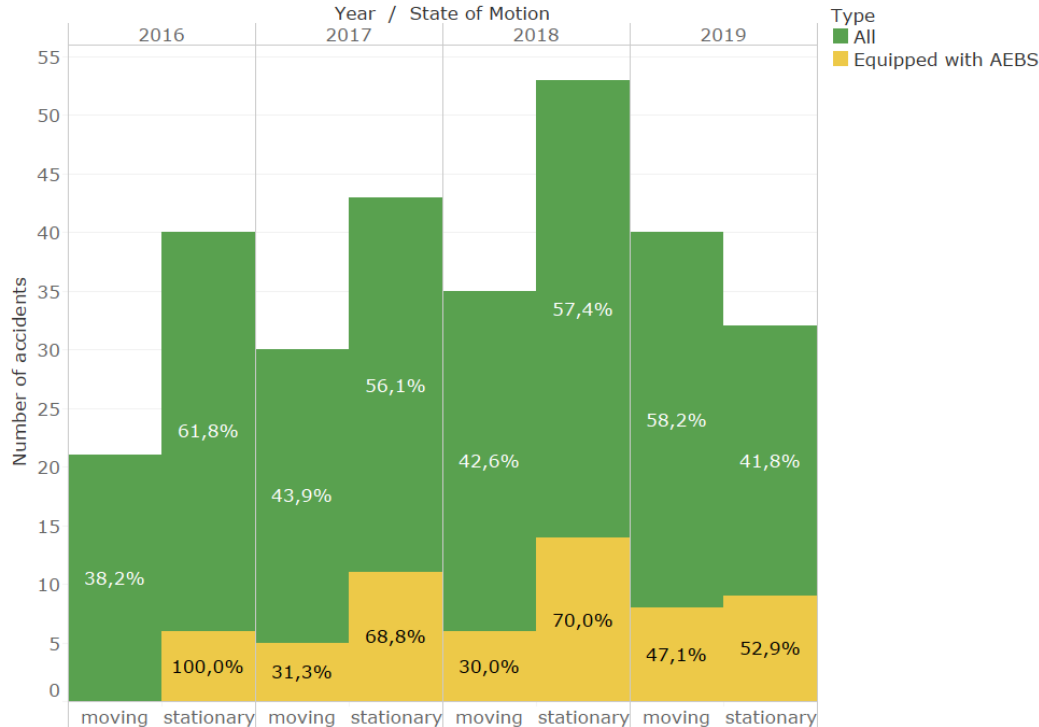
- 70 accidents with the knowledge concerning the state of motion of the struck vehicle
 - 6 out of 29 moving struck vehicles had a velocity < 10 km/h
- Avoidance of 41 (stationary) + 6 (low speed) accidents not addressed by UN R 131

Additional in-depth investigation of N3-caused Rear-End collisions in Brandenburg 2016 shows quite similar results:



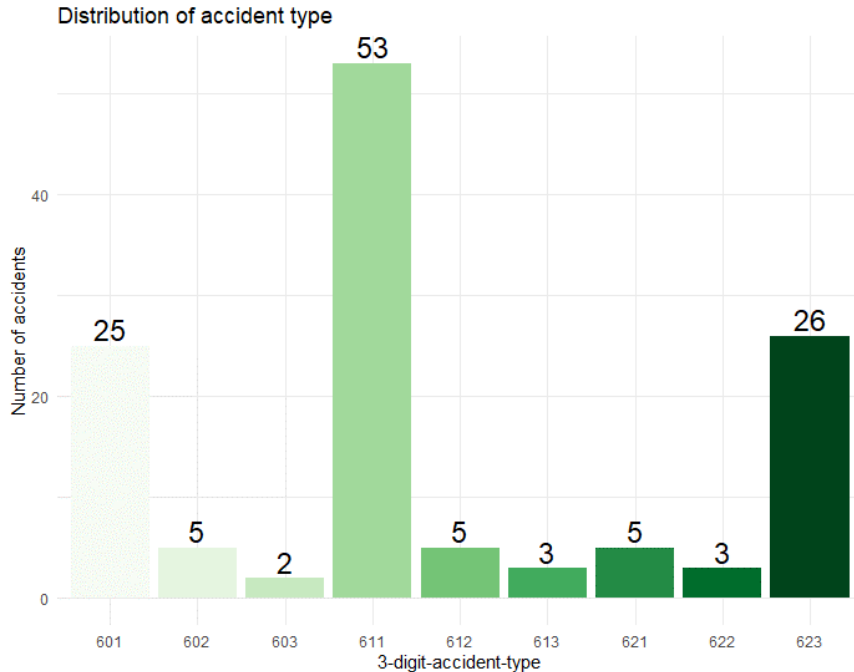
Lower Saxony summary [1-3]

Accidents caused by HDV in Lower Saxony



- Huge portion of stationary struck vehicles (54% in average)
- Accidents with stationary Safety/Service or broken down vehicles are an issue (6 accidents in 2017, 5 in 2019)

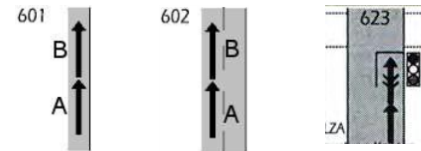
German In-Depth Accident Study (GIDAS)



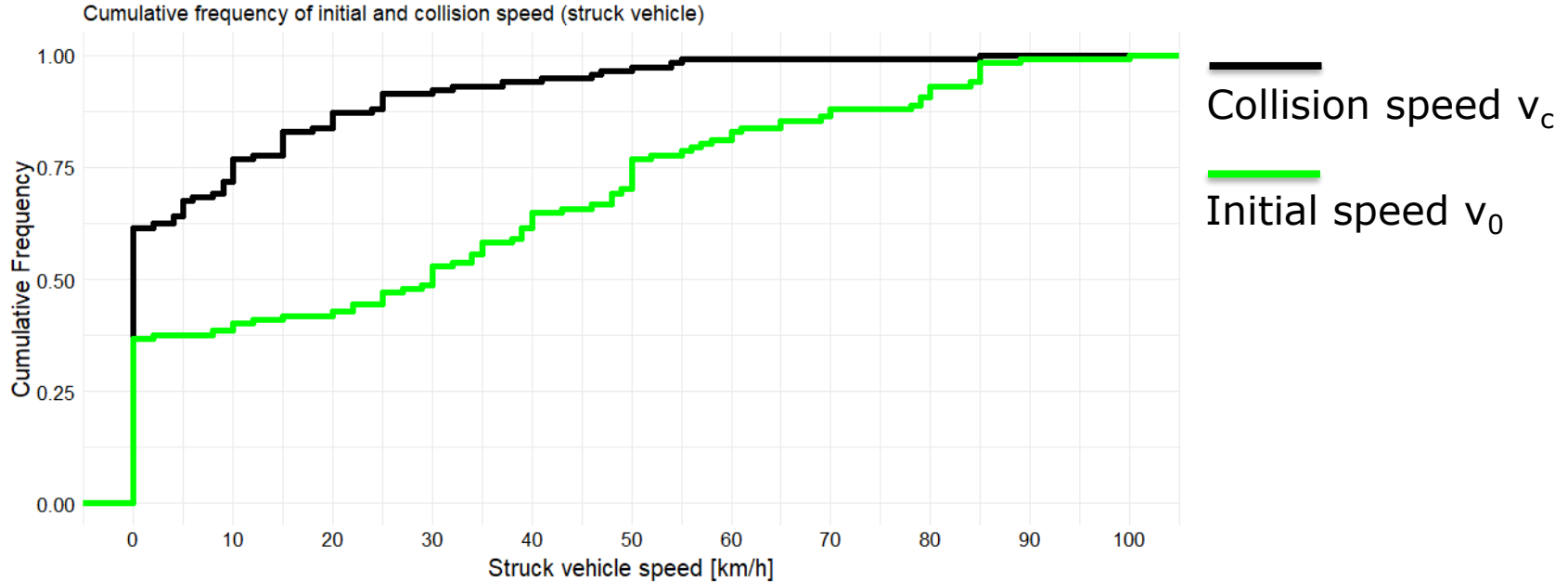
- Most accidents (n=60) in traffic jam situations (611-613)



- Notable amount of accidents due to traffic light situations (623) and following scenarios (601, 602)



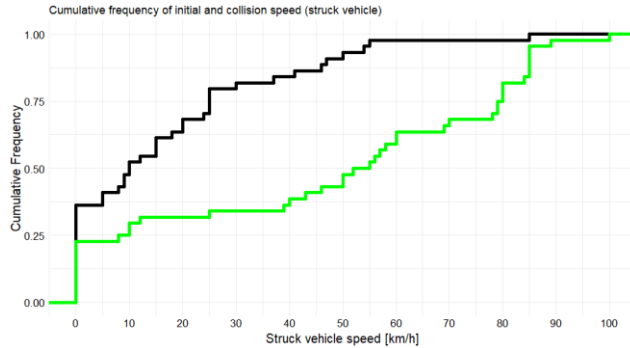
German In-Depth Accident Study (GIDAS)



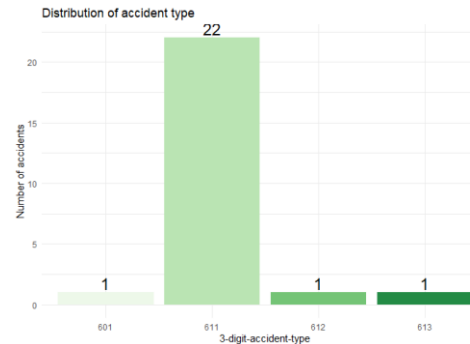
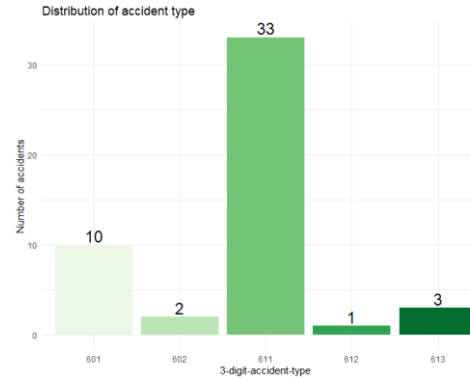
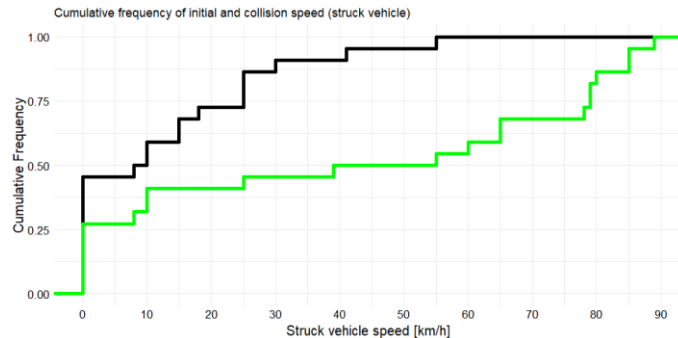


German In-Depth Accident Study (GIDAS)

Motorways



KSI



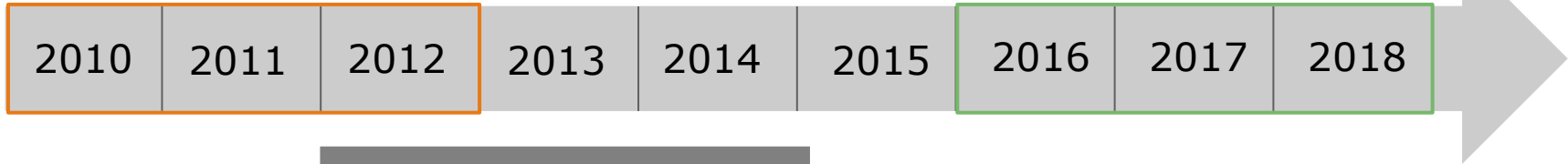
— Collision speed v_c
 — Initial speed v_0

→ 22 out of 25 cases with killed or seriously injured (KSI) car occupants happened on motorways

Impact of AEBS on the development of rear-end collisions on German motorways

Comparison period (CP)

Analysis period (AP)



		Scenario	
		Rear-End	Other
Vehicle age	New	AG	CG I
	Old	CG II	CG III

- Odds ratios used to determine total effect of AEBS
- Total effect has been determined from individual changes within each group from CP to AP
- Total effect 37% (significant); also reduction in injury severity

AG: Analysis group CG: Control group I-III

Conclusions

- Rear-End accidents caused by HDV are still a problem (> 1000 fatalities in Sweden, UK, France, Austria and Germany in 2016-2018)
- A huge portion of struck vehicles remains stationary or is driving with low speed (< 10 km/h)
- Notable amount of accidents with maintenance or broken down vehicles
- Accidents with Killed or seriously injured car occupants most frequent on Motorways

Sources

- [1]** E. Petersen, C. Scholze und R. Böhnke, „Notbremsassistentensysteme im Lkw - Eine Analyse niedersächsischer Autobahnunfälle des Jahres 2017 und Einfluss aktueller Systeme“, Zeitschrift für Verkehrssicherheit, Jg. 2018, Nr. 5, S. 336–344, 2018.
- [2]** E. Petersen, C. Scholze und C. Falke, „Notbremsassistentensysteme im Lkw - eine Analyse niedersächsischer Autobahnunfälle in den Jahren 2015 bis 2019 und der Einfluss aktueller Systeme“, Zeitschrift für Verkehrssicherheit, Jg. 2020, Nr. 66, S. 245–256, 2020.
- [3]** E. Petersen, N. Simon und U. Krupitzer, „Lkw-Unfaelle mit schweren Personenschaeden auf niedersaechsischen Autobahnen und deren Relevanz sowie Vermeidbarkeit durch aktuelle Notbrems-Assistentensysteme“, Zeitschrift für Verkehrssicherheit, Jg. 2016, Nr. 5, S. 273–279, 2016.
- [4]** T. Trabert, I. Shevchenko, G. Müller und A. Malczyk, In-depth Analyse schwerer Unfälle mit schweren Lkw. Berlin: Gesamtverband der Deutschen Versicherungswirtschaft e.V., Unfallforschung der Versicherer, 2018.
- [5]** EU-Accident data for commercial vehicles. Provided by Euro NCAP Truck working group



Thank you for listening!

Sander, Daniel
Section F1 – Active Vehicle Safety and Driver
Assistance Systems
Federal Highway Research Institute (BASt)
Brüderstraße 53
51427 Bergisch Gladbach
Telefon +49 (0)2204 43 5112
sander@bast.de
www.bast.de