

DemoEvent – Accidentology



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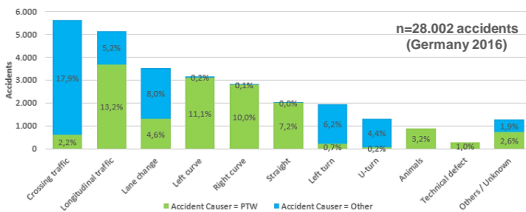
VUFO GmbH, Germany
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Demo Event
14.09.2023

1. Overview

• What have we done in the past in CMC based on real accident data? (1/2)

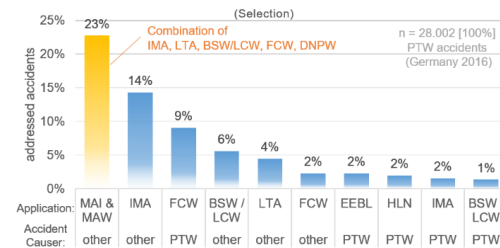
• 1. Accident analysis with representative accident data from Germany 2016



- Which scenario groups address how many accidents?
- What is the proportion of the main accident causer?

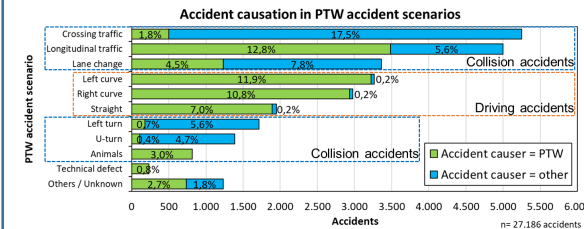
• 2. Assessment of C-ITS application potential

C-ITS Definitions of 2017/2018!



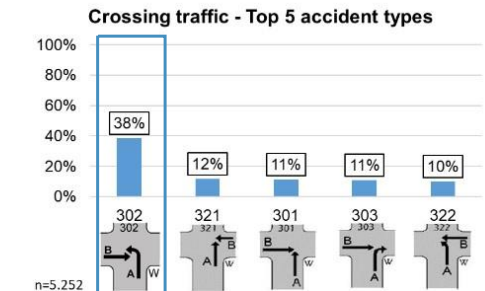
- What is the calculated potential of different C-ITS applications for PTW depending on the accident scenarios?
- Evaluation of the potential of 19 C-ITS

• 3. Updating the representative accident data from Germany to 2019



- Update to the latest accident data from Germany.

• 4. Definition of relevant use cases based on accident type



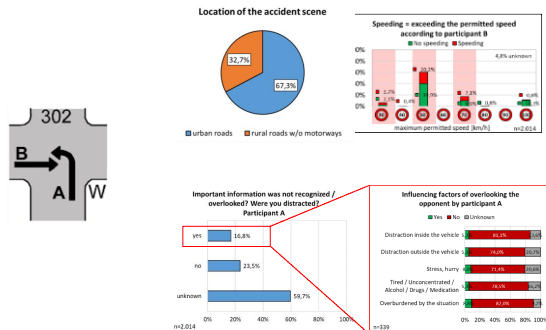
- Which use cases frequently occur in the scenario groups?

1. Overview

• What have we done in the past in CMC based on real accident data? (2/2)

• 5. Research module (RM) 1:

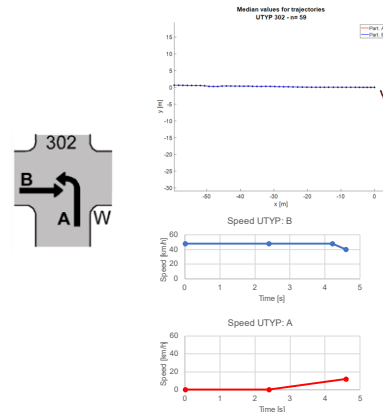
GIDAS-Analysis



- Why did the accident happen?

• 6. Research module (RM) 2:

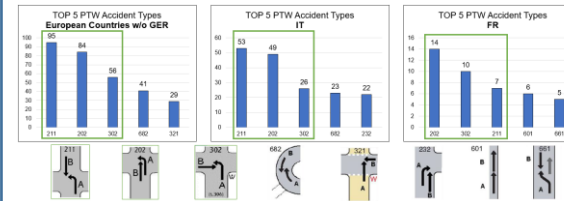
GIDAS-PCM Analysis



- What can a test scenario for this use case look like, based on reconstructed and simulated accident data?

• 7. Accident analysis of

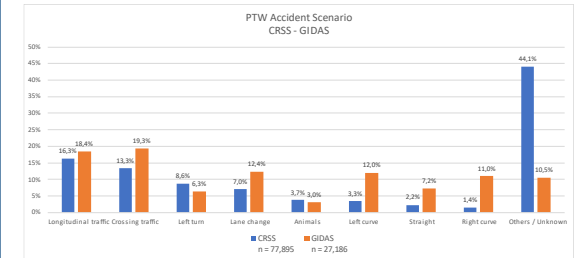
European Countries (IGLAD)



- How does the German accident data compare with Italian and French accident data?

• 8. Accident analysis of

US (CRSS)



- How do German accident data compare with U.S. accident data

2. Detailed view

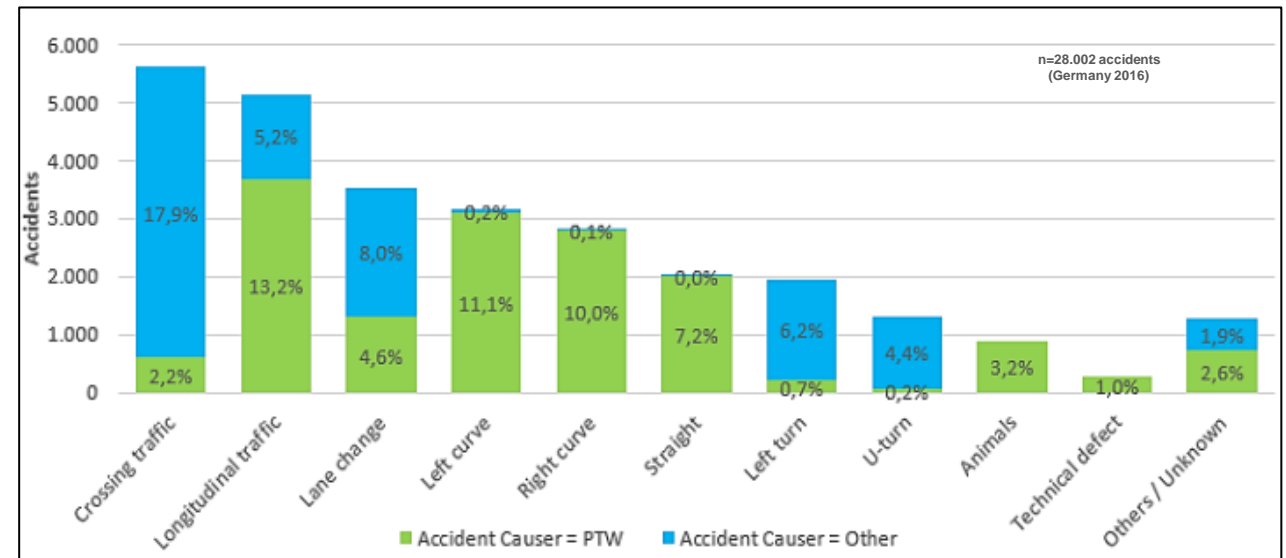
Accident analysis with representative accident data from Germany 2016

Results published

Methodology

Steps	Description
Master data set for PTW accidents	<ul style="list-style-type: none"> ○ GIDAS data ○ Weighted to represent German accident situation on PTW in 2016
Forming of scenario groups	<ul style="list-style-type: none"> ○ Summary of different accident types to accident scenario ○ in total 10 scenarios
Analysis of scenario groups	<ul style="list-style-type: none"> ○ Which scenario groups address how many accidents? ○ What is the proportion of the main causer?

Results



2. Detailed view

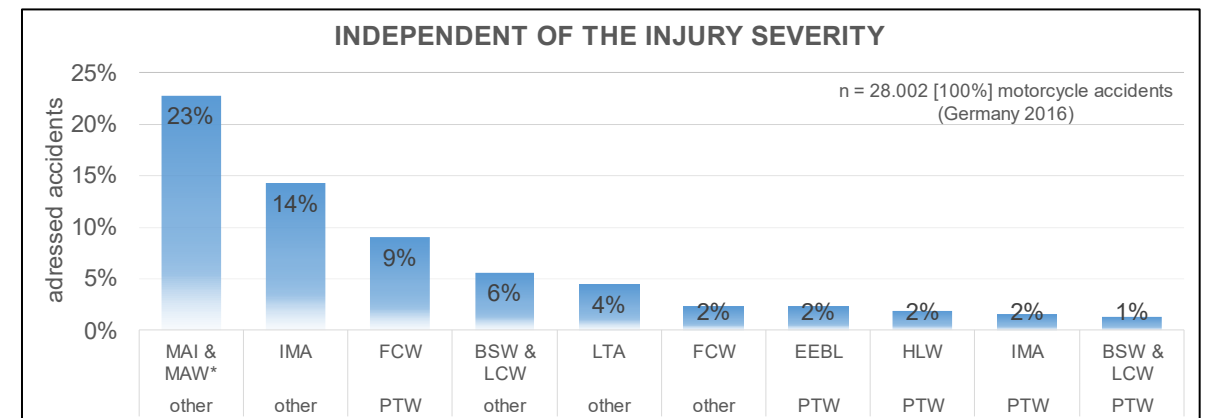
Assessment of C-ITS application potential

Results published

Methodology

Steps	Description
Evaluation of C-ITS applications	<ul style="list-style-type: none"> Conversion of C-ITS specifications to GIDAS filter criteria C-ITS definitions of 2017/2018
GIDAS analysis	<ul style="list-style-type: none"> Analysis regarding specific characteristics of the systems
Potential of C-ITS applications	<ul style="list-style-type: none"> What is the calculated potential of different C-ITS applications for PTW depending on the accident scenario? Evaluation of the potential of 19 C-ITS

Results



*MAI & MAW [Motorcycle Approach Indication & Motorcycle Approach Warning] = Combination of IMA, LTA, BSW/LCW, FCW, DNPW

2. Detailed view

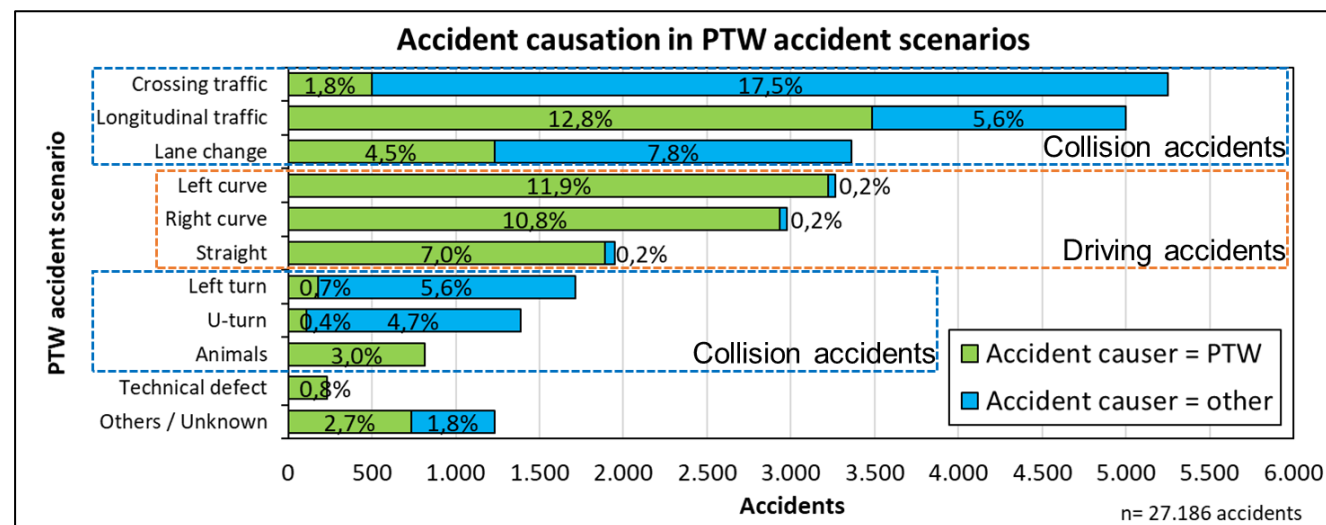
Updating the representative accident data from Germany to 2019

Results published

Methodology

Steps	Description
Updating Master data set for PTW accidents	<ul style="list-style-type: none"> Update of German accident situation on PTW from 2016 to 2019.
Analysis of scenario groups	<ul style="list-style-type: none"> Which scenario groups address how many accidents? What is the proportion of the main causer?

Results



2. Detailed view

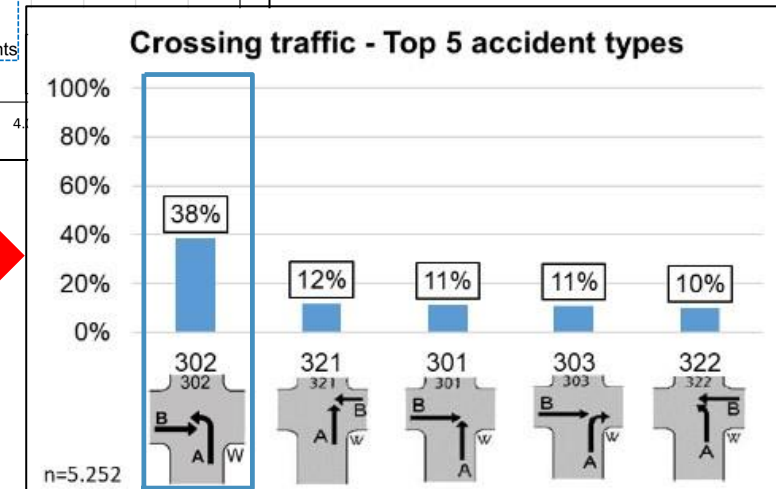
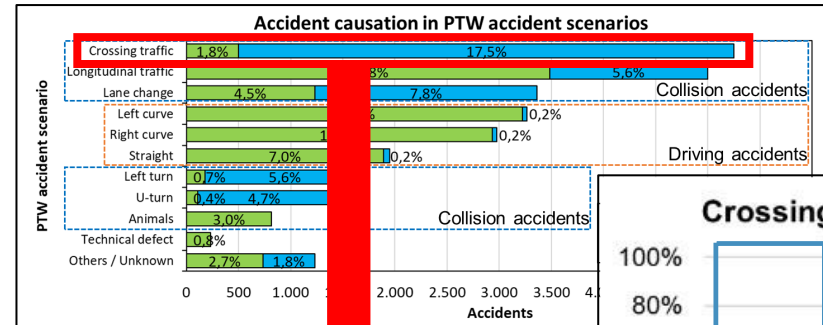
Definition of relevant use cases based on accident type

Results published

Methodology

Steps	Description
Analysis of each PTW accident scenario	<ul style="list-style-type: none"> Which use cases frequently occur in the scenario group?

Results



2. Detailed view

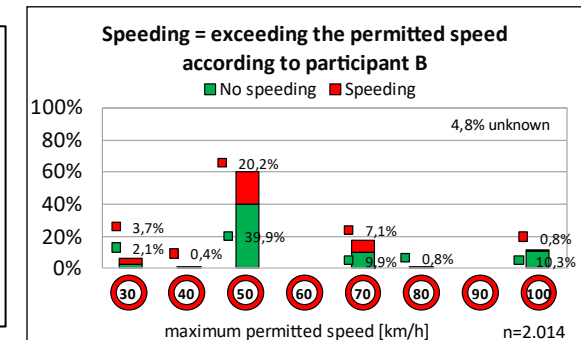
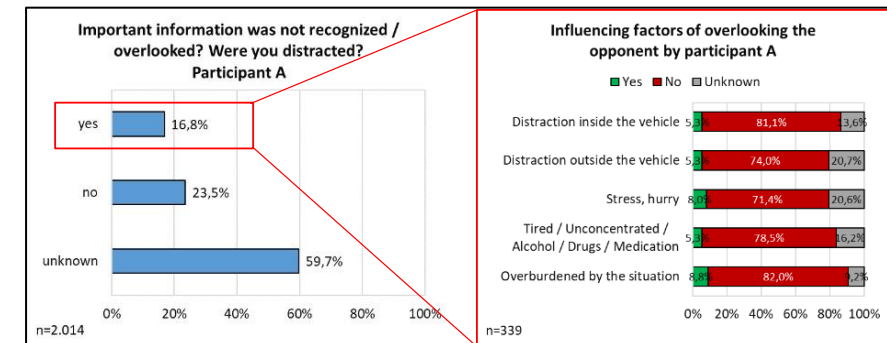
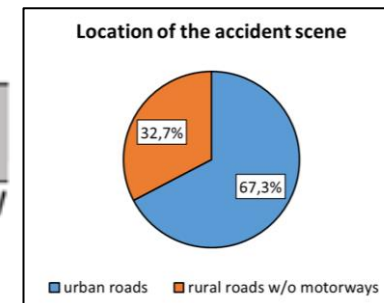
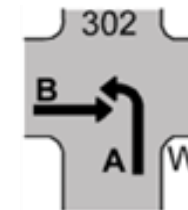
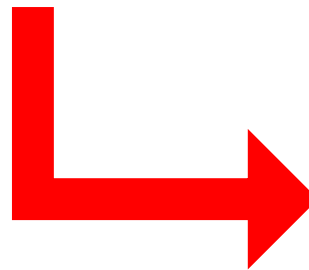
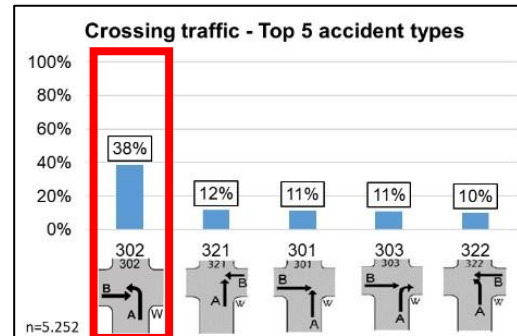
Research module (RM1): GIDAS-Analysis

Results published

Methodology

Steps	Description
Analysis of specific accident types	<ul style="list-style-type: none"> Why did the accident happen?
Analysis parameters	<ul style="list-style-type: none"> Location Kind of road users according participation Speed limits Initial and collision speed Atmospheric conditions Contributing factors ...

Results



2. Detailed view

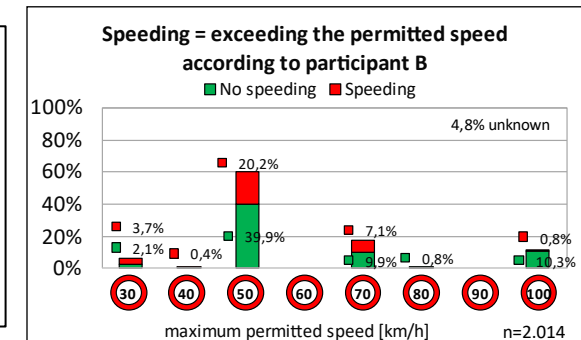
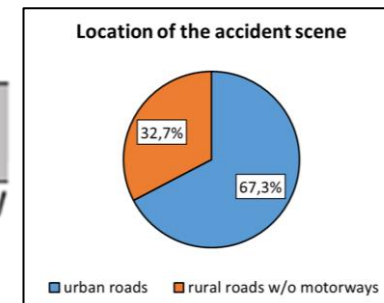
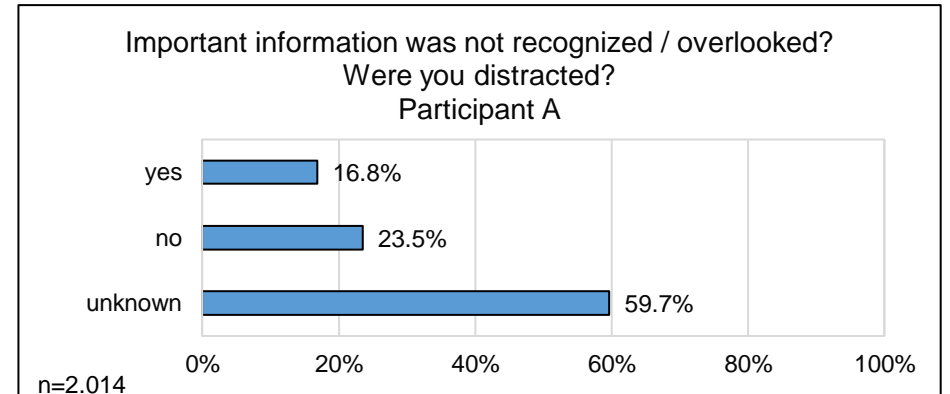
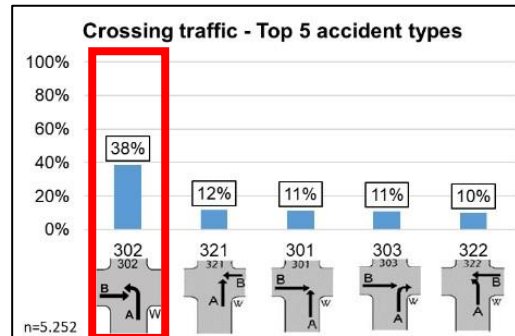
Research module (RM1): GIDAS-Analysis

Results published

Methodology

Steps	Description
Analysis of specific accident types	<ul style="list-style-type: none"> Why did the accident happen?
Analysis parameters	<ul style="list-style-type: none"> Location Contributing factors Speeds + max. 25 further parameter

Results



2. Detailed view

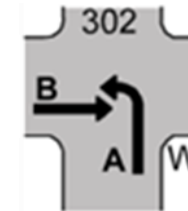
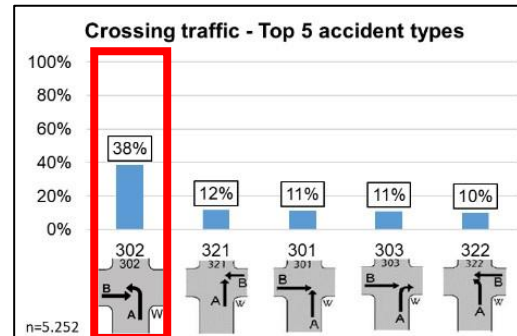
Research module (RM1): GIDAS-Analysis

Results published

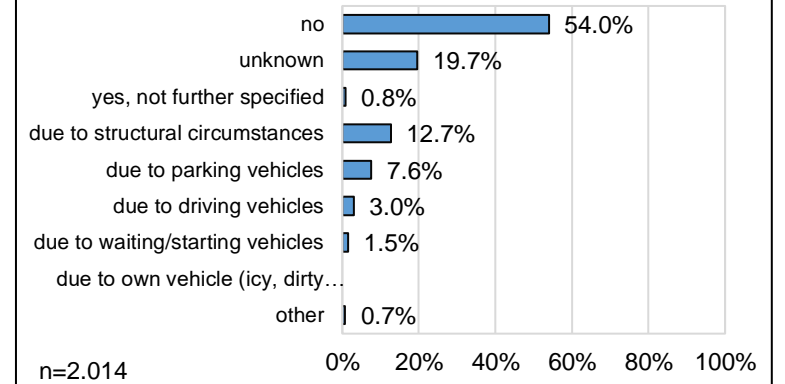
Methodology

Steps	Description
Analysis of specific accident types	<ul style="list-style-type: none"> Why did the accident happen?
Analysis parameters	<ul style="list-style-type: none"> Location Contributing factors Speeds + max. 25 further parameter

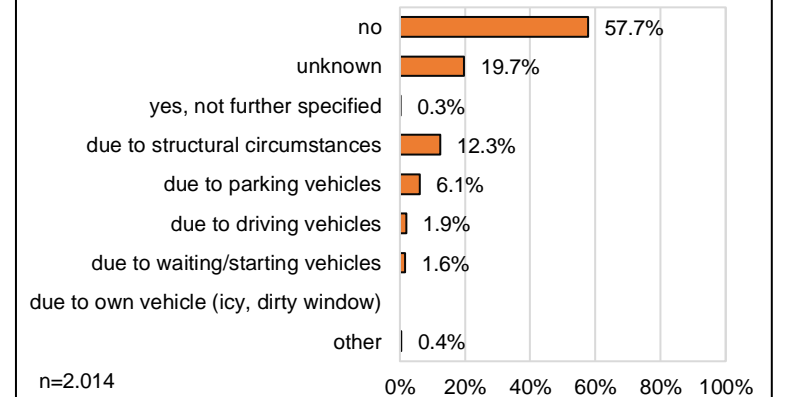
Results



Type of view obstruction according to participant A



Type of view obstruction according to participant B



2. Detailed view

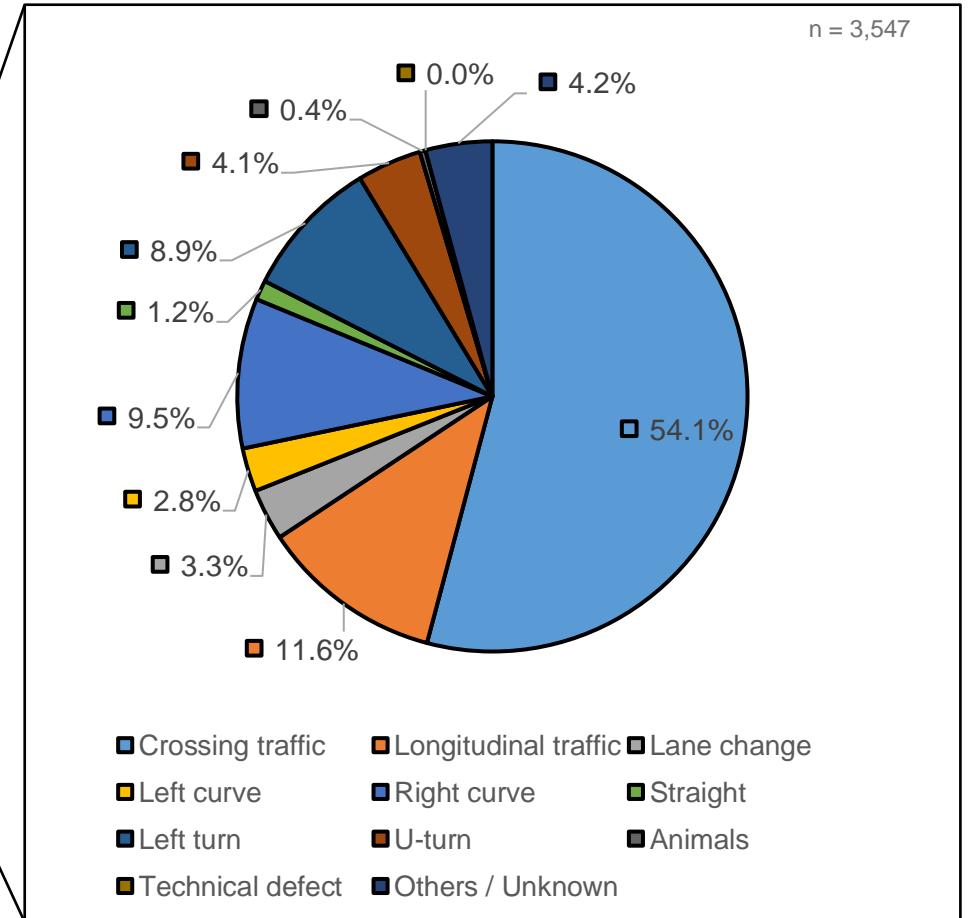
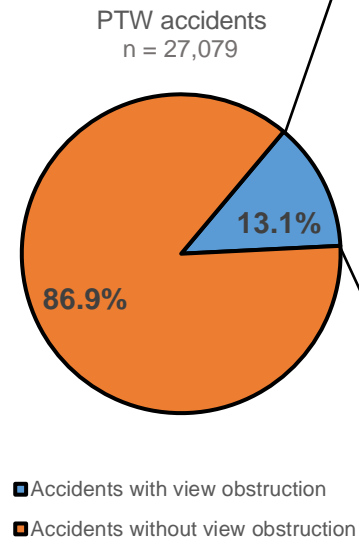
Research module (RM1): GIDAS-Analysis

Results published

Methodology

Steps	Description
Analysis of specific accident types	<ul style="list-style-type: none"> Why did the accident happen?
Analysis parameters	<ul style="list-style-type: none"> Location Contributing factors Speeds + max. 25 further parameter

Results



2. Detailed view

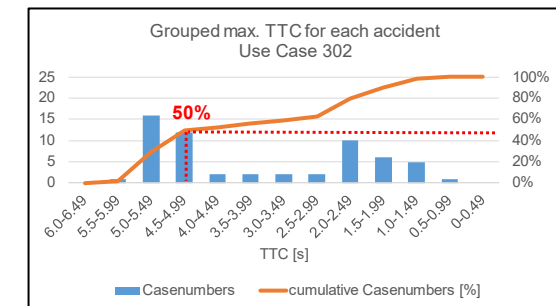
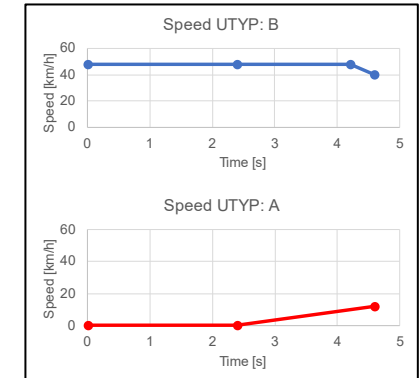
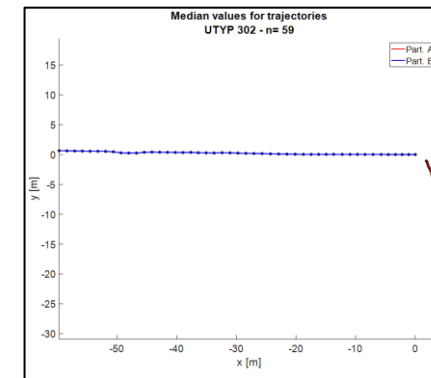
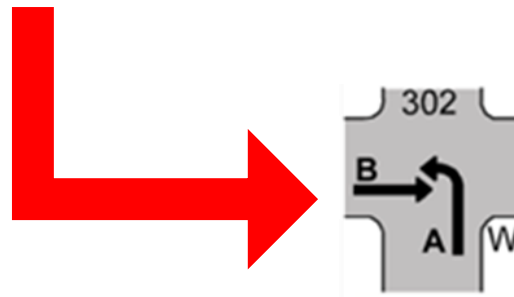
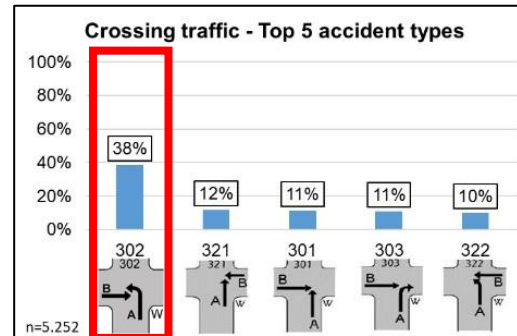
Research module (RM2): GIDAS-PCM-Analysis

Results published

Methodology

Steps	Description
Analysis of specific accident types	<ul style="list-style-type: none"> What can a test scenario look like, based on reconstructed and simulated accident data?
Analysis parameters	<ul style="list-style-type: none"> Trajectories Speeds Accelerations TTC

Results



2. Detailed view

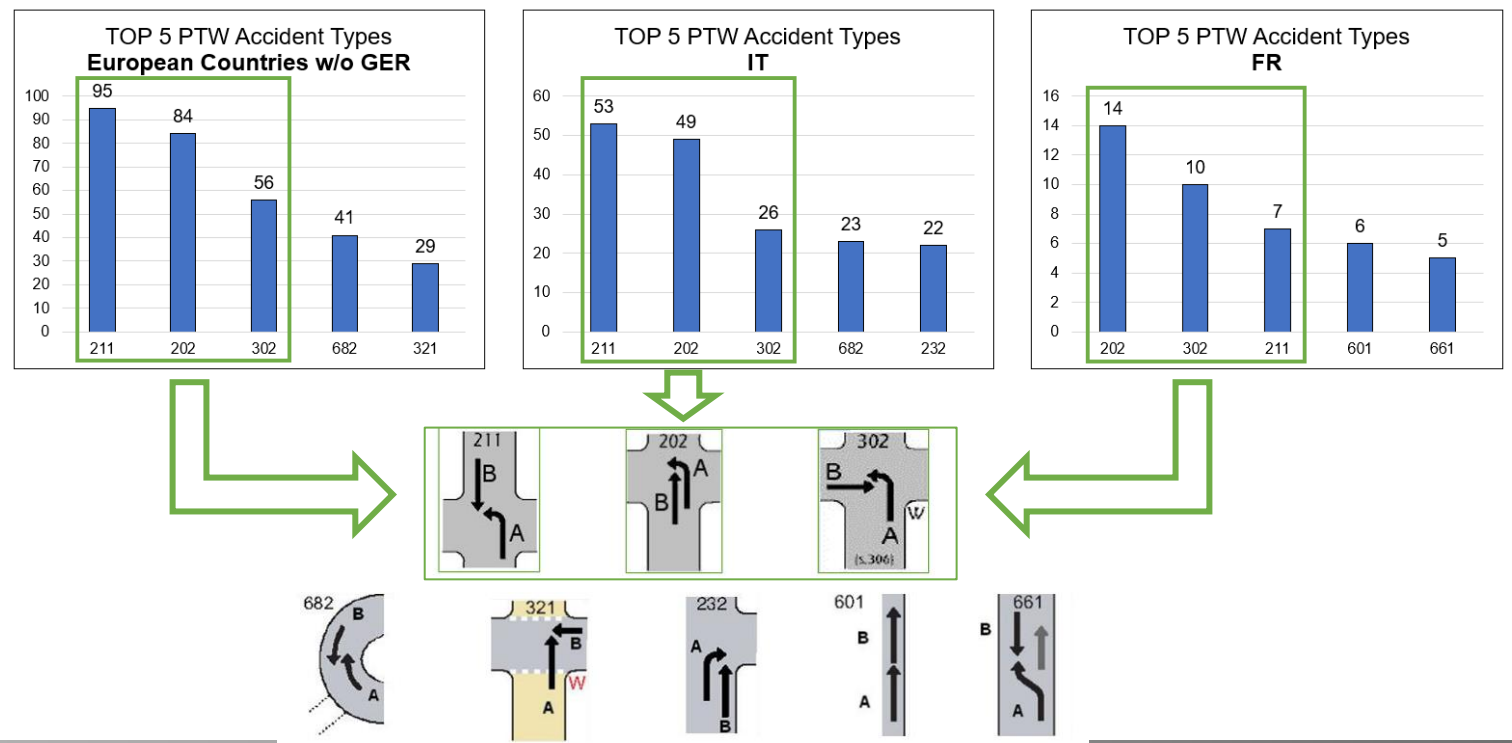
Accident analysis of European Countries (IGLAD)

Results published

Methodology

Steps	Description
Analysis of IGLAD data according to selected accident types	<ul style="list-style-type: none"> ○ Evaluation of most common accident situations ○ How does the German accident data compare with accident data from other European Countries?

Results



2. Detailed view

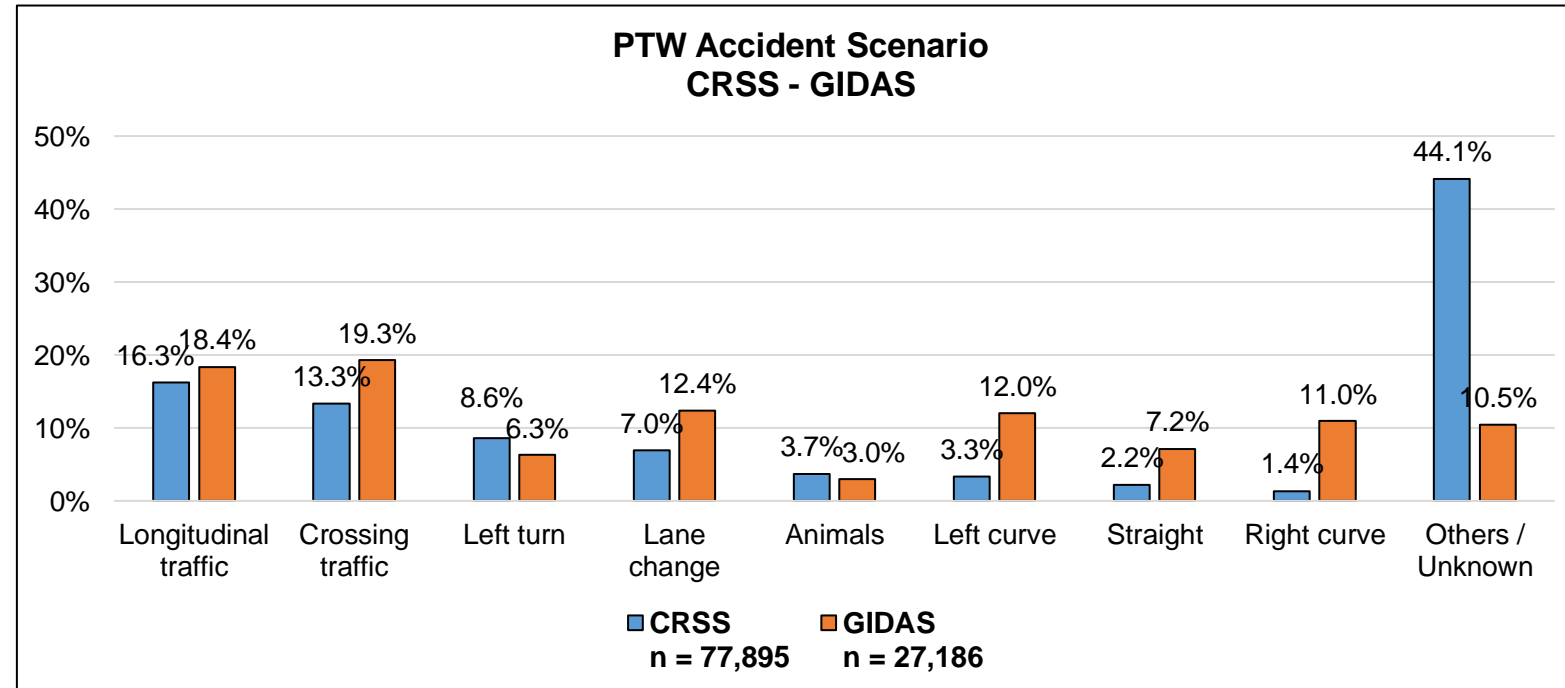
Accident analysis U.S. (CRSS)

Results published

Methodology

Steps	Description
Analysis of CRSS data according to selected accident scenario	<ul style="list-style-type: none"> ○ Evaluation of most common accident situations ○ How does the German accident data compare with U.S. accident data?

Results



3. Further steps

Extended analysis of U.S. data and analysis of Japan data

Results not published yet

Methodology (U.S. data – extended analysis)

Steps	Description
Analysis of CRSS data according to selected accident scenario	<ul style="list-style-type: none">○ How does the German accident data compare with U.S. accident data?
Analysis parameters	<ul style="list-style-type: none">○ Location○ Kind of road users according participation○ Speed limits○ Atmospheric conditions○ Contributing factors○ ...

Methodology (Japan data – possible next step)

Steps	Description
Analysis of ITARDA data	<ul style="list-style-type: none">○ How does the German accident data compare with Japan accident data?



Thank you for your attention



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