

# Re-use of FOT Data to Assess the Frequency and Impact of Distracted Driving

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Vehicles

Driver

Surrounding

**NDS = NDS?!**

Culture

Data base  
(Objective data,  
video,...)

**Analysis  
methods**

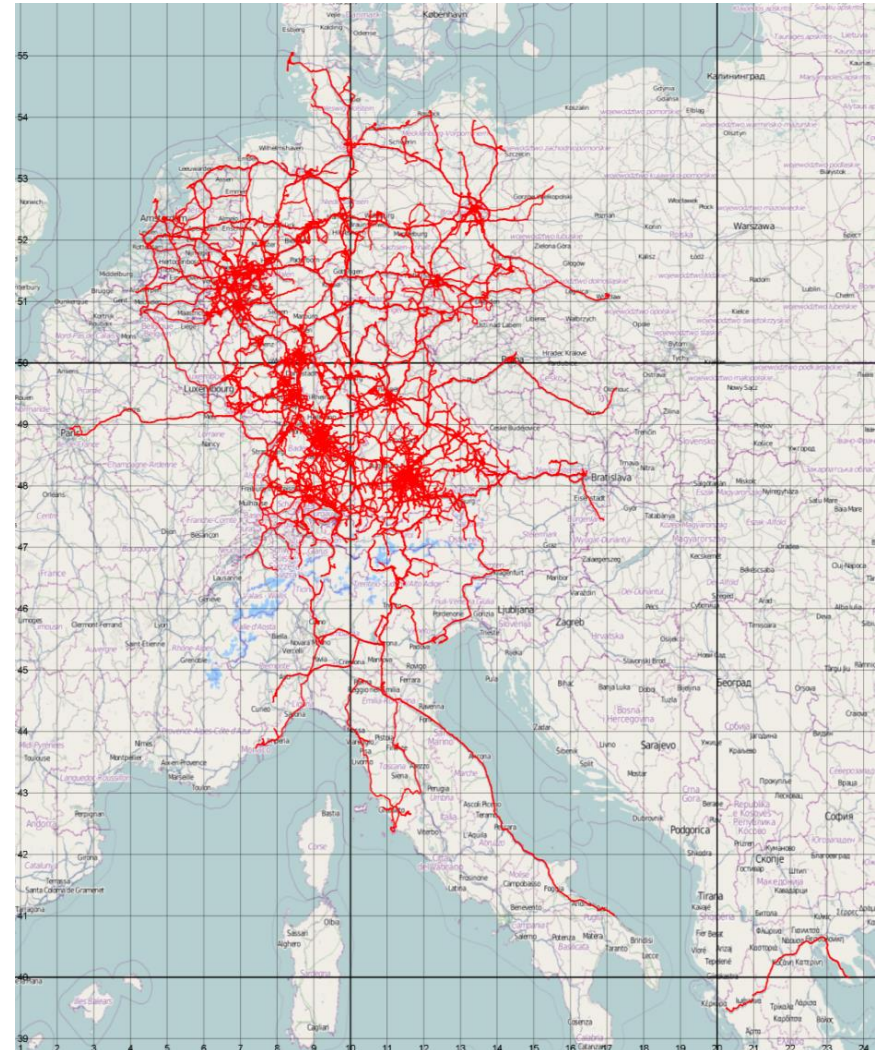
...

- **EU-project „euroFOT“ to evaluate driver assistance systems**
  - **Data from 115 drivers provided with a well-equipped car for three months**
  - **Three variants of navigation (without navigation system/build in/mobile)**
  - **Statement of the drivers if a trip is familiar or not at the beginning of a trip**
- **No other restrictions => Field operational test (FOT) => Naturalistic driving study (NDS) for analysis of distracted driving**

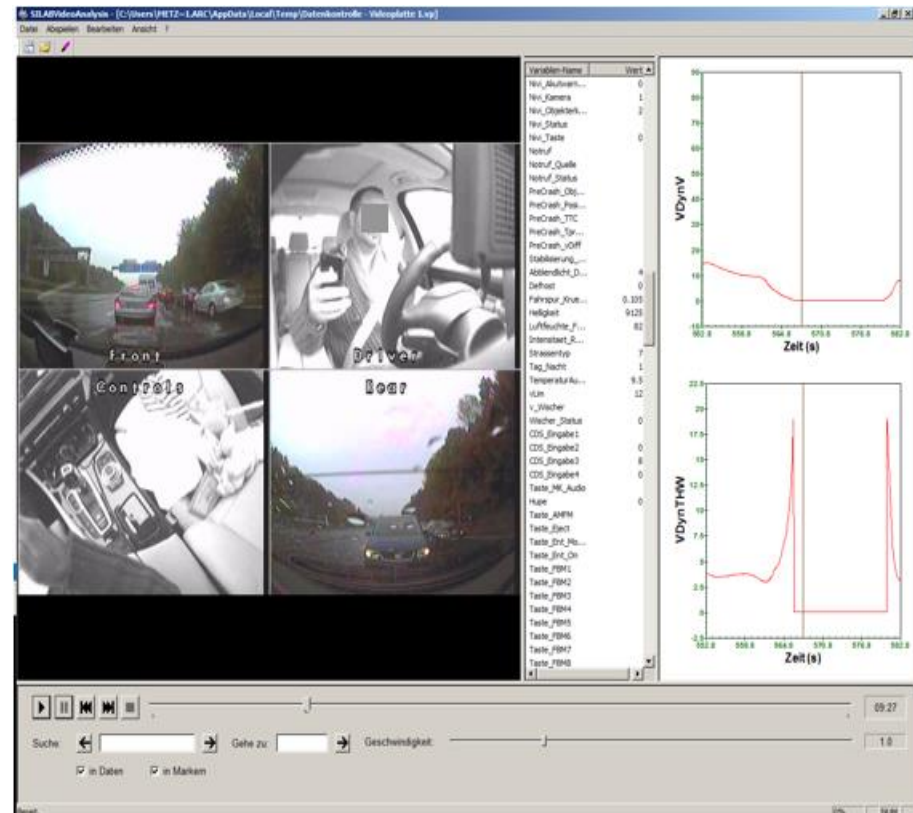


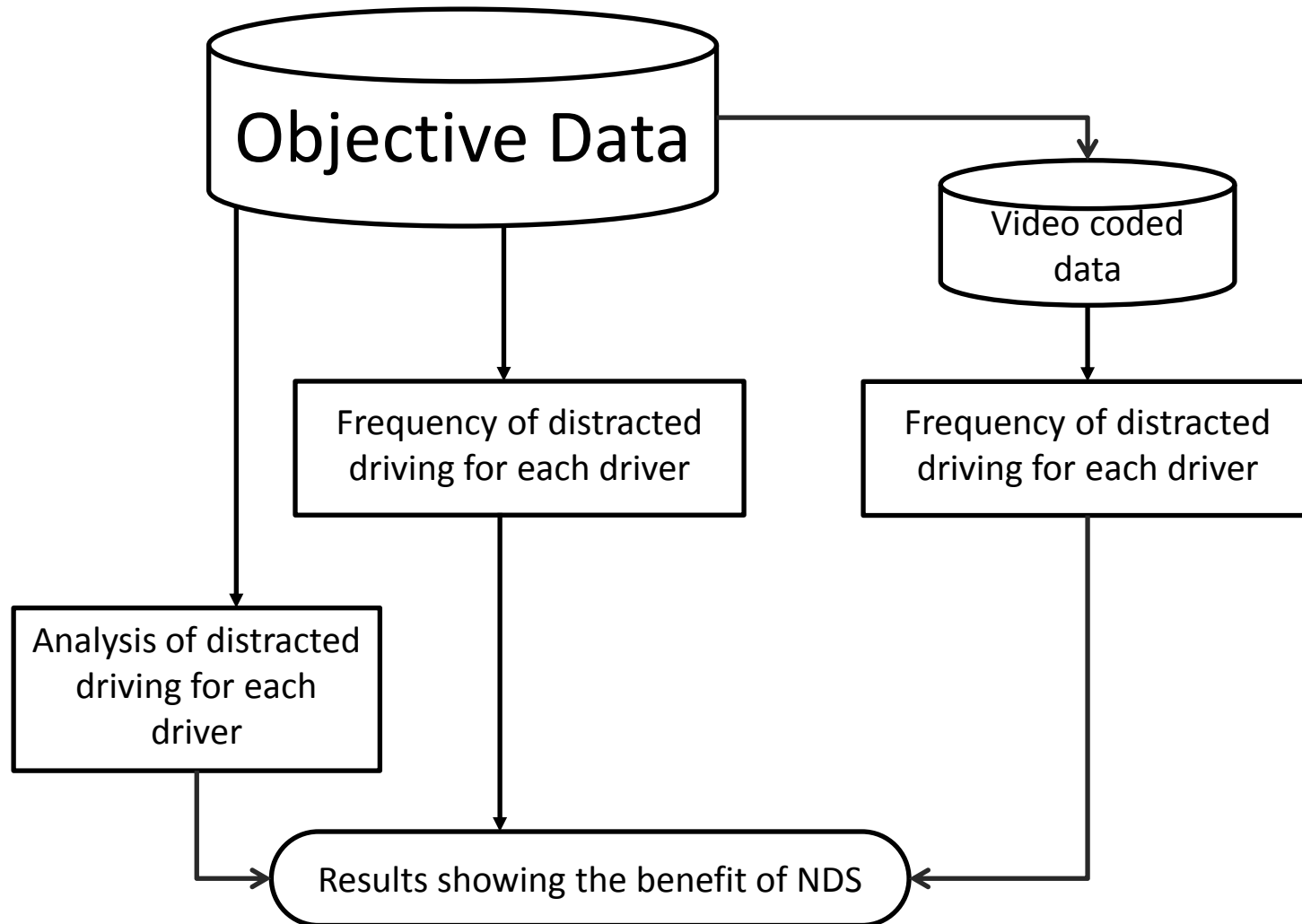
## Results after preprocessing steps

	Overall
Number of Participants	115
Number of Participants with complete data set	104
Number of Trips	39 703
Observed Kilometers	1 013 262
Observed Hours	15 129

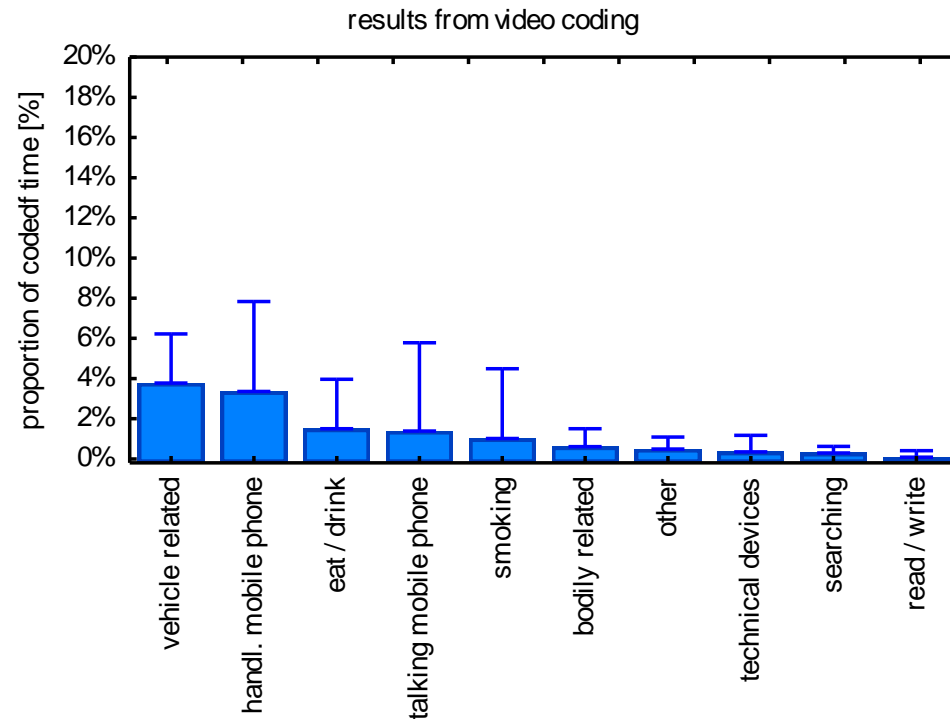
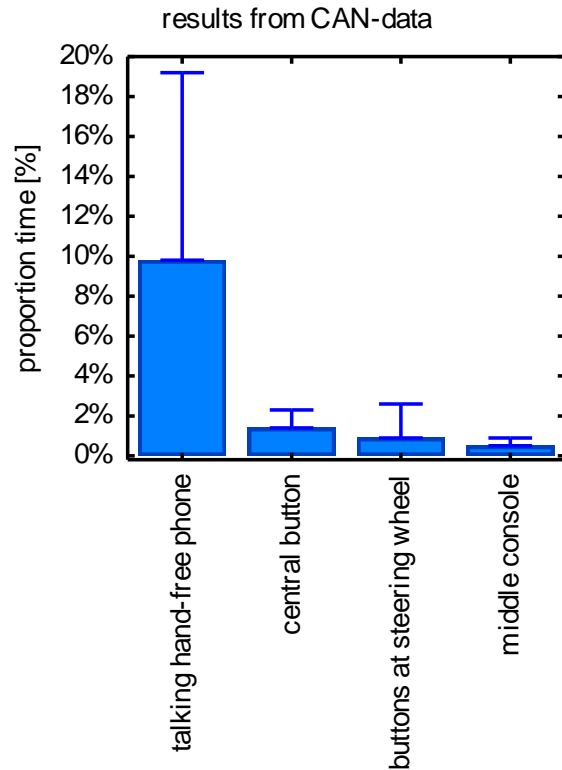


- A few hundred variables with objective data (speed, THW, use of systems, driver-vehicle-interaction,...)
- Video data from nearly all trips (4 cameras)
- Coding of 348 trips with 20000 km and 256 hours overall for analyzing distracted driving.





# Frequency of distracted driving

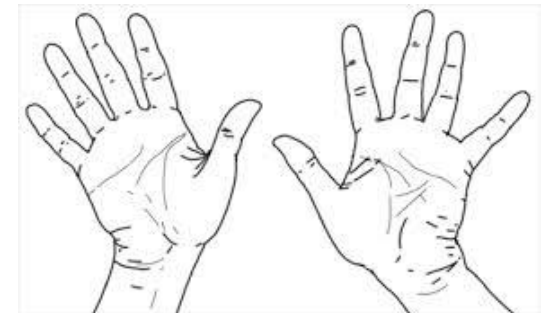


- **Objective data: Talking to a hands-free telephone is the most frequent task.**
- **Video-coded data: Vehicle and mobile-interaction are the most frequent tasks.**

## Where ?



## How ?

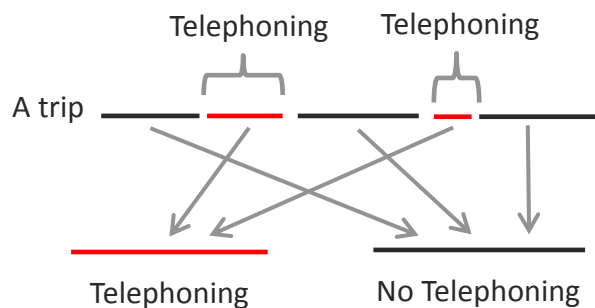


- **Distracting activities are mostly located in the area of the middle console and directly in front of the driver.**
- **Drivers mostly either use no hand or the right hand for the secondary task.**

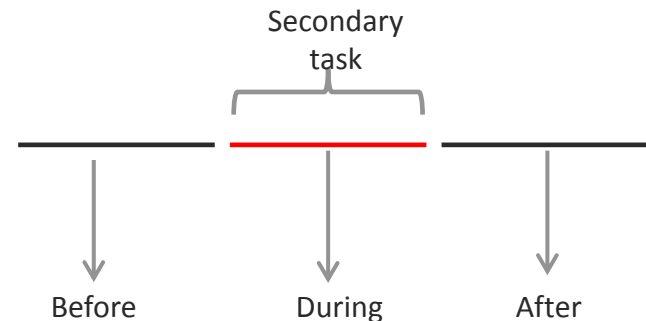


- **Choosing an appropriate analysis method to find reliable effects of distracted driving.**  
**=> Ensure comparability**
  - **Different type of secondary tasks (navigation vs. radio)**
  - **Secondary tasks have different length (telephone vs. pressing a button).**

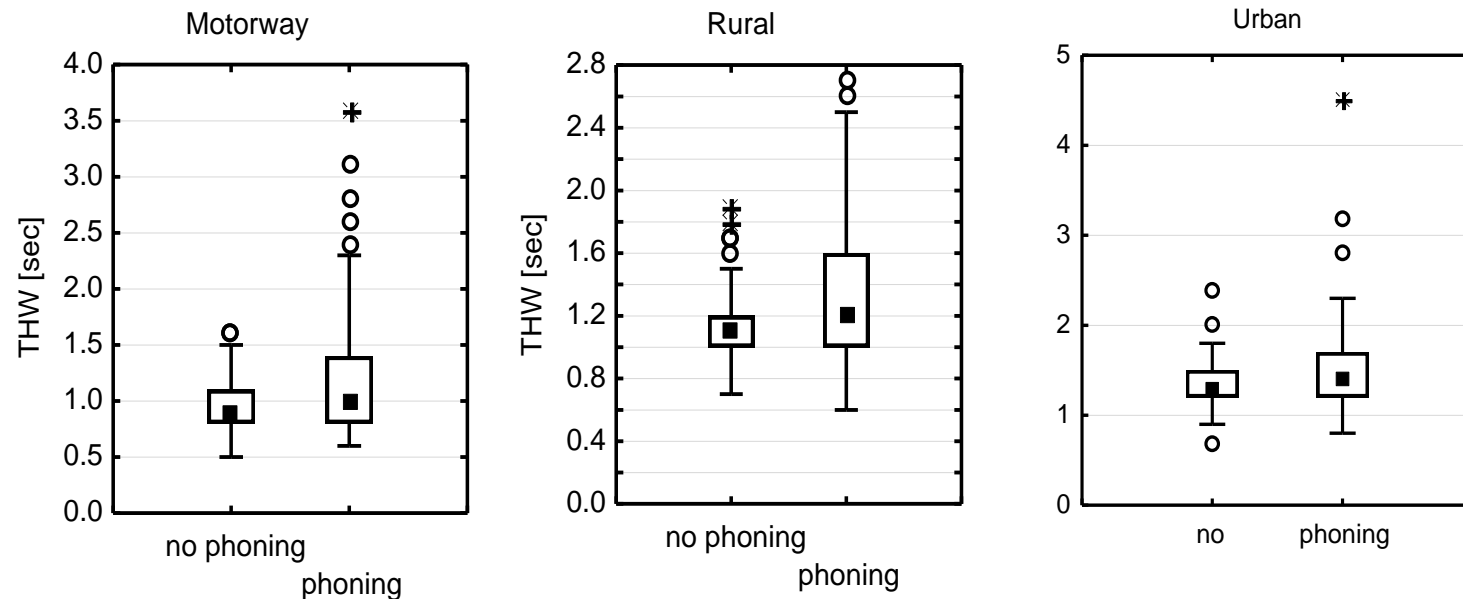
## Sequence-based-approach



## Time-based approach

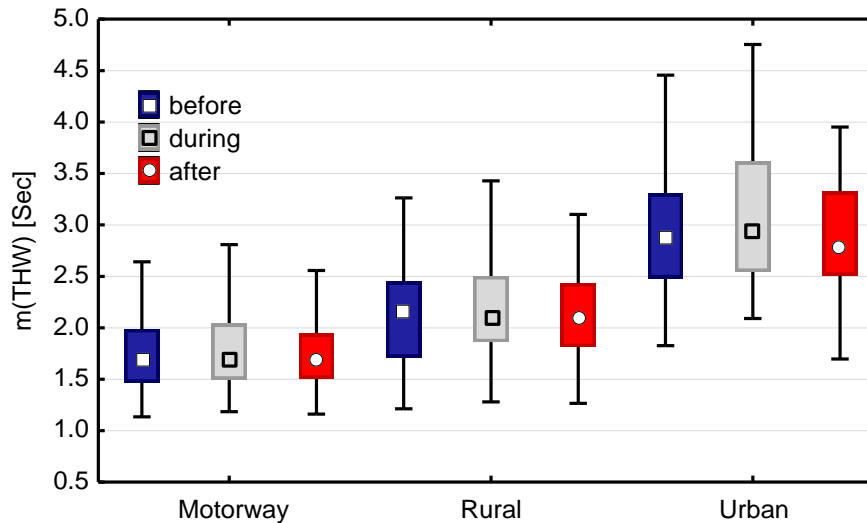


## Sequence-based approach for outgoing calls (N=92 drivers)



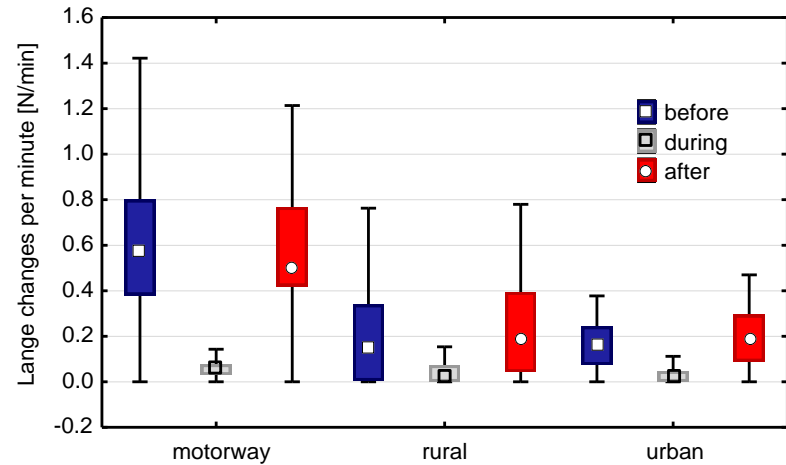
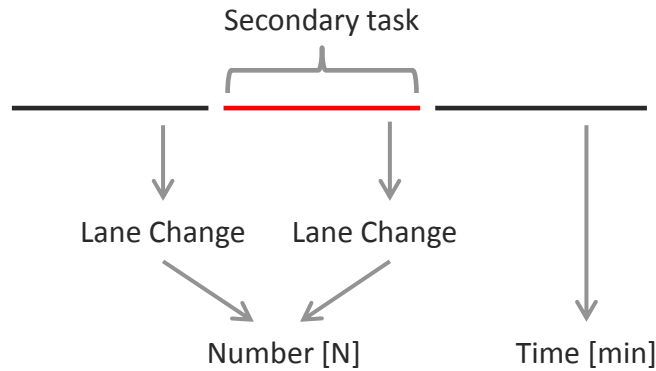
- A significant increase of the distance for all road classes can be found.
- The results for incoming calls are similar.

## Time-based-approach for handling turn-and-press-controller

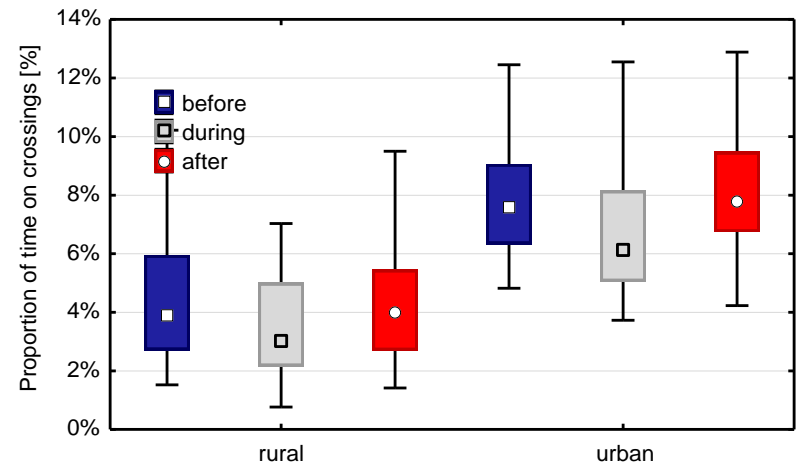
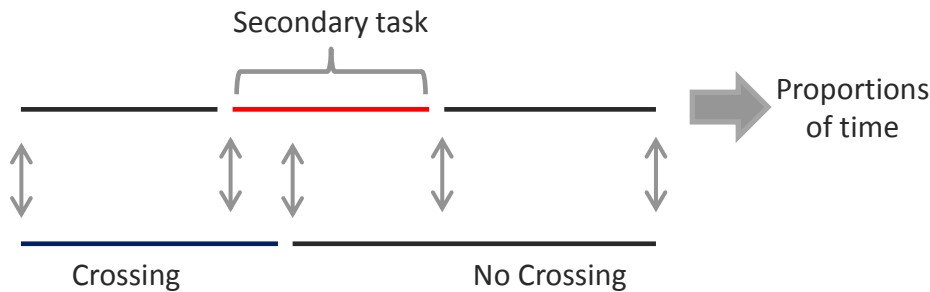


- **Significant increasing of THW during handling.**
- **For speed similar results can be found in rural and urban areas.**

# Impact of distracted driving – turn-and-press-controller



- **Significant less lane changes during handling.**



- **During handling significant less time on crossings.**

- **Objective data (> 100 drivers, ~1 000 000 kilometers) and video-coded data (>100 drivers, ~ 20000 kilometers) were analyzed.**
- **Phoning and vehicle interaction are the most frequent tasks.**
- **Two approaches were used for analyzing impact of distracted driving**
  - **Adaptation of driving parameters during secondary tasks as well as hints for a situation-aware behavior can be found.**
- **The benefit of NDS depends on variety of influences and the choice and development of appropriate analysis methods.**

# Thank you!

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