



# Evaluation of the AIDE Demonstrators - Introduction

VTI

# Objectives



TOWARDS FUTURE AUTOMOTIVE HMI

AIDE final workshop and exhibition April 15-16, 2008, Gothenburg

- **Primary Objective** - evaluate the AIDE demonstrator
  - Evaluation of the AIDE implementation in terms of **traffic safety** and **driver acceptance**, specifically investigate the following
    - If **traffic safety** with AIDE system deviates from base line driving
    - If driving with AIDE is **safer** compared to non-AIDE condition
    - If driving with AIDE is **better accepted** by the drivers compared to non-AIDE condition
    - If the AIDE system is perceived as **more useful** by the drivers compared to non-AIDE condition
- **Secondary Objective** - give feedback to the AIDE/WP2.1 Evaluation methodology (Cookbook)



Heavy truck demonstrator



Luxury car demonstrator



City car demonstrator



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# Experimental design



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## ■ The AIDE CookBook for the setup of evaluation

### ■ Method

- 3 experimental conditions (balanced order):
  - **BASELINE** (BL): normal driving without any system for reference
  - **AIDE** (A): integrated & adaptive IVIS and (ADAS)
  - **Non-AIDE** (NA): not integrated & not adaptive IVIS and (ADAS)
- Within subject design – all drivers drove all conditions
- Common criteria for selection of subjects
- Recommended number of subjects – 18
- Actual number of subjects
  - Truck – 21 professional drivers
  - Luxury Car - 18 drivers
  - City Car – 18 drivers



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# Experimental design – objective data



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## ■ Mandatory metrics (CookBook etc.)

- |   |            |
|---|------------|
| ■ Steering Wheel Reversal Rate (3 degrees, LP 0.6 Hz) | All        |
| ■ Speed (Mean, Max, Sd)                               | All        |
| ■ Modified Sd Lateral Position (HP 0.1 Hz of Lat pos) | Truck only |
| ■ Line Crossings                                      | Truck only |
| ■ Time Headway  | No one     |

## ■ Optional metrics (CookBook etc.)

- |  |            |
|--|------------|
| ■ Brake Jerks (Deceleration > 10m/s <sup>3</sup> ) | All        |
| ■ TDT – Hit rate, RT                               | Truck only |
| ■ Eye Gaze (PRC, GF, TGT)                          | Truck only |

## ■ Additionally, video recordings of the drivers and forward view



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# Experimental design – subjective data



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Questionnaire	Aide	None-AIDE	Baseline
Entry questionnaire	Once before driving		
RSME – Workload	Case by case	Case by case	Corresponding case triggering locations
DALI – Driver Activity Load Index	After each drive	After each drive	After each drive
CRF – Driving behaviour	After each drive	After each drive	After each drive
CRF - Utility	After driving	After driving	NA
CRF – Adequacy	After driving	After driving	NA
CRF – Aesthetics	Once after all drives		NA
CRF - Final questionnaire	Once after all drives		



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