AIDE SP 2
'Evaluation and Assessment'

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SP 2 – Overview

Partners:
BASt, BMW, BOSCH,CRF, CIDAUT, DAG, CERTH/HIT, ICCS, INRETS, JRC, KITE, LIU, PSA, REGIENOV, SEAT, TNO, UNIVLEEDS, USTUTT, VTEC, VTI

Work packages:
WP 2.1: Generic evaluation methodology (leader: CRF)
WP 2.2: Tools for driver workload and distraction assessment (leader: VTEC)
WP 2.3: Estimating risk reduction potential (leader: TNO)
WP 2.4: Final prototype evaluation (leader: VTI)

WP 2.1 – Generic evaluation methodology

Review, considerations, review, experiments, and the Cookbook for evaluating integrated adaptive ADAS/IVIS

Ingredients:

1. Define aims
2. Describe system
3. Define scenario
4. Define sample
5. Define parameters and instruments
6. Define study design
7. Develop instructions
8. Finalize set-up
9. Carry out
10. Analyze
11. Apply risk estimation procedure

WP 2.2 – Driver workload and distraction assessment methods and tools

Review, experiments and method-development

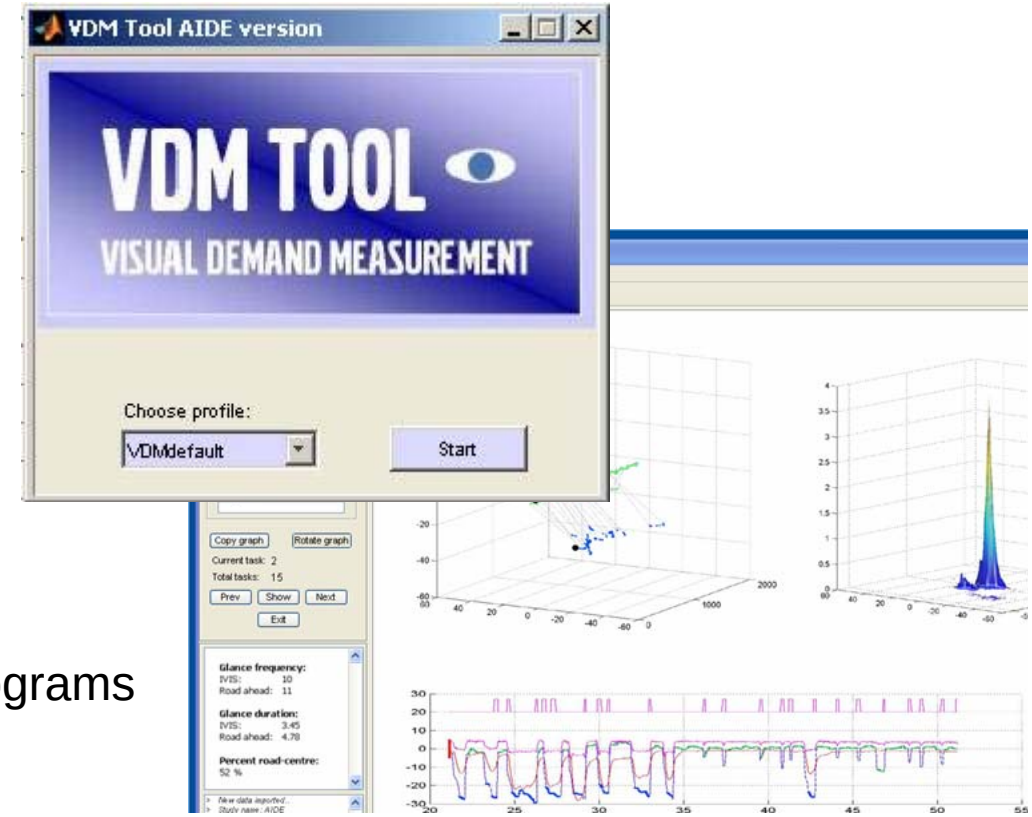
- VDM Tool
- Signal Detection Tasks
  (tactile, auditory, visual)
- Enhanced Occlusion Technique
- Driving performance metrics and methods
  (driving performance metrics and LCT)
- Subjective workload methods

WP 2.2 – Visual Demand Measurement tool

Enhance the analysis process of visual behaviour data

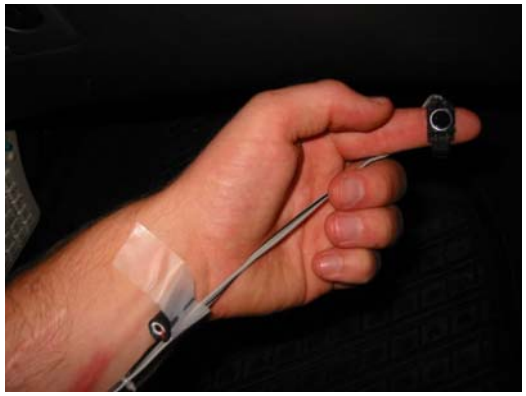
- fast,
- inexpensive,
- robust, and
- easy-to-use…

- Data from a range of different sensors:
  - FaceLAB v 4,
  - SMI,
  - ETS
- Off-line analysis in VDM tool and further analysis in statistical programs



WP 2.2 – Signal Detection Task

- Visual
- Tactile
- Auditory



WP 2.3 – Estimating the risk reduction potential of integrated adaptive HMI

Experiment, literature, and risk assessment procedure

Seven factors for calculating the risk reduction potential

- Average speed
- Speed variability
- Lane keeping
- Headway
- Workload
- Visual distraction
- Alertness level

WP 2.4 – Prototype evaluation

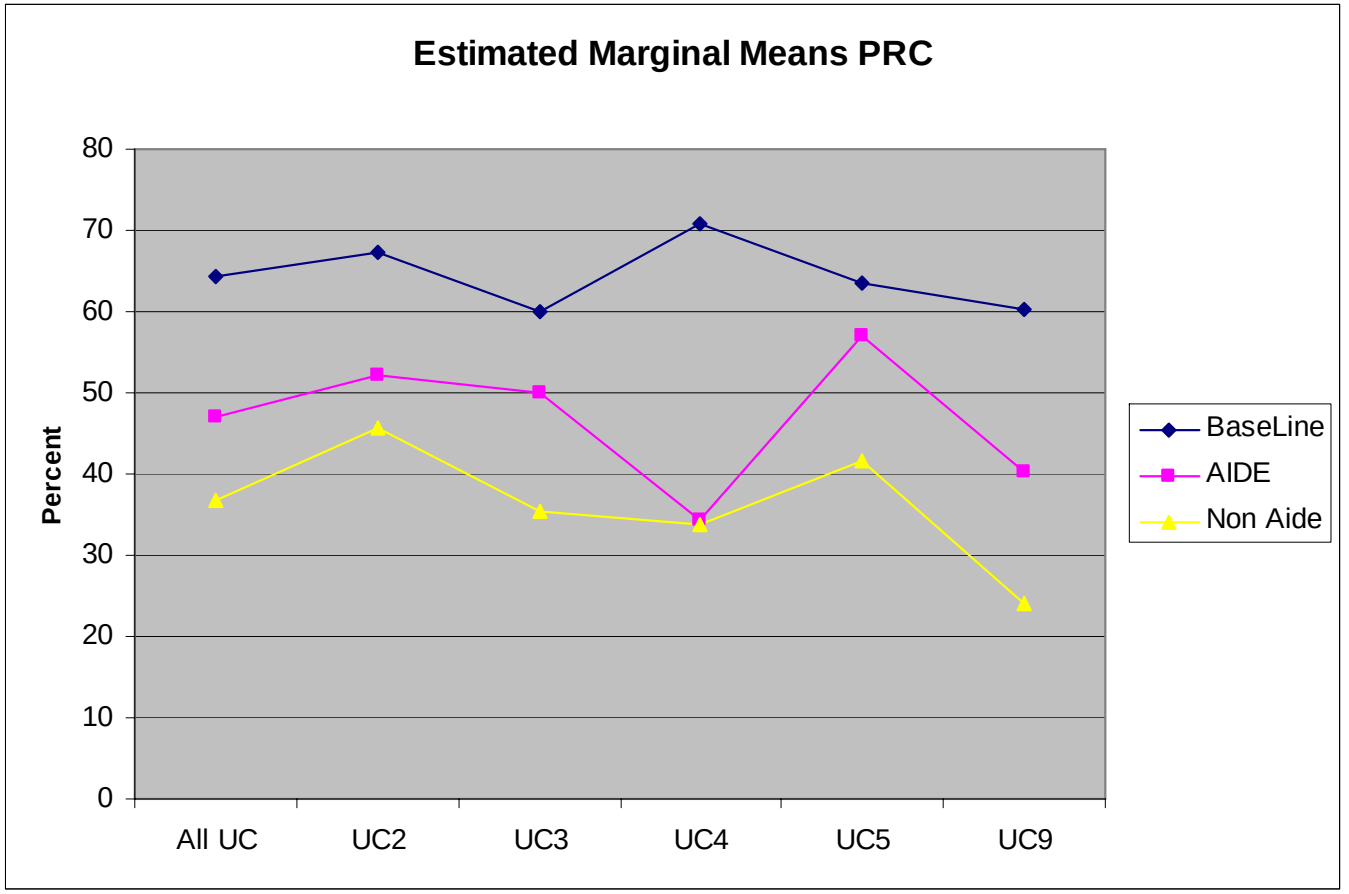
Three Evaluations,
two cars, one truck

WP 2.4 – Prototype evaluation

- Three routes
- Three conditions
- 57 participants
- 49 use cases

WP 2.4 – Prototype evaluation

AIDE helped drivers to keep their eyes on the road



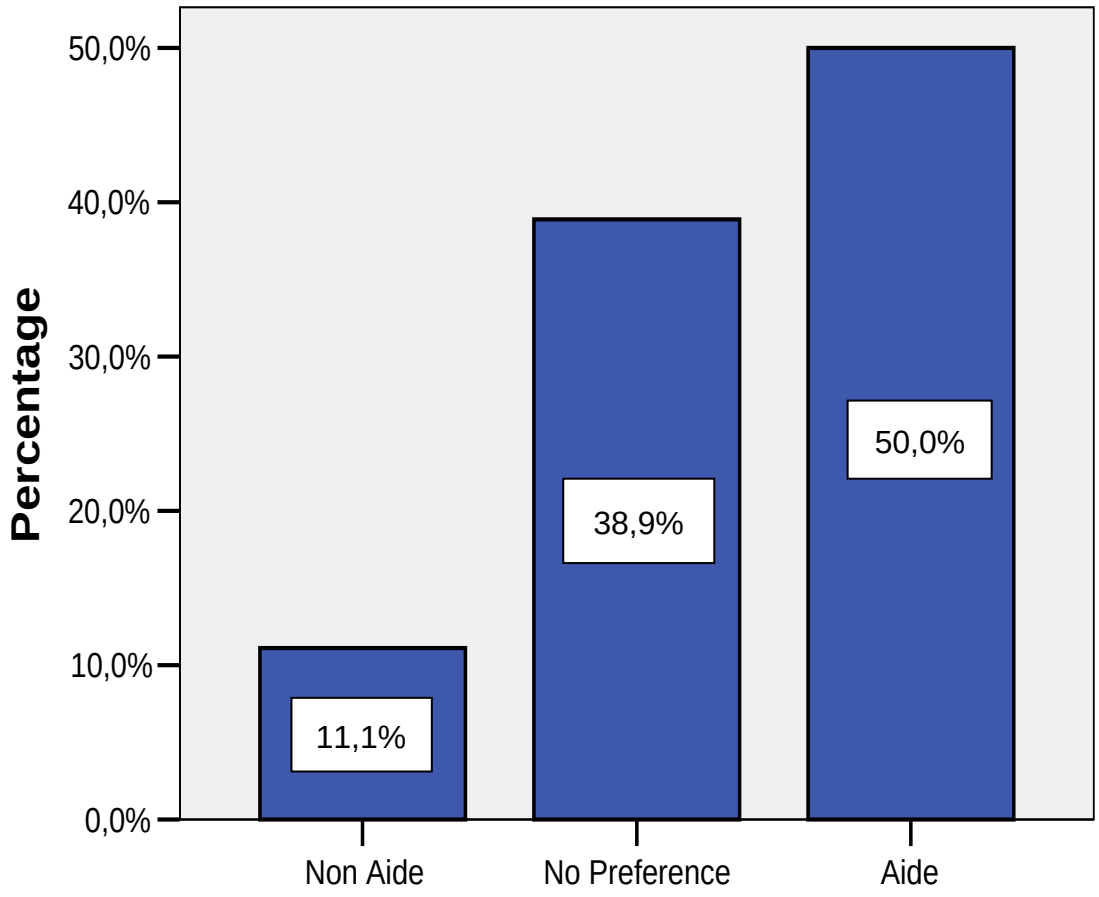
WP 2.4 – Prototype evaluation

Use case	Variable	A – NA	A – B	NA – B	difference	DVE	more then one message
UC 6	RSME	x	x		A > NA	low	yes
UC 9	RSME Rating	x x	x x		A > NA A < NA	low	yes
UC 7	SRR RSME Rating		 x x	x		low	yes
UC 17						high	yes
UC 16	RSME Rating	x	x x		A > NA	high	yes
UC 15	SSR			x		high	yes
UC 2	RSME Rating		x	x x			no
UC 4	RSME Rating	x	x	x x	NA > A		no
UC 3	Std speed RSME Rating		 x x	x x x			no

In case of multiple messages AIDE assists the driver to moderate workload

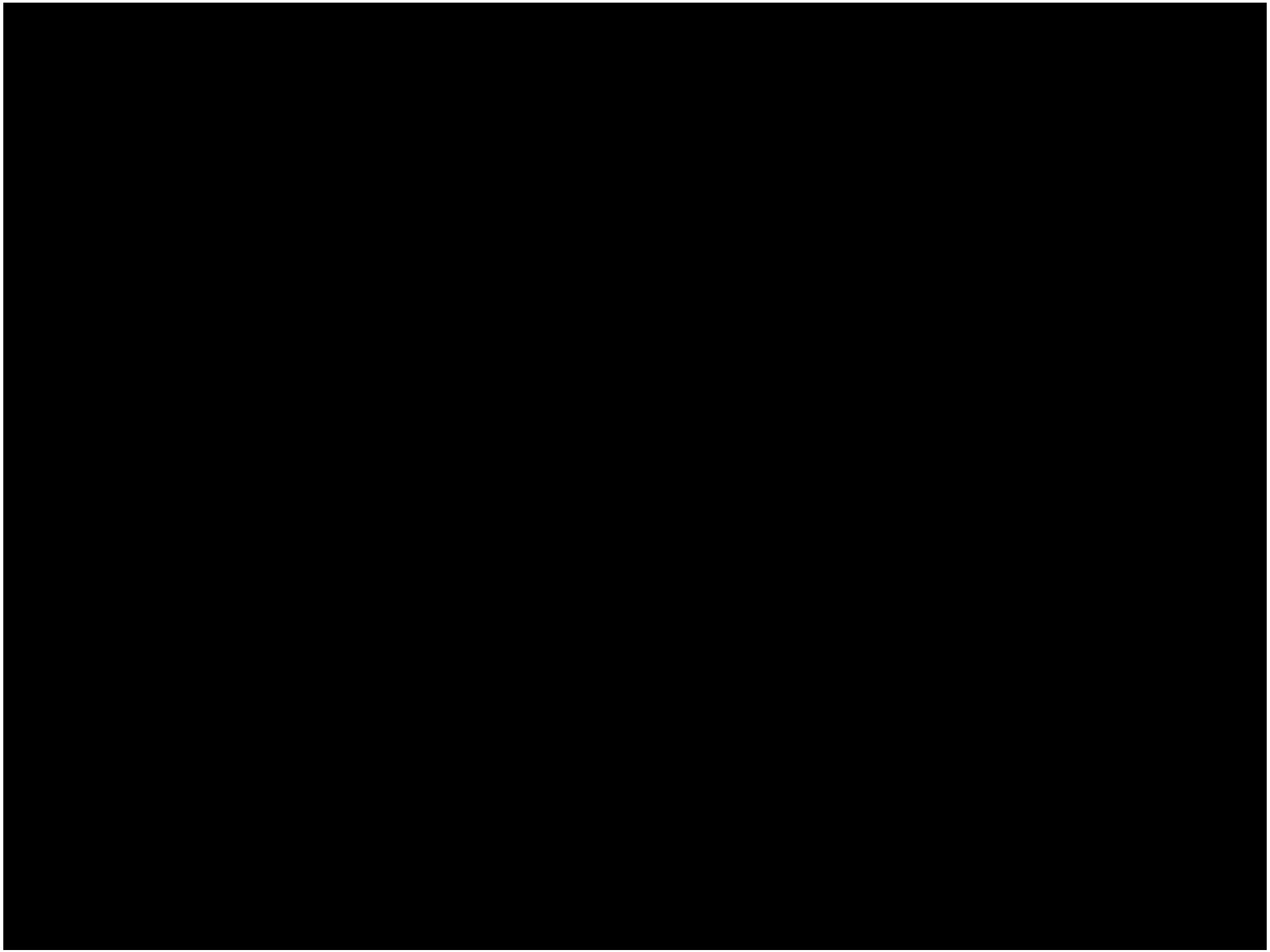
With AIDE all messages are perceived. However, workload does not always increase

WP 2.4 – Prototype evaluation



More participants preferred the AIDE condition to the Non-AIDE condition

SP2 – Conclusion

- In the evaluation the AIDE solution (adaptive and integrated) has beneficial effects compared to a non-adapting and non-integrated solution (Non-AIDE)
- Developed methodology has been applied successfully and suggestions for further improvement are provided
- Developed individual evaluation tools were successful in the final evaluation

More tomorrow in the SP 2 session