



Example of a successful
twinning project:

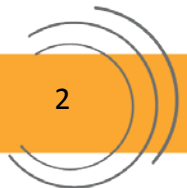
The interACT Project twinning with AVintent

Anna Schieben, interACT coordinator
German Aerospace Center (DLR e.V.)
ETNA 2020 Workshop

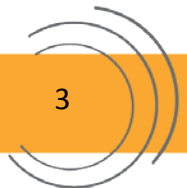


Agenda

- Overview interACT project
- Overview AVintent project
- Twinning agreement
- Twinning experiences
- Conclusions



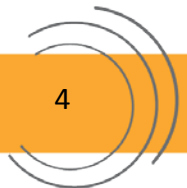
Overview: The interACT project



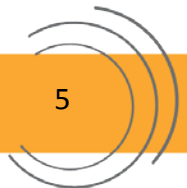
Project facts



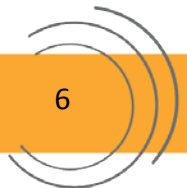
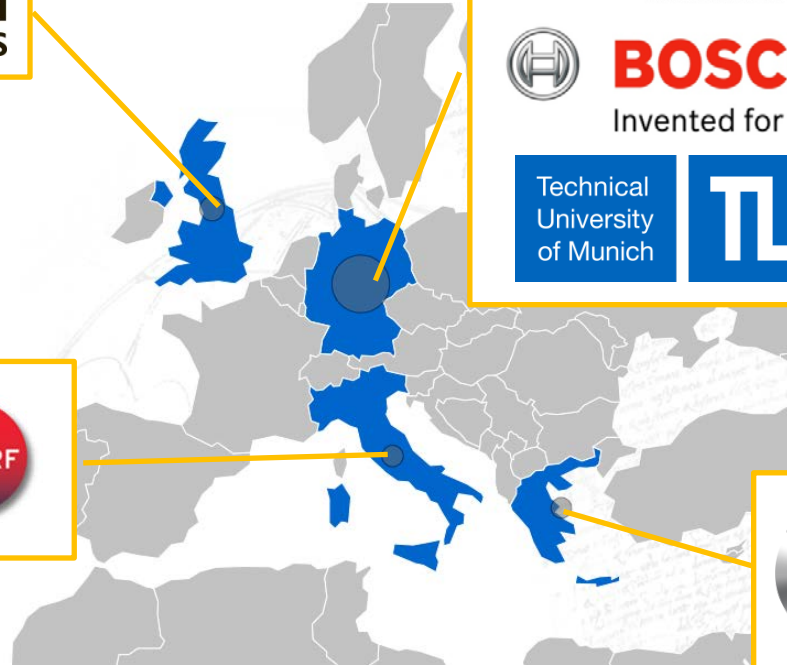
- **interACT** – Designing cooperative interaction of automated vehicles with other road users in mixed traffic environments
- **Programme:** EU/H2020-ART04 - *Safety and end-user acceptance aspects of road automation in the transition period*
- **Duration:** 36 months
- **Period:** May 2017 – April 2020
- **EU Funding:** 5.527.581 €
- **Coordinator:** Anna Schieben, DLR
- **Partners:** 8 industrial and academic partners from 4 European countries (Germany, Italy, Greece, UK)
- **Project Officer:** Ms Begona Munoz (INEA)



Project consortium

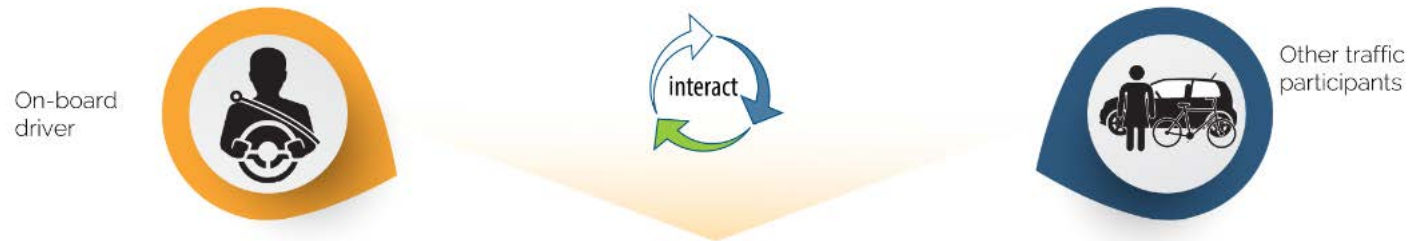


Project consortium



Integrating automated vehicles in mixed traffic

Situation Today

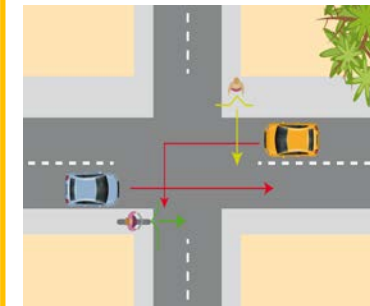


Future situation: Automated vehicles in mixed traffic environments



The challenge

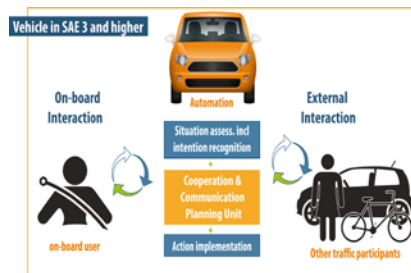
1st Enabler
Psychological models



2nd Enabler
Intention recognition & behavioural predictions



3rd Enabler
CCPU & safety layer



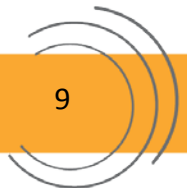
5th Enabler
Methodology for assessing the quality of interaction



4th Enabler
Novel HMI elements



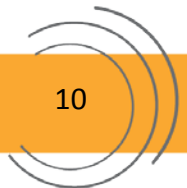
Overview: The AVintent project



Project facts AVintent

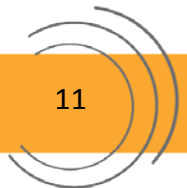


- **AVintent:** Automated Vehicle Communication and Intent with Shared Road Users
- **Programme:** NHTSA, Task Order 7 under IDIQ DTNH2214D00329L/0007
Contractor: University of Michigan Transportation Research Institute
Subcontractor: Westat
- **Duration:** 32 months
- **Period:** December 2016 – July 2019
- **Funding:** 418,662 \$
- **Contact:** Jim Jenness, Westat
- **Project Officer:** Mr Christian Jerome (NHTSA)



Project objectives AVintent

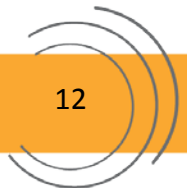
- Identify key pieces of information the **AV must communicate** to shared road users
- Identify ways to **measure communication effectiveness** between the AV and shared road users
- Provide research to **inform human factors guidance** regarding communication of AV intent



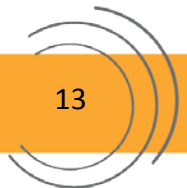
AVintent - interACT



	AVintent	interACT
Programme	NHTSA	EU H2020
Funding	418,662 \$	5.527.581 €
Partners	Contractor: UMTRI Subcontractor: Westat	Consortium: 4 industrial, 4 academic partners Coordinator: DLR
Duration	32 month	36 month

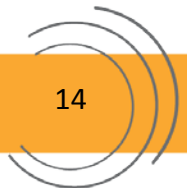


Twinning agreement



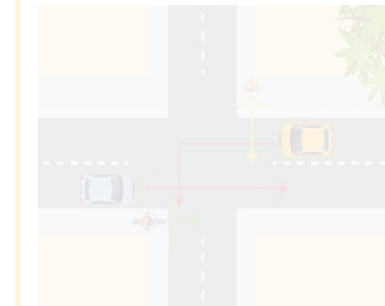
Twinning agreement

- Identification of twinning areas
- Definition of twinning objectives
- Identification of twinning activities



The challenge

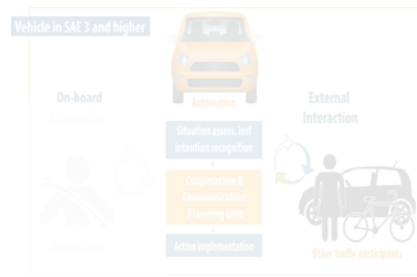
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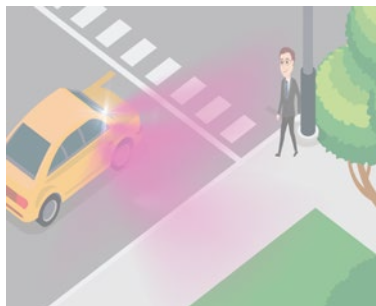
3rd Enabler
CCPU & safety layer



5th Enabler
Methodology for assessing the quality of interaction



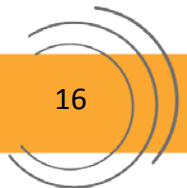
4th Enabler
Novel HMI elements



Twining agreement

Identification of twinning areas

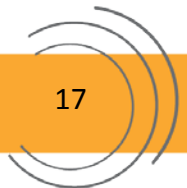
- **Common human-human interaction** and requirements for the AV communication design in mixed traffic environments
- **Cross-cultural differences** in human-human and human-AV communication
- **Impact on road safety**
- **Metric/Methodologies** for measuring the effectiveness of cooperation of AV and human road users



Twining agreement

Identification of **twining objectives**:

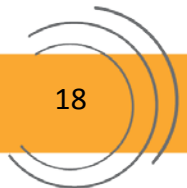
- **exchange of research results** to measure common human-human interaction and come up with requirements for the AV communication design in mixed traffic environments
- **discussion of cross-cultural differences** in human-human and human-AV communication based on project results
- **collaboration to assess the impact on road safety** for different design solutions by comparing evaluation results of the evaluation studies
- **exchange of knowledge on novel metrics/methodologies** for observing common human-human



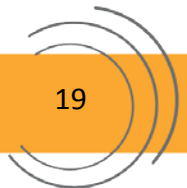
Twining agreement

Identification of twining activities

- **regular phone meetings** with coordinators and affected Work Packages leaders (of interACT) on predefined topics
- at least **one f2f meeting per year** (alternating in the US and Europe); if possible combined with relevant conference
- at least **1 joint publication** of a technical paper
- at least organization of **one joint workshop** at a conference in the field of AV



Twinning experiences



Twining expericences

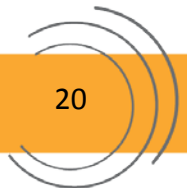
History

- General willingness to participate in twinning activities by the interACT consortium in the proposal phase (2nd stage)
- Budget for twinning activities (travel/workshops) reserved by interACT consortium in proposal phase
- AVintent did not actively quest for twinning in the proposal phase
- No contact, no link to the AVintent project in proposal phase

- Matching was done by EC and US counterparts – no active involvement of interACT or AVintent

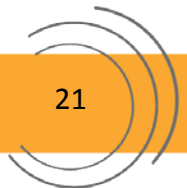
- Info day for coordinators in January 2017 – info on twinning process

- Template for twinning agreement was very helpful to agree on common activities with US partners

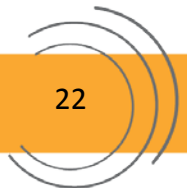


Twining experiences

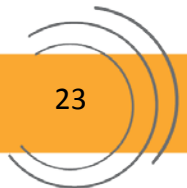
- **First f2f meeting** linked to AVS 2017 in San Francisco in July 2017
- **On-going exchange** of project documents/deliverables (partially before official submission)
- **Regular phone meetings**
- Start of **document exchange platform**
- **Common workshop and publication** planned in next period



Conclusions



- Projects are very well overlapping in some parts of the work (methodology, psychological research questions)
- Smooth exchange of information/ results at early stages (far before official publication on conf., journal papers)
- We would have not been aware of the AVintent project without twinning -> very helpful to know each other's work that early
- Well supported by NHTSA and EC





<http://interact-roadautomation.eu>

Thank you

Any questions?



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