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

UNIVERSITY OF LEEDS

Deutsches Zentrum für Luft- und Raumfahrt
German Aerospace Center

BOSCH
Invented for life

Technical University of Munich

CRF

ENIXEY

HELLA

ETNA 2020 workshop, April, Vienna
Integrating automated vehicles in mixed traffic

**Situation Today**
- On-board driver
- Other traffic participants

**Future situation: Automated vehicles in mixed traffic environments**
- On-board user
- Other traffic participants

Vehicle automation

ETNA 2020 workshop, April, Vienna
The challenge

Achieve a safe, highly accepted and efficient integration of Automated Vehicles

1st Enabler
Psychological models

2nd Enabler
Intention recognition & behavioural predictions

3rd Enabler
CCPU & safety layer

4th Enabler
Novel HMI elements

5th Enabler
Methodology for assessing the quality of interaction
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

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Twinning agreement
Twinning agreement

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

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Twinning 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
Twinning agreement

Identification of **twinning 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
Twinning agreement

Identification of twinning 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
Twinning experiences

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
Twinning 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
Twinning experiences: 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
Thank you

Any questions?

Anna Schieben
Project coordinator
Anna.Schieben@dlr.de

http://interact-roadautomation.eu

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