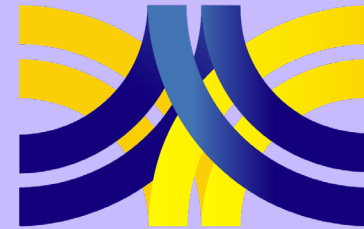


49th ASECAP DAYS

*Decarbonizing Road Infrastructure : Challenges,
Perspectives and Actions in Tough Economy*

ASECAP DAYS



BRUSSELS 2022



Hotel Marriott Grand Place, Brussels
24 – 25 November 2022

ASECAP DAYS



BRUSSELS 2022

HOW A DIGITAL TWIN HELPS TO ENLARGE AUTOMATED VEHICLES' ODD IN TUNNELS, ROADWORKS AND TO BETTER COPE WITH FUTURE MANDATORY SPEED ADVISORY INFORMATION SYSTEMS?

Wolfgang Schildorfer
Professor for Transport Logistics and Mobility
Vice-Dean for Research @Campus Steyr
University of Applied Sciences Upper Austria



LOGISTIKUM
CHALLENGE ACCEPTED



UNIVERSITY
OF APPLIED SCIENCES
UPPER AUSTRIA

Agenda

- Digital Twin Project DIGEST (Germany – Austria – Switzerland) in a nutshell
- Spotlight on project COPE – ESRIUM – AWARD
- DIGEST with some details
- How to reach out from a digital twin to the „CCAM Decision Support Platform“

DIGEST – Digital Twin for Roads – in a nutshell




Project goals and work packages:


1. What is the **basis** for a digital twin for roads with regards to **data**?
2. How could you **design** a digital twin **concept**?
3. How to **validate** the concept with a **demonstration**?
4. What are necessary **roles** for the digital twin **operation**?


Project Duration: 10/2020 – 09/2022


COPE – Collective Perception – in a nutshell



**CCAM / C-ITS in urban areas
with a focus on
Vulnerable Road Users**

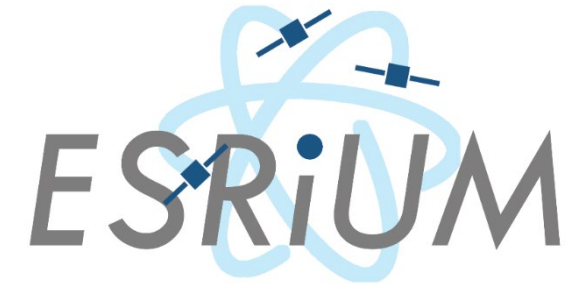


 Bundesministerium
Klimaschutz, Umwelt,
Energie, Mobilität,
Innovation und Technologie



Project Duration: 10/2020 – 12/2022

ESRIUM – GNSS-project – in a nutshell



**CCAM / C-ITS for
Road Maintenance
on Motorways**

Project Duration: 12/2020 – 11/2023



This project has received funding from the European Union Agency for the Space Programme under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004181.

The content of this website reflects only the author's view. Neither the European Commission nor the EUSPA is responsible for any use that may be made of the information it contains.

AWARD – Automated Logistics – in a nutshell

**CCAM / C-ITS for automated logistics operations
in public areas
including harsh weather conditions**

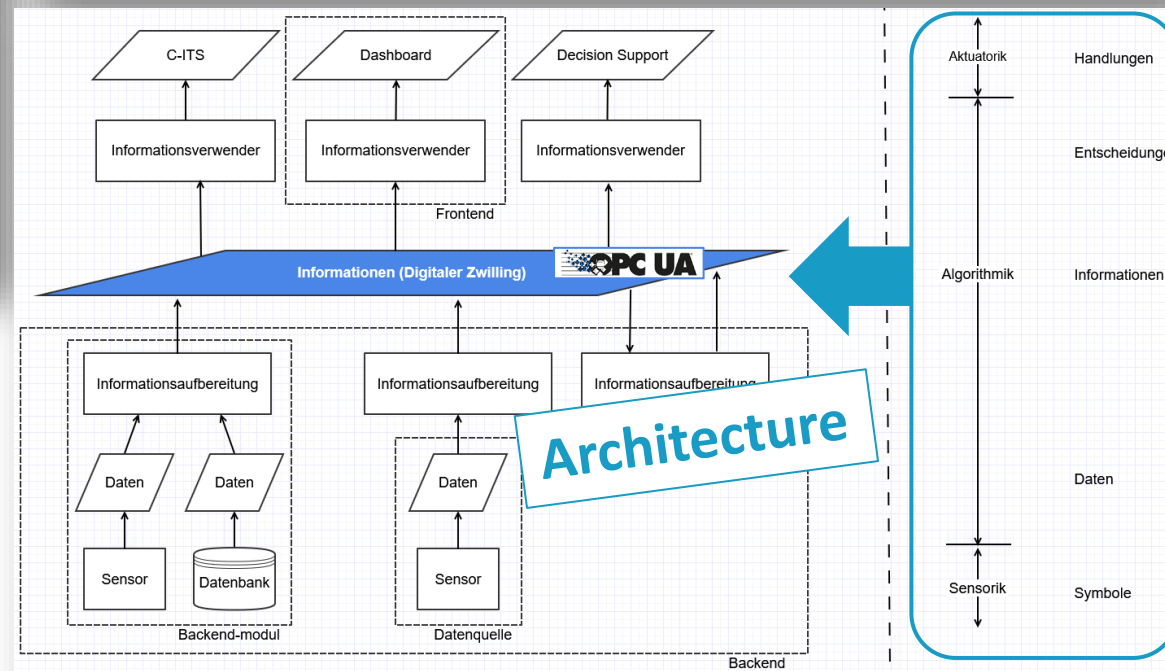
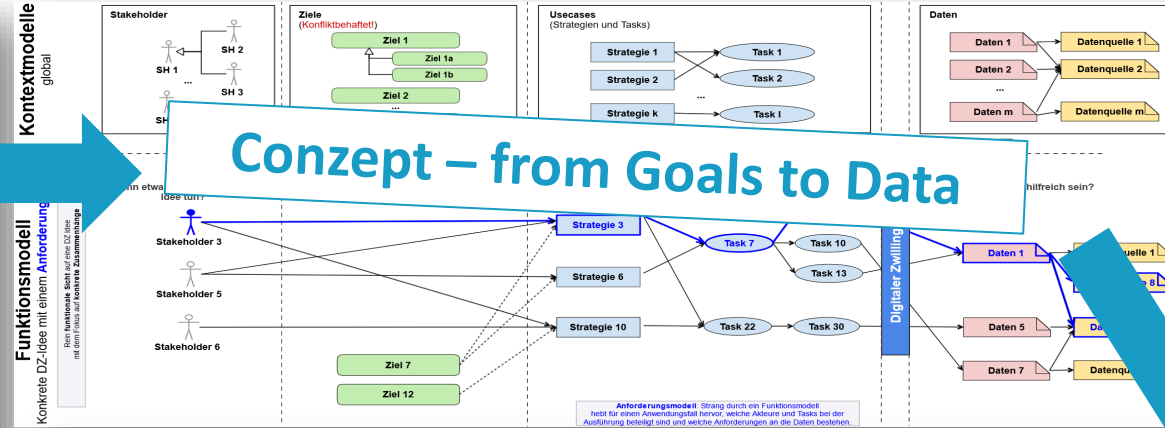
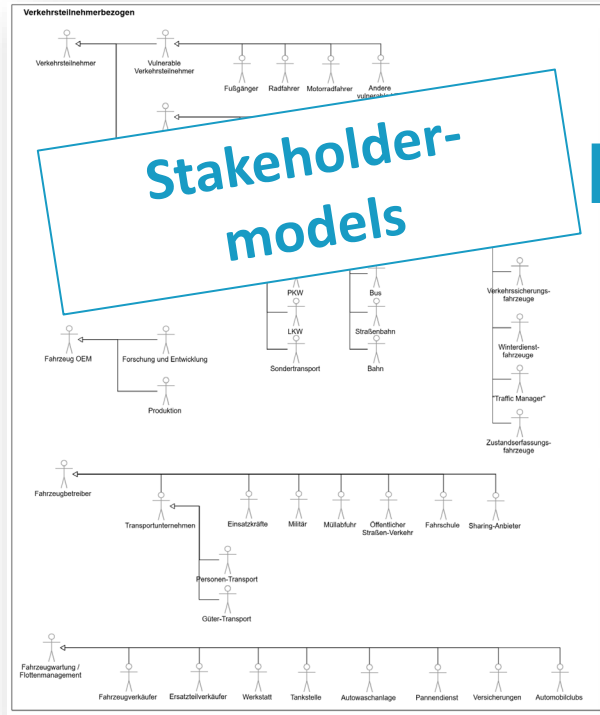


AWARD
Scaling autonomous logistics



AWARD has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No 101006817
The content of this presentation reflects only the author's view. Neither the European Commission nor the INEA is responsible for any use that may be made of the information it contains.

Back zu the Digital Twin Approach in DIGEST



Information-models

DIGEST Demonstrators

A10 Roadworks and Tunnels

A2/A9 Road Surface



Lane Availability,...



Roadway and Lanes

Lane Availability

Road Condition

GIP.at

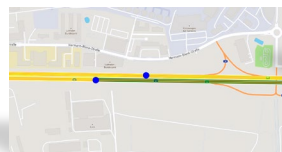


ESRIUM
SAFE AND EFFICIENT ROADS

AISI FINAIG



Für automatisierte und vernetzte Mobilität



Intelligent Speed Advisory

Traffic Volume

Ambient Temperature



VMS Gantry

Inductionloops

Weather Stations

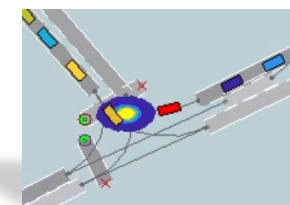


VERKEHRS-MANAGEMENT-ZENTRALE

Niedersachsen / Region Hannover



CPM



Collision Avoidance



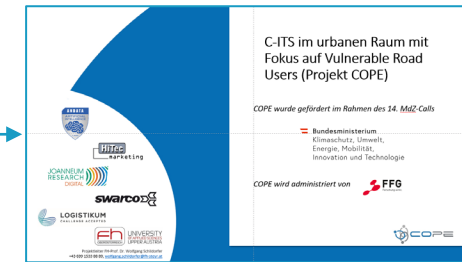
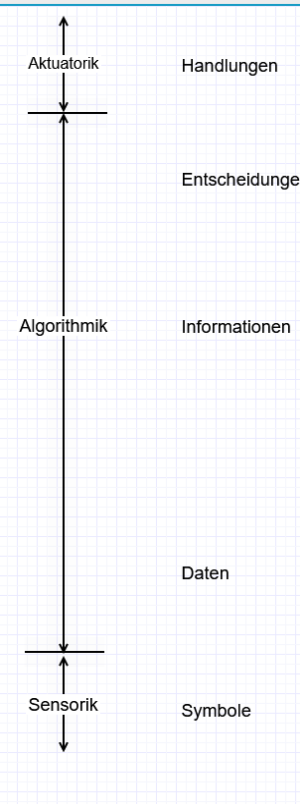
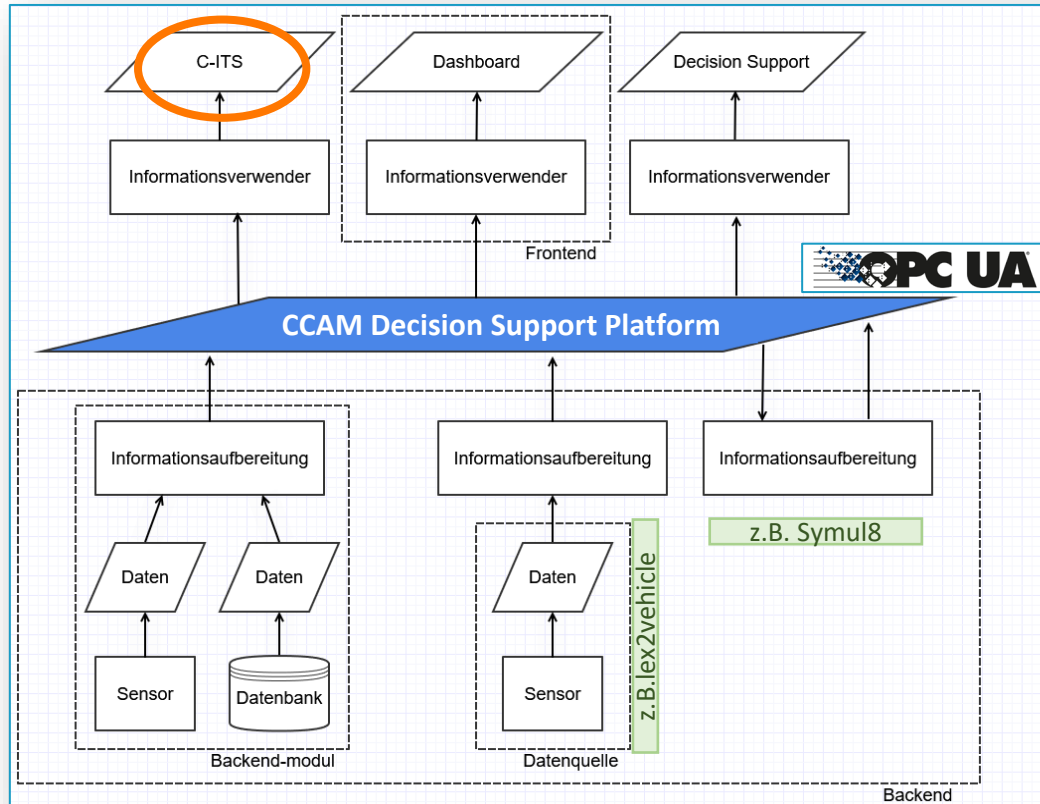
Objects

Movement-intention

Risk of Collision-



Next Steps – CCAM Decision Support Platform



C-ITS for CCAM



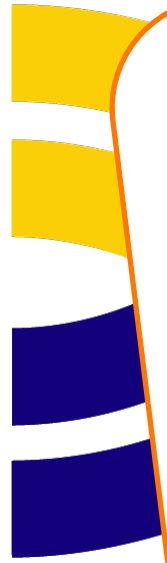
C-ITS for CCAM



C-ITS for CCAM

INFORMATION retrieval from different DATA SOURCES is KEY to provide CCAM Decision Support for SERVICES!

ASECAP DAYS



BRUSSELS 2022

HOW A DIGITAL TWIN HELPS
TO ENHANCE

DISCUSSION, VALIDATION and COOPERATION
including all **STAKEHOLDERS**
for the **DEPLOYMENT** of a **CCAM Decision Support Platform**

Adding **complementary information** from road operators to automated vehicles to **better cope** with challenging situations like **tunnels, roadworks, harsh weather** situations or complex **intelligent speed advisory** situations

Wolfgang Schildorfer
Professor for Transport Logistics and Mobility
Vice-Dean for Research @Campus Steyr
University of Applied Sciences Upper Austria

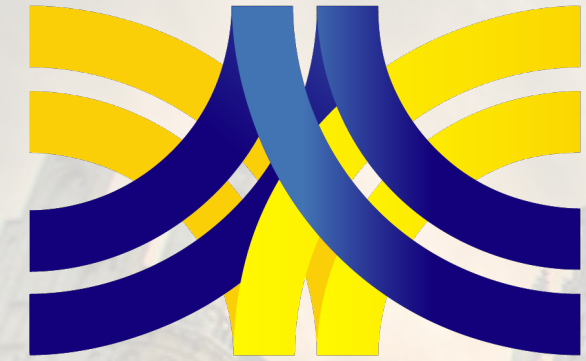


LOGISTIKUM
CHALLENGE ACCEPTED



UNIVERSITY
OF APPLIED SCIENCES
UPPER AUSTRIA

ASECAP DAYS



BRUSSELS 2022

**THANK YOU FOR
YOUR ATTENTION**

WOLFGANG SCHILDORFER

mobil: +43 699 1533 88 89

e-mail: wolfgang.schildorfer@fh-steyr.at

linkedin: [wolfgang_schildorfer](https://www.linkedin.com/in/wolfgang_schildorfer)