AWARD

Scaling autonomous logistics

AWARD has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No 101006817

An introduction to the AWARD project

AWARD response

H2020 framework

- **2018-2020** : Digitising and Transforming European Industry and Services: Automated Road Transport
- **DT-ART-05-2020** : Efficient and safe connected and automated heavy-duty vehicles in real logistics operations

AWARD : All Weather Autonomous Real logistics operations and Demonstrations
Project Coordinator : EasyMile
Partners : 29
Timeline of the project : 1st of January 2021 – 31st of December 2023

This project has received funding from the European Union's Horizon 2020 research and innovation programme 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.

An introduction to the AWARD project

AWARD Project ambitions

Ambition 1

AWARD ADS architecture **offers a unique set of sensors that enables 24/7 availability** (night and day, good or bad weather conditions), **within an extended ODD**

ODD = Operational Design Domain

Ambition 2

By addressing 24/7 availability, the fully automated HDV will be **deployed over key pilot projects that are highly scalable and replicable** over warehouses, factories, airports and ports, **in mixed traffic in confined areas and on public roads**

Ambition 3

The new **fleet management system** will integrate **data from vehicles, logistics systems and the road infrastructure**, coordinating exchanges with different data providers to ensure economic viability of data-related business models, **while providing high-reliable and secured tool that optimizes logistics flows and ensures safety for other road users**.

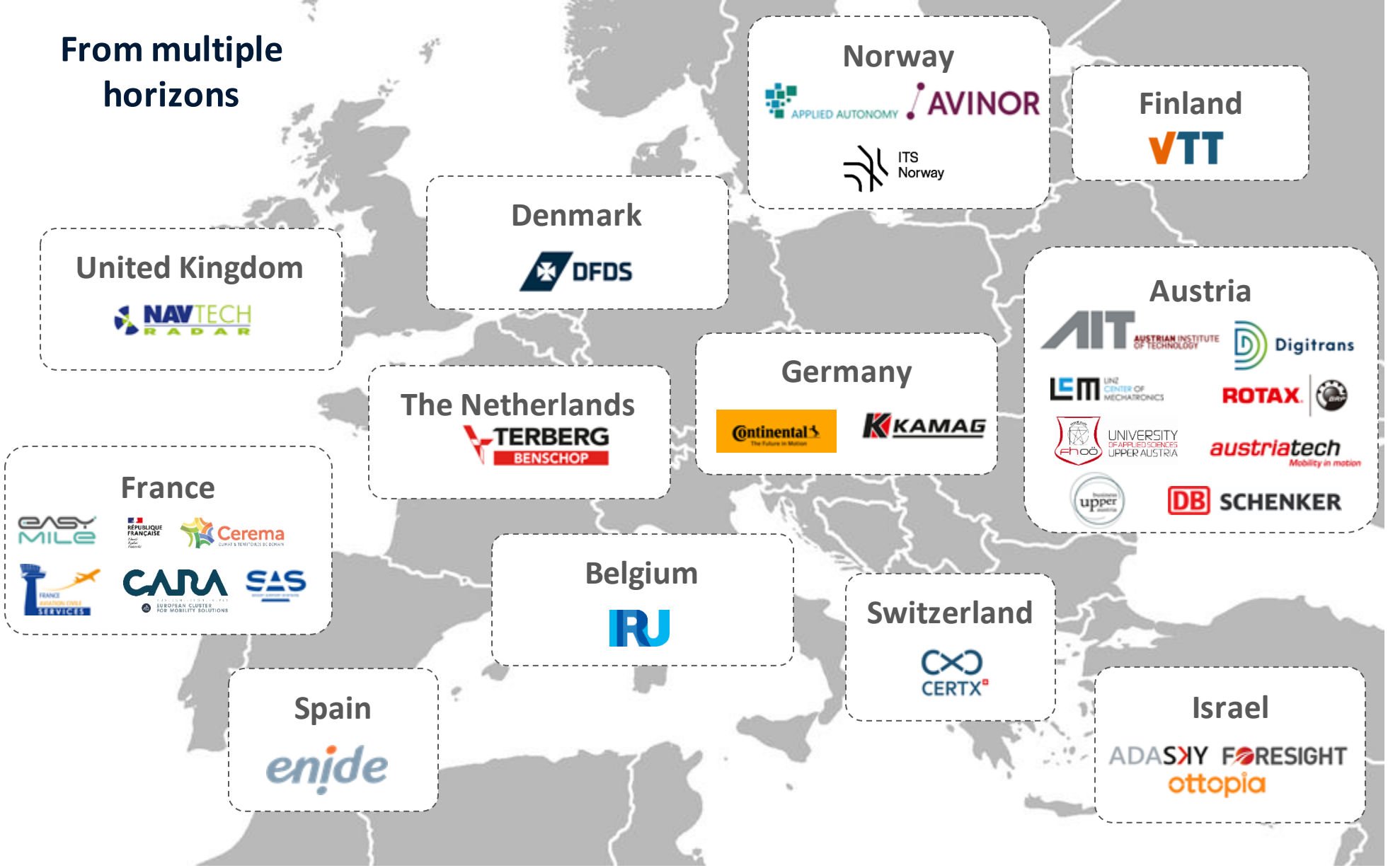
This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 101006817. The content of this presentation reflects only the author's view. Neither the European Commission nor the INEA is responsible for any use that may be made of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

An introduction to the AWARD project

A complementary-skilled Consortium brings expertise on all steps of the value chain

This project has received funding from the European Union's Horizon 2020 research and innovation programme 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.

From multiple horizons



This project has received funding from the European Union's Horizon 2020 research and innovation programme 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.

An introduction to the AWARD project

4 real-life conditions demonstrations, showcasing the work of all consortium members

Development of the ADS

Integration into HDV

KION

KAMAG

TLD

TERBERG

Demonstrations

Industrial autonomous loading & unloading operations

Hub to hub autonomous logistics on public roads

Airport autonomous ground support equipment

Port Trailer autonomous transfer operations

This project has received funding from the European Union's Horizon 2020 research and innovation programme 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.

AWARD Sensor integration in test vehicle

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

WP6 Autonomous driving demonstrations in real logistics operations

T6.2 Autonomous Truck loading with Autonomous Forklift demonstrator

Forklift: Automated route: Source, Path and Destination

Use case

- Mixed indoor and outdoor forklift activity
- Integration in existing human manned logistic flux
- Use case fully on private site

Main Challenges

- New platform automation design under supply chain constraint
- Hybrid automation: vehicle and forks
- High safety ambition

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

WP6 Autonomous driving demonstrations in real logistics operations

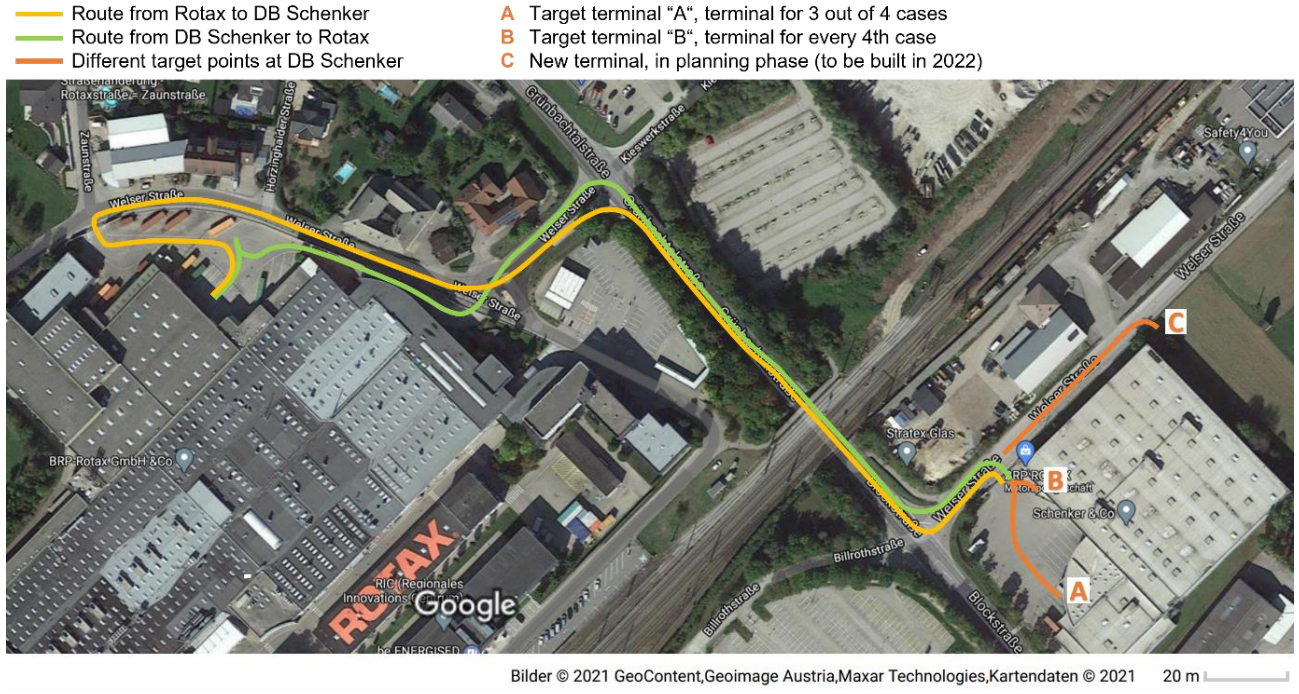
T6.3 Hub-to-hub autonomous logistics

Use case

- Component pick up at a logistic site
- Integration into mixed human traffic at high speed
- Delivery at Factory site in mixed human environment
- Integration into mixed traffic on the way back

Main challenges

- Human behaviour in mixed traffic with autonomous truck
- V2I integration with existing infrastructure
- Teleoperation module to allow for failure compensation

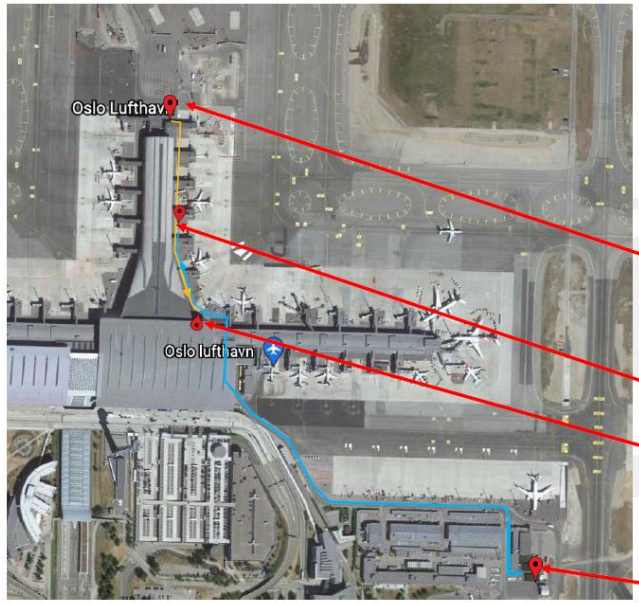


This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 101006817. The content of this presentation reflects only the author's view. Neither the European Commission nor the CINEA is responsible for any use that may be made of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

WP6 Autonomous driving demonstrations in real logistics operations

T6.4 Airport demonstrator

Route Description



- Use Case:
  - TractEasy waiting mission point
  - Go manually to pick up empty dollies along P-North, then go to Start Auto Mission point
  - Bring them autonomously to containers storage
  - Go back autonomously to End Auto Mission point
  - Drive manually to TractEasy waiting Mission point

Waiting Mission point

End Auto Mission Station

Start Auto Mission Station

Containers storage

Use case

- Airport luggage tow tracting
- In operation since early 2021
- FMS deployment and maturation on site

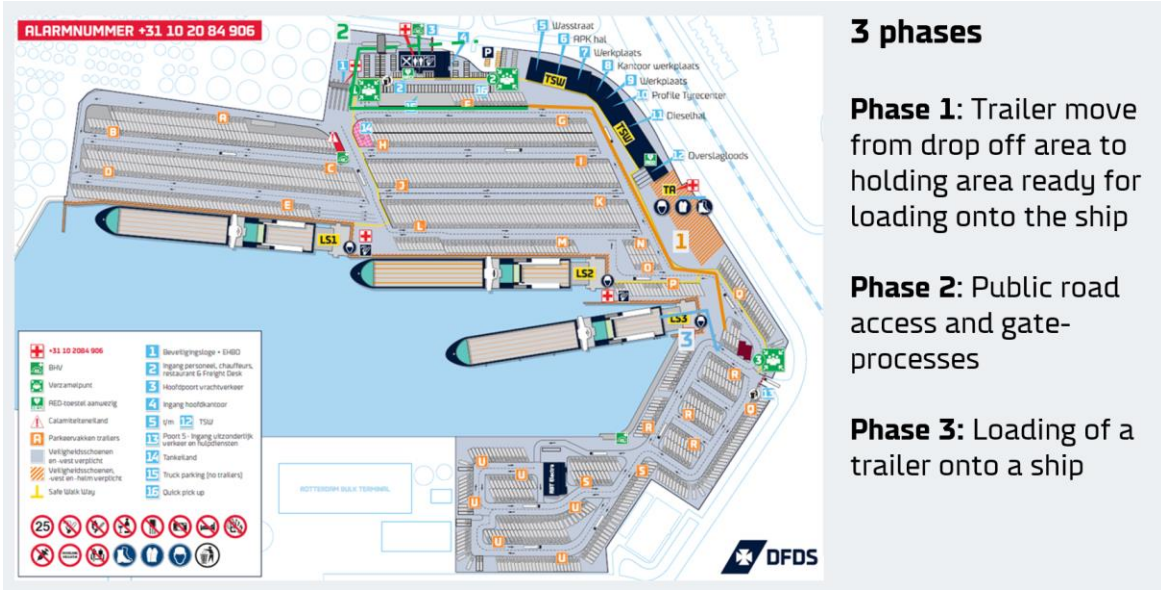
Main Challenges

- Very harsh weather during part of the year
- Product deployment rather than prototype

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

WP6 Autonomous driving demonstrations in real logistics operations

T6.5 Port demonstrator



3 phases

Phase 1: Trailer move from drop off area to holding area ready for loading onto the ship

Phase 2: Public road access and gate-processes

Phase 3: Loading of a trailer onto a ship

Use case

- Container parking and roll roll ship loading
- Cooperative operation with human drivers
- Hub to hub capability with offloading site

Main Challenges

- Ship operation technical challenges
- Specific manoeuvres development
- Maritime weather impact on sensors

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

15/11/2022

Thank you!

AWARD has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No 101006817