



# AWARD

Scaling autonomous logistics



AWARD has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No 101006817  
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# Scaling Autonomous Logistics – the AWARD Approach



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# H2020 context



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# H2020 objectives – Innovation for the Industry



1. Contribution to the **accelerated deployment of innovative connected and automated freight transport solutions in Europe**
2. Contribution to the **increase of the overall safety and efficiency of freight operations** of individual trucks or fleets in confined areas and in mixed traffic (hub to hub) **through innovative connected and automated driving systems**
3. Actions will show the **uptake of new business models**
4. Actions will seek to reach a **total cost reduction of operations and logistics and supply chain**, leading to improved competitiveness of the European transport and logistics industry

“Our focus is to develop, test and demonstrate connected and **automated** systems for **heavy commercial vehicles in real logistics operations.**”



# 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** : 1<sup>st</sup> of January 2021 – 31<sup>st</sup> of December 2023



# Complementary-skilled Consortium



**Sensors**

**Autonomous Driving System**

**Heavy-Duty Vehicles manufacturer**

**Fleet Management & Supervision**

**End-users Industrial sites**

## Certification and proving grounds

## Impact assessment, business modelling and regulatory frameworks

# From multiple horizons

**Norway**



APPLIED AUTONOMY AVINOR  
ITS Norway

**Finland**



VTT

**Denmark**



DFDS

**United Kingdom**



NAVTECH  
RADAR

**Austria**



AIT AUSTRIAN INSTITUTE OF TECHNOLOGY Digitrans  
LEM LIME CENTER OF MECHANICS ROTAX  
UNIVERSITY OF APPLIED SCIENCES (FH ST. PÖLTEN) austriatech  
Upper Austria DB SCHENKER

**Germany**



Continental KAMAG

**The Netherlands**



TERBERG  
BENSCHOP

**France**



EASY MILE CEREMA  
CAM SAS

**Belgium**



KION GROUP RU

**Switzerland**




CERTX

**Spain**



enide

**Israel**



ADASXY FORESIGHT  
ottopia





# AWARD approach



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# 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.**



# Global approach

## Development of the ADS

Able to **handle adverse environmental conditions** such as heavy rain, snowfall, fog

Targeting compliance with **ISO 26262** and taking into consideration **SOTIF recommendations**

Integrating **multiple sensor modalities and an embedded teleoperation system** to address **24/7 availability**

**Optimized fleet management & supervision system** for logistics use cases

## 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



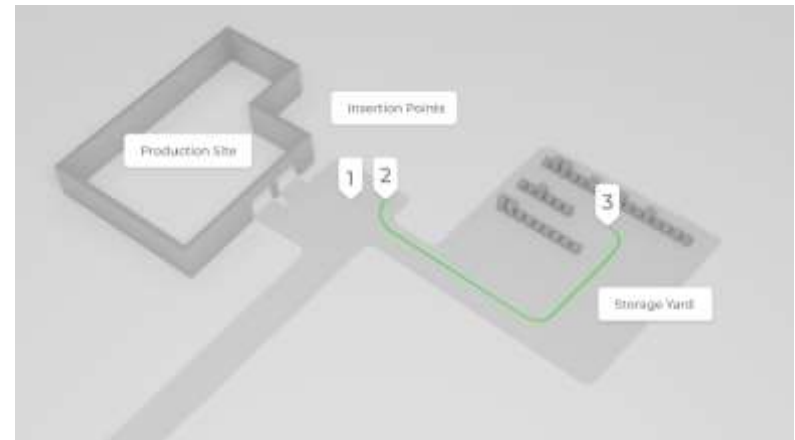
# Use Case 1: Autonomous loading & unloading forklift operations

## Site

Linde Aschaffenburg Material handling  
*Private site*

## Objective

To demonstrate gitter boxes transport and yarding on Linde Aschaffenburg site, using an autonomous counter-balanced forklift vehicle.



# Use Case 2: Hub-to-hub shuttle service from warehouse/production site to logistics hubs

## Site

Engine Factory of BRP-Rotax  
Logistic Hub of DB Schenker  
*Public & private site*

## Objective

To demonstrate highly automated, continuous, hub-to-hub freight transportation between both sites, which are connected via public side roads, public crossing areas and a public main road.



# Use Case 3: Automated baggage tractor on airside in Avinor OSL Gardermoen airport

## Site

OSL Gardermoen airport

*Private site*

## Objective

To demonstrate automated baggage tractor transportation under harsh-weather conditions from proximity storage to the makeup area, and from the makeup area to the aircraft stand.



# Use Case 4: Container transfer operations and automated boat loading in Rotterdam port

## Site

Rotterdam port terminal

*Restricted site*

## Objective

To demonstrate and validate AWARD technology on a busy Roll-in/Roll-off terminal in Rotterdam (NL). The objective is to integrate automated trailer transfer with DFDS terminal systems and operate in a live environment with other vehicles and people





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# Let's keep in touch!



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# Participate to our Acceptance Factors survey!

## AWARD Acceptance Factors Survey

(All Weather Autonomous Real logistics operations and Demonstrations)

Welcome to the AWARD Acceptance Factors Survey exploring potential benefits, concerns, and other considerations regarding connected and automated logistics systems!

The EU-2020 AWARD project (<https://award-h2020.eu/>) aims to develop systems for "All Weather Autonomous Real logistics operations and Demonstrations". The goal of this survey is to understand and gain detailed insights into the different factors that determine the acceptance of such systems. We are interested in the needs and concerns of all affected stakeholders (people interacting directly or indirectly with an automated vehicle, people involved in related processes, and other, more general stakeholder groups). Please take 10-15 min to support the development of well designed future automated logistics systems!

↪ You can find the "Next" button at the bottom of the page. ↪

AWARD faces four automated logistics use cases at different sites including diverse stakeholders and users. Subsequently, the four use cases are sketched. See the next page for a detailed description.

### Hub-to-Hub automation

Highly automated Hub-to-Hub shuttle service from warehouse/production site to a logistics hubs.

### Airport automation

Highly automated airside baggage transportation.

### Forklift automation

Highly automated loading and transportation with automated forklift.

### Port automation

Highly automated trailer transfer operations and boat loading.

This survey is conducted by AIT Austrian Institute of Technology GmbH. If you have any questions please contact [peter.froehlich@iti.ac.at](mailto:peter.froehlich@iti.ac.at).

**Data protection:**  
By participating in this survey, you agree to the storage of the data you provide by AIT Austrian Institute of Technology GmbH. The data entered will be stored and processed for scientific purposes in accordance with current data protection regulations. Further information on data protection at AIT Austrian Institute of Technology GmbH can be found at <https://www.iti.ac.at/en/disclaimer-data-protection/>.

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Next





# Thank you!



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