alice | Alliance for Logistics Innovation through Collaboration in Europe

Operational fields

Discover innovative solutions that will impact the logistics landscape over the next 3 to 5 years and beyond

OPERATIONAL FIELDS

alice | Alliance for Logistics Innovation through Collaboration in Europe

1. Long-haul & regional road transport
2. Urban logistics / Last mile
3. Rail freight
4. Waterborne
5. Ports & airports
6. Warehousing & fulfilment
7. Terminals and transhipment facilities
8. Multimodality
9. Cross-cutting IT systems and platforms

LONG-HAUL & REGIONAL ROAD TRANSPORT

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BOSCH - Secure multi-point megawatt charging station

Charging slots reservation and payment platform

Dynamic Electric Vehicles route planning tool

Interactive truck charging station finder

Battery Electric Vehicle Automated Charging

Hub-to-Hub Freight Automation

MILENCE multi-point megawatt charging hub

Finding the true value of road automation

Automated trucks motorway-to-harbour transition

Reconfigurable, Compact and Stackable Battery Architecture for Mission Tailored vehicles

GreenFleetTCO: The Future of Cost Intelligence

PdMotive: AI-Driven Battery and Fuel Cell Health Estimation for Trucks

Plug-and-Play Secure Digital Twin for Zero-Emission Commercial Vehicles and Fleets

Range Estimation for Zero-Emission Trucks

Determining the right vehicle for the right duty

Reliable mission planning for Electric Vehicles Trucks

Zero emission vehicle buying decision tool

Long-haul & regional road transport

Static/logistical infrastructure

BOSCH - Secure multi-point megawatt charging station

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192657

Developed by :

BOSCH

ALFEN

Hitachi Energy

Jema

Project by :

Operational fields | Technologies | Solutions

BOSCH SECURE, MULTI-POINT MEGAWATT CHARGING STATION

Long-haul & regional road transport

Static/logistical infrastructure

FLEXMCS

Solution description

The first secure, flexible MCS Hub at the core of the TEN-T network

The secure, multi-point Megawatt Charging Station at Bosch's site in Karlsruhe is a public charging hub designed to enable fast, simultaneous charging of heavy-duty and light-duty electric vehicles.

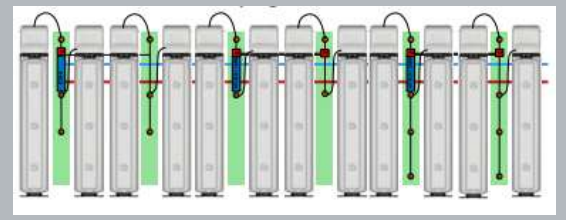
This high-power infrastructure supports over 4 MW peak power, integrates 1.2 MW battery storage system, and leverages smart energy and communication systems to ensure secure, interoperable, and efficient operations, making it ideal for high-throughput logistics environments.

Benefits

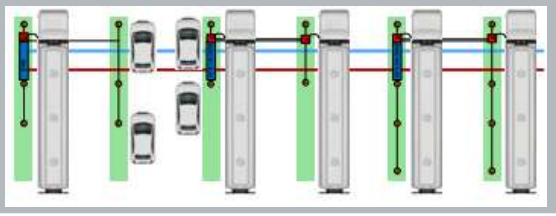
- **Ultra-fast, high-capacity charging**
  Up to 1+ MW per MCS port enables rapid turnaround for both heavy-duty and light-duty electric vehicles, minimizing downtime.
- **Multi-vehicle, multi-port flexibility.**
  Supports simultaneous charging of multiple vehicle types with 5 MCS and 18 CCS connectors
- **Secure and with Smart Energy Use.**
  A charging facility that meets all EU safety requirements, featuring an integrated battery storage and smart EMS to optimize energy flows

Main beneficiary:
CHARGING POINT OPERATORS

NIGHT **12 HDVs** charging in **6 hours**



DAYTIME **5 HDVs** charging in **≤ 45 minutes**



Technology readiness level : ***8***
Implementation stage : ***Pilot***

BOSCH SECURE, MULTI-POINT MEGAWATT CHARGING STATION

Long-haul & regional road transport

Static/logistical infrastructure

FLEXMCS

Want to receive insights on business needs and user requirements for ultra-fast charging infrastructure?

Learn more about Bosch's charging station

WATCH THE VIDEO!

Would you like to know more? Take contact :

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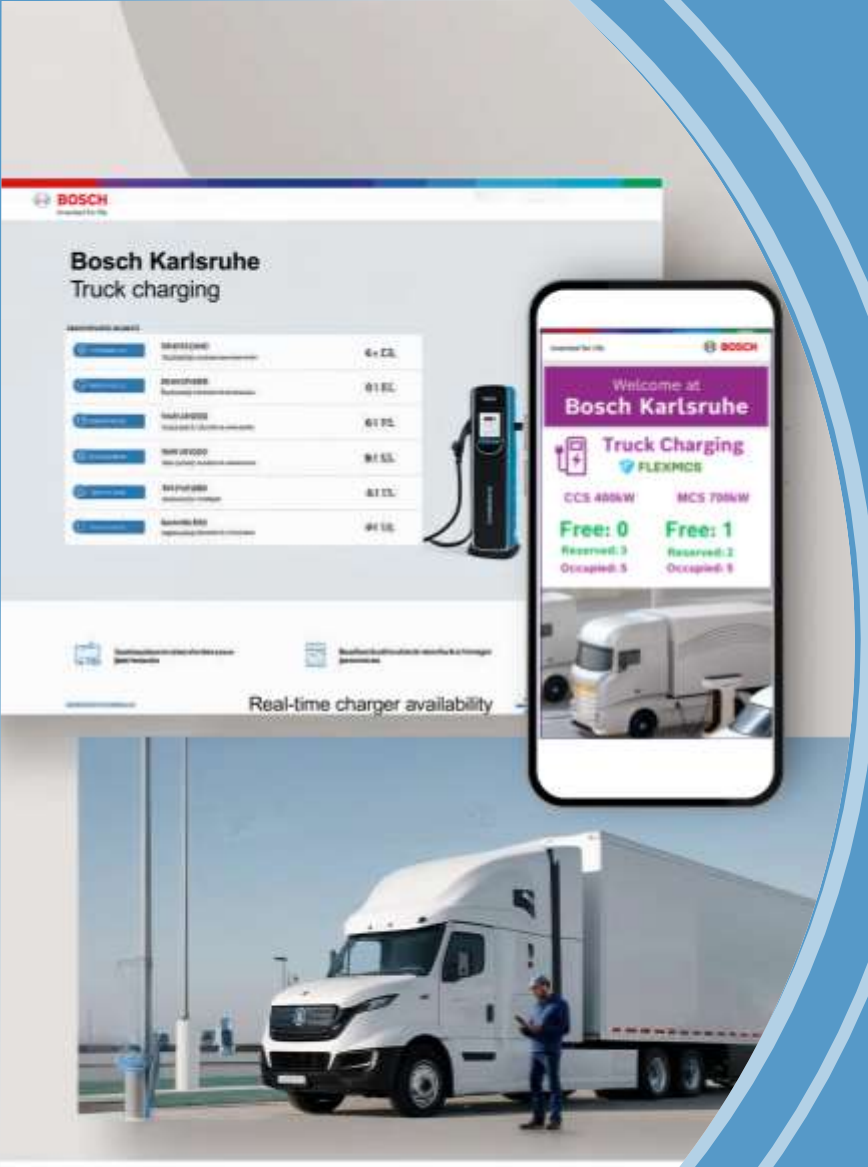
www.etp-logistics.eu/alice-projects/flexmcs/



Charging slots reservation and payment platform

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192657

Developed by :

BOSCH

DAF

IVECO

Hitachi Energy

Jema

Project by :

CHARGING SLOTS RESERVATION AND PAYMENT PLATFORM

Long-haul & regional road transport

Electrification

FLEXMCS

Solution description

A seamless charging slots booking and payment system

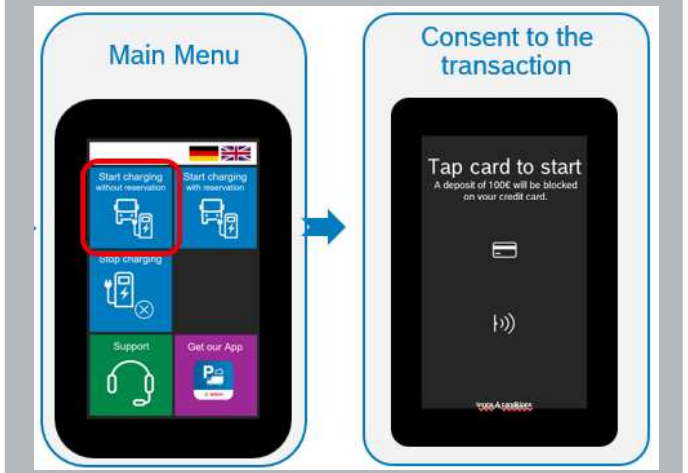
A user-friendly digital interface that allows drivers and fleet operators to reserve, access, and pay for charging slots any type of charging stations.

It supports real-time status updates, dynamic pricing, and integration with navigation and fleet management systems, ensuring efficient and predictable use of high-power charging infrastructure.

Benefits

- **Reduced waiting times**
  Avoids congestion at busy hubs through guaranteed reservation windows and real-time chargers' availability
- **Optimized charging planning**
  Integrated with route planning tools for smooth logistics operations and easy payment
- **Reliable, transparent operations**
  Displays charger reliability and reservation status directly to customers, allowing trucks drivers to start and stop their booked or ad-hoc charging sessions

Main beneficiary:
Charging point operators



Technology readiness level : *8*
Implementation stage : ***Pilot***

CHARGING SLOTS RESERVATION AND PAYMENT PLATFORM

Long-haul & regional road transport

Electrification

FLEXMCS

Want to receive insights on business needs and user requirements for ultra-fast charging infrastructure?

Share your contact details and we'll get in touch with you!

Learn more about Bosch's charging site user interface

WATCH THE VIDEO!

Would you like to know more? Take contact :

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Dynamic Electric Vehicles route planning tool

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192657

Developed by :

BOSCH

GRUBER LOGISTICS

Project by :

DYNAMIC ELECTRIC VEHICLES ROUTE PLANNING TOOL

Long-haul & regional road transport

Transport planning and execution

FLEXMCS

Solution description

Dynamic Route Planner for Battery Electric Heavy-Duty Vehicles

A smart route planning tool tailored for **electric trucks and trailers**, enabling fleet operators to calculate the **most efficient route and charging strategy** based on live and predictive data.

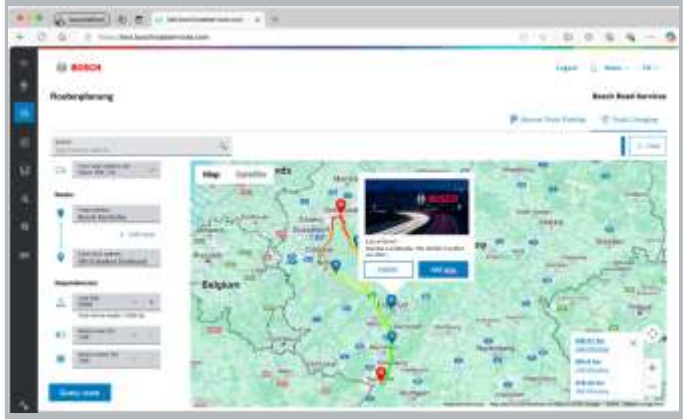
It uses physical vehicle models, battery condition, load weight, topography, weather, and live traffic to suggest optimal routes-including **stopovers**, **charging station bookings**, and **dynamic re-routing**.

Benefits

- **Optimized, Realistic Route Planning**
  Based on topography, distance, battery condition, and cargo weight. Learns from past trips and adjusts plans using real-time data
- **Integrated Charging Strategy**
  Identifies available MCS/CCS points along the route and estimates charging duration and energy needs.
- **Seamless Integration via API**
  Connects directly to fleet or transport management systems (FMS/TMS) and adapts to vehicle profiles for real-time dispatch optimization.

Main beneficiary:
LOGISTICS SERVICE PROVIDER and FLEET OWNERS

Route suggestion with SoC indication



Technology readiness level : *8*
Implementation stage : ***Pilot***

DYNAMIC ELECTRIC VEHICLES ROUTE PLANNING TOOL

Long-haul & regional road transport

Transport planning and execution

FLEXMCS

Want to receive insights on business needs and user requirements for ultra-fast charging infrastructure?

Share your contact details and we'll get in touch with you!

Learn more about Bosch's EV fleet management tool

WATCH THE VIDEO!

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Long-haul & regional road transport

Static/logistical infrastructure

Interactive truck charging station finder

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192466

Developed by :

Fraunhofer ISI

CHALMERS UNIVERSITY OF TECHNOLOGY

Project by :

Operational fields

Technologies

Solutions

INTERACTIVE TRUCK CHARGING STATION FINDER

Long-haul & regional road transport

Static/logistical infrastructure

MACBETH

Solution description

The Site Selection And Optimal Locations Tool for MCS Stations

The first **open-access web-based tool that visualizes** and ranks optimal locations for electric truck charging hubs along the European TEN-T network by analysing grid availability, parking and gas infrastructure, and local traffic flows.

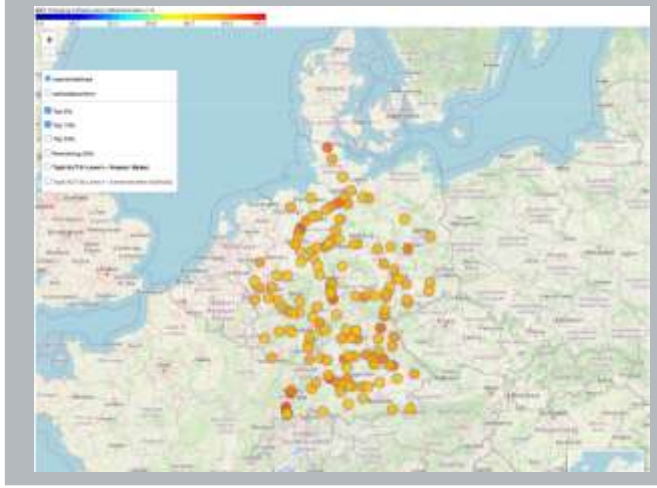
This digital tool empowers CPOs, grid operators, fleet owners and infrastructure planners with a data-rich interface to identify strategic, high-potential sites for megawatt charging infrastructure deployment.

Benefits

- **Interactive GIS-Based Web Tool**
  Allows users to explore and compare charging site potential with layered data, speeding up site pre-selection and feasibility studies for MCS hubs.
- **Up-to-Date Data Integration**
  Includes current parking/gas station data, medium-voltage grid availability, and demand forecasts.
- **EU Corridor Alignment**
  Covers TEN-T corridors with a pan-European vision for infrastructure deployment, directly supporting compliance with AFIR regulation

Main beneficiary:
CHARGING POINT OPERATORS and GRID OPERATORS

Example of User Interface



Technology readiness level : ***8***
Implementation stage : ***Pilot***

INTERACTIVE TRUCK CHARGING STATION FINDER

Long-haul & regional road transport

Static/logistical infrastructure

MACBETH

Want to receive insights on business needs and Use Cases for ultra-fast charging infrastructure?

Share your contact details and we'll get in touch with you!

Learn more about optimal locations for high-power charging hubs!

Would you like to know more? Take contact :

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Long-haul & regional road transport

Automation (physical) and robotics

Battery Electric Vehicle Automated Charging

Developed by :

einride

ROCSYS
Autonomous charging

AstaZero

Project by :

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101076810

BATTERY ELECTRIC VEHICLE CHARGING

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Solution description

An automated charging solution for battery-electric freight vehicles, enabling driverless charging during depot layovers.

Using AI-driven computer vision, patented soft robotics, and remote services, the system manages scheduled energy transfers through automated docking.

Designed for smart charging networks and V2G integration, it streamlines operations by eliminating manual intervention and enabling seamless, safe, and efficient electrification of freight transport.

Benefits

- **Accelerates EV adoption in freight**. An automated system can increase overall EV usage by eliminating the need for a technician at each charge point.
- Importantly, **safety** is improved: by removing humans from the charging process, electrical hazards are mitigated.
- The result is a greener, more flexible freight operation.

Beneficiaries: Fleet operators, depot managers, charging infrastructure providers, energy grid operators, truck OEMs, drivers associations

Technology readiness level : ***6-7***
Implementation stage : ***Pilot***

BATTERY ELECTRIC VEHICLE CHARGING

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Demonstration:

- Electric HDVs perform “driverless charging” at a depot. The demo will use planned charging schedules and automated docking so that energy transfer happens seamlessly in a CCAM* chain.
- The charging solution combines AI-based computer vision, patented soft robotics, and remote services to optimize the charging operations in a reliable, safe, and cost-efficient way.

**CCAM*: Connected, Cooperative, and Automated Mobility*

Join our CCAM Logistics Task Force to know more on MODI solutions!

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Long-haul & regional road transport

Automation (physical) and robotics

Hub-to-Hub Freight Automation

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101076810

Developed by :

einride

AstaZero

Lindholmen Science Park

Project by :

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

HUB-TO-HUB FREIGHT AUTOMATION

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Solution description

A fully automated **hub-to-hub freight transport solution showcasing Level 4 autonomous trucks.**

It enables seamless cargo movement from a distribution centre to the Port of Gothenburg, featuring automated gate access, autonomous public road driving, digital terminal clearance, and self-guided depot charging.

The system integrates communication platforms, Fleet Management Systems, Transport Management Systems, and mobile networks.

Benefits

- Streamlined logistics operations and novel business models.
- Initial assessments show Cooperative, Connected and Automated Mobility (CCAM) vehicles can cut operational costs and support more efficient transport scheduling.
- A fully automated link also enables just-in-time deliveries, increase reliability and reduce mistakes

Main beneficiaries:

Fleet, Transport, Traffic and Logistics Management Operators

Technology readiness level : ***6-7***
Implementation stage : ***Pilot***

HUB-TO-HUB FREIGHT AUTOMATION

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Use Case Germany: Transition from motorway to confined area

This Use case aims to demonstrate the following:

1. Demonstrate Level 4 automation driving on and off public roads.
2. Create and demonstrate gate access services, including request, confirmation & passing based on proper “document” handling.
3. Create and demonstrate a solution for automated loading and unloading of pallets, partly operated by the remote operator.
4. Create a better understanding of how and when the remote and the onboard operator must be involved.

Join our CCAM Logistics Task Force to know more on MODI solutions!

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Long-haul & regional road transport

Static/logistical infrastructure

MILENCE multi-point megawatt charging hub

Developed by :

milence

POWER ELECTRONICS

ROCSYS
Autonomous charging

Project by :

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192466

MILENCE MULTI-POINT MEGAWATT CHARGING HUB

Long-haul & regional road transport

Static/logistical infrastructure

Solution description

The first next generation safe and secure MDV-HDV charging hub

The secure, multi-point Megawatt Charging Station at Milence's site in Belgium is a charging hub equipped with the latest technological advancements by Power Electronics and designed to enable high throughput capacity, safety, reliability and scalability in limited space.

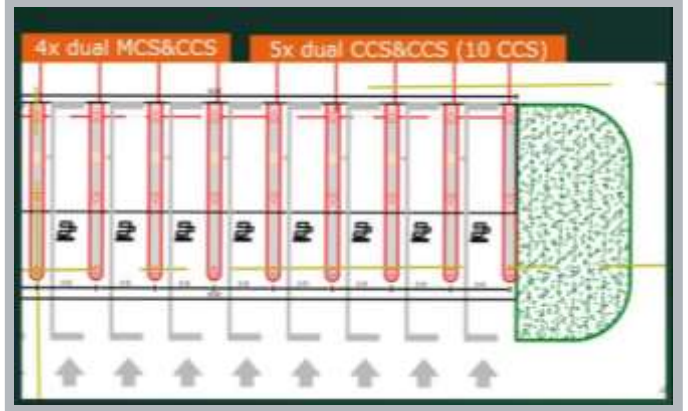
This high-power infrastructure will be the first one in Europe to feature an innovative robotic technology supplied by Rocsys for the autonomous plugging of the power cables, to improve the safety of operation in MCS hubs.

Benefits

- **Ultra-fast, high-capacity charging**
  Up to 1.2 MW per MCS port enables rapid turnaround for both heavy-duty and medium-duty electric vehicles, minimizing downtime.
- **Multi-vehicle, multi-port flexibility**
  Supports simultaneous charging of multiple vehicle types with 4 MCS and 14 CCS connectors
- **Safe, efficient and autonomous**
  With seamless access control and equipped with robotized solution for autonomous plugging to reduce the time for establishing connection and ensure driver's resting time.

Main beneficiary:
CHARGING POINT OPERATORS

Pilot hub site layout overview with 4 MCS + 14CCS



Technology readiness level : *8*
Implementation stage : ***Pilot***

MILENCE MULTI-POINT MEGAWATT CHARGING HUB

Long-haul & regional road transport

Static/logistical infrastructure

MACBETH

Want to receive insights on **business needs and Use Cases** for ultra-fast charging infrastructure?

Learn more about Milence's charging station at Hall A6, Booth 231 !

Watch the video of the site **layout** and **A/A design**

Would you like to know more? Take contact :

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https://macbethproject.eu/

Long-haul & regional road transport

Automation (physical) and robotics

Finding the true value of road automation

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101076810

Developed by :

toi

alice Alliance for Logistics Innovation through Collaboration in Europe

Project by :

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

FINDING THE TRUE VALUE OF ROAD AUTOMATION

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Solution description

Beyond the use-case demos, MODI project dedicates efforts to new business models and alliances. The project will apply frameworks to define viable CCAM-based services.

In parallel it fosters collaboration among shippers, carriers, vehicle OEMs, infrastructure providers and regulators. The goal is to identify revenue models where fleets of automated trucks deliver added value.

**CCAM*: *Connected, Cooperative, and Automated Mobility*

Benefits

- New guidelines and tools for CCAM business strategies.
- By project end, MODI will deliver a set of sustainable business models for automated freight chains.
- Results to date indicate CCAM logistics can be highly profitable when vehicles are coordinated.

Main beneficiary:
Vehicle, Fleet, Transport, Traffic and Logistics Management Operators, Authorities and OEMs

Technology readiness level : ***6-7***
Implementation stage : ***Pilot***

FINDING THE TRUE VALUE OF ROAD AUTOMATION

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Join our CCAM Logistics Task Force to know more on MODI solutions!

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Long-haul & regional road transport

Automation (physical) and robotics

Automated trucks motorway-to-harbour transition

Developed by :

new mobility solutions Hamburg

VOLVO

DAF

Project by :

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101076810

Operational fields | Technologies | Solutions

AUTOMATED TRUCKS MOTORWAY-TO-HARBOUR TRANSITION

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Solution description

Automated heavy truck approaching and entering Hamburg port via city roads, operating in mixed traffic. The vehicle follows optimal speed advisories and safety alerts through urban intersections.

The focus is on the **transition from high-speed roads to a confined port environment**. It covers driving on the German autobahn, then on busy urban/industrial roads leading into the port.

Smart coordination features will be deployed, such as, a Green Light Optimal Speed Advisory (GLOSA) system on traffic lights and VRU (vulnerable road user) detection, to smooth this transition.

Benefits

- **Smoother traffic flow and higher safety** on busy port approach roads (e.g. reducing stops at lights and improving pedestrian/cyclist detection).
- Expected outcomes include **reduced congestion and fatigue** on the corridor as Cooperative, Connected and Automated Mobility (CCAM) systems optimize truck timing.

Main beneficiaries:

Motorway operators, traffic management, Roadside Equipment (RSE), On-Board Unit (OBE) manufacturers and vehicles OEMs

Technology readiness level : ***6-7***
Implementation stage : ***Pilot***

AUTOMATED TRUCKS MOTORWAY-TO-HARBOUR TRANSITION

Long-haul & regional road transport

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Use Case Germany: Transition from motorway to confined area

This Use Case aims to demonstrate the following:

1. Verification that an automated vehicle guidance service from a motorway to a confined area through industrial and urban areas is possible and can deliver a benefit in e.g. traffic flow, operation, and the number of drivers required.
2. Verification that automated vehicles are safe for vulnerable road users / other traffic.
3. Development of corresponding generally accepted safety requirements and test procedures specifically for trucks on Level 4 automation and higher.

Join our CCAM Logistics Task Force to know more on MODI solutions!

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Long-haul & regional road transport

Asset design, sharing & modularity

FlexiPack

FlexiPack: Reconfigurable, Compact and Stackable Battery Architecture for Mission Tailored vehicles

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096598

Developed by :

BRING

IONCOR

UNIVERSITY OF SURREY

Project by :

ESCALATE

FEV

UNIVERSITY OF SURREY

Operational fields

Technologies

Solutions

FLEXIPACK: RECONFIGURABLE, COMPACT AND STACKABLE BATTERY ARCHITECTURE FOR MISSION TAILORED VEHICLES

Long-haul & regional road transport

Asset design & modularity

ESCALATE

Solution description

FlexiPack is a modular, reconfigurable battery system designed for battery electric vehicles.

Its compact, stackable architecture enables flexible integration across vehicle platforms, tailored to specific operational missions.

With a scalable energy design and future-proof form factor, it supports process digitalisation and AI readiness.

- Modular Battery Pack for BEVs
- Scalable Energy, Mission-Ready
- Reconfigurable for Any Platform
- Compact, Stackable, Space-Saving

Benefits

- Tailored Performance, On Demand
- Upgrade-Ready, Future-Proof Design
- Maximize green fleet ROI
- Flexible Form Factor, Maximum Fit

FlexiPack

Main beneficiaries:

Battery Manufactures, Vehicle Manufactures, Tier 1 Suppliers, Retrofit Companies

Design Your Fleet for Your Needs

Technology readiness level : ***TRL 7***
Implementation stage : ***Pilot***

FLEXIPACK: RECONFIGURABLE, COMPACT AND STACKABLE BATTERY ARCHITECTURE FOR MISSION TAILORED VEHICLES

Long-haul & regional road transport

Asset design & modularity

Real-World Demos

ESCALATE

FlexiPack

ELECTRA Commercial Vehicles

SISU

4 Different Mission

in Europe and UK

https://www.escalate-eu.com/

https://www.linkedin.com/company/escalate-eu-project/

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Dr. Servais Ouenou Gama: Coordinator

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https://www.escalate-eu.com

GreenFleet TCO

GreenFleetTCO: The Future of Cost Intelligence

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096598

Developed by :

UNIVERSITY OF SURREY

FORD OTOSAN

DHL

PrimaFrio

Project by :

ESCALATE

FEV

UNIVERSITY OF SURREY

GreenFleetTCO: THE FUTURE OF COST INTELLIGENCE

Long-haul & regional road transport

Electrification

ESCALATE

GreenFleet TCO

- Intuitive digital Total Cost of Ownership (TCO) platform
- Compare BEV, Fuel Cell EV, Range Extender EV, vs. diesel TCO easily
- Over 20 Scenario analysis for different mission specifications

Main beneficiaries:
Vehicle manufacturers, Tier 1 Suppliers, Fleet operators, Battery and Fuel Cell Manufacturers

Jumpstart Electrification Decisions

Technology readiness level : ***TRL 7***
Implementation stage : ***Pilot***

GreenFleetTCO: THE FUTURE OF COST INTELLIGENCE

Long-haul & regional road transport

Electrification

Real-World Demos

GreenFleet TCO

8 Different Mission in Europe and UK

https://www.escalate-eu.com/

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Operational fields | Technologies | Solutions

Long-haul & regional road transport

Electrification

PdMotive

PdMotive: AI-Driven Battery and Fuel Cell Health Estimation for Trucks

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096598

Developed by :

University of Surrey

cea

AI4SEC

inegi

LAT

virtual vehicle

Project by :

ESCALATE

FEV

University of Surrey

Operational fields

Technologies

Solutions

PDMOTIVE: AI-DRIVEN BATTERY AND FUEL CELL HEALTH ESTIMATION FOR TRUCKS

Long-haul & regional road transport

Electrification

ESCALATE

Solution description

AI-driven Software as a Service platform providing real-time, predictive **health diagnostics for battery** and fuel cell trucks.

The solution delivers actionable insights through scalable, transparent analytics with explainable AI.

It supports **proactive maintenance by forecasting failures up to 100 hours in advance**, enhancing operational efficiency.

- AI-Driven SaaS Platform for Energy Storage Health
- Actionable Insights in Real Time
- Proactive Predictive Maintenance

Benefits

PDMOTIVE

- Real-Time Monitoring
- Predictive Analytics
- Cost Efficient Maintenance
- Scalable & Transparent Solution with Explainable AI

Explore!

Main beneficiaries:

Vehicle manufacturers, Tier 1 Suppliers, Fleet operators

From Physical to Digital

Technology readiness level : ***TRL 7***
Implementation stage : ***Pilot***

PDMOTIVE: AI-DRIVEN BATTERY AND FUEL CELL HEALTH ESTIMATION FOR TRUCKS

Long-haul & regional road transport

Electrification

Real-World Demos

PDMOTIVE

Prediction of Failures and Health of Battery and Fuel Cell up to 100 Hours

https://www.escalate-eu.com/

https://www.linkedin.com/company/escalate-eu-project/

ESCALATE

Would you like to know more? Take contact :

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Long-haul & regional road transport

Electrification

TwinSphere

TwinSphere: Plug-and-Play Secure Digital Twin for Zero-Emission Commercial Vehicles and Fleets

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096598

Developed by :

Project by :

Operational fields

Technologies

Solutions

TWINSPHERE: PLUG-AND-PLAY SECURE DIGITAL TWIN FOR ZERO-EMISSION COMMERCIAL VEHICLES AND FLEETS

Long-haul & regional road transport

Electrification

ESCALATE

Solution description

TwinSphere is a plug-and-play secure Digital Twin designed for zero-emission battery and fuel cell commercial fleets.

It enables **rapid simulation of routes and fleet configurations,** supports scalable deployment from single vehicles to full fleets, and ensures secure, compliant data management for optimised transport planning and execution.

- Plug-and-play Digital Twin for zero-emission battery and fuel cell fleets
- Simulate routes and fleet setups instantly
- Scale from one vehicle to full fleets
- Customize your fleet

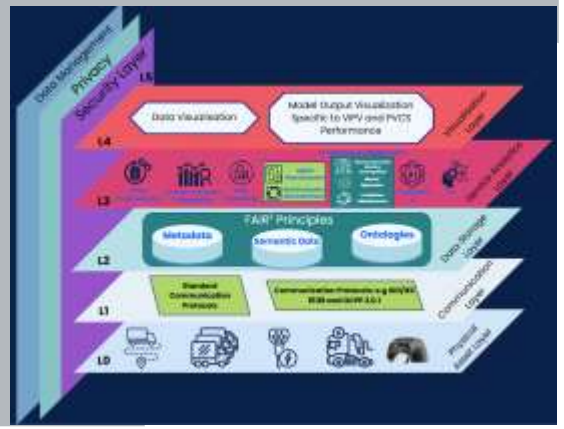
Benefits

- Optimize fleet electrification strategy
- Built-in data security and compliance
- Maximize green fleet ROI
- Scalable & Transparent Solution

TwinSphere

Main beneficiaries :
Fleet Operators, Vehicle, Battery & Fuel-cell Manufactures, Tier 1 Suppliers, Maintenance Service Providers

Digitalize & Optimize your Operations



Technology readiness level : ***TRL 7***
Implementation stage : ***Pilot***

TWINSPHERE: PLUG-AND-PLAY SECURE DIGITAL TWIN FOR ZERO-EMISSION COMMERCIAL VEHICLES AND FLEETS

Long-haul & regional road transport

Electrification

Real-World Demos

TwinSphere

6 Different Missions in Europe and UK

https://www.escalate-eu.com/

https://www.linkedin.com/company/escalate-eu-project/

ESCALATE

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Operational fields | Technologies | Solutions

Long-haul & regional road transport

Electrification

ZeroPath: Range Estimation for Zero-Emission Trucks

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096598

Funded by the European Union

Developed by :

Project by :

Operational fields

Technologies

Solutions

ZeroPath: RANGE ESTIMATION FOR ZERO-EMISSION TRUCKS

Long-haul & regional road transport

Electrification

ESCALATE

Solution description

ZeroPath is an AI-powered solution that delivers accurate, real-time range estimation for zero-emission heavy-duty trucks.

Designed for transport planning and execution, it provides predictive insights to optimise electric vehicle operations.

- AI-Powered Range You Can Trust
- Real-Time Insights, Smarter Driving
- Predictive Range for Heavy-Duty EVs
- Drive Further with AI Precision

Benefits

- **Max Range, Zero Guesswork**
- **Upgrade-Ready, Future-Proof Design**
- **Maximize green fleet ROI**
- **Optimized for Real-World Conditions**

ZEROPATH
ZERO EMISSION TRUCKS

Main beneficiary:

Vehicle Manufacturers,
Fleet Operators, Tier 1 Suppliers

Power of AI eliminating Range Anxiety

Technology readiness level : ***TRL 7***
Implementation stage : ***Pilot***

ZeroPath: RANGE ESTIMATION FOR ZERO-EMISSION TRUCKS

Long-haul & regional road transport

Electrification

Real-World Demos

ESCALATE

BMC

ZEROPATH
ZERO EMISSION TRUCKS

ELECTRA
Commercial Vehicles

4 Different Mission in Europe and UK

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https://www.linkedin.com/company/escalate-eu-project/

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Long-haul & regional road transport

Digital Twins, AI and predictive technologies

Determining the right vehicle for the right duty

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101095856

Developed by :

HAN_UNIVERSITY OF APPLIED SCIENCES

PTV GROUP

TNO

Project by :

ZEFES

Operational fields | Technologies | Solutions

DETERMINING THE RIGHT VEHICLE FOR THE RIGHT DUTY

Long-haul & regional road transport

Digital Twins, AI and predictive technologies

ZEFES

Solution description

An AI-driven solution that automates the selection of suitable EMS vehicle combinations for specific routes.

It uses advanced vehicle dynamics models and **digital twins of both vehicles and infrastructure** to assess feasibility, including swept path analysis for complex manoeuvres such as roundabouts and sharp turns.

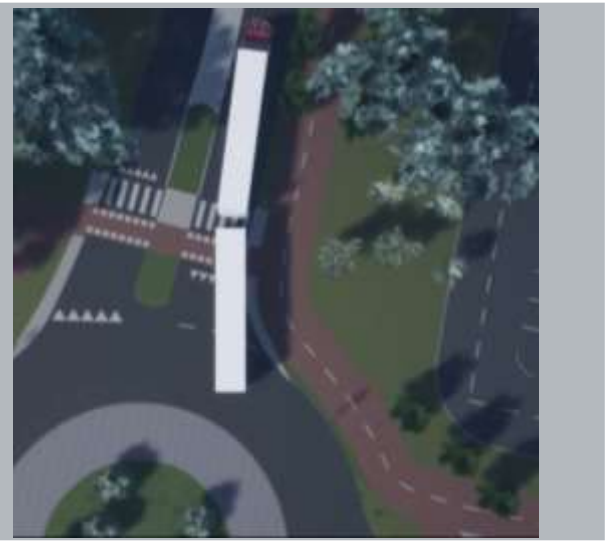
Designed for ports, terminals, and logistics operators managing HGV movements.

Benefits

- **Optimised vehicle deployment**. Ensures the most suitable vehicle is assigned to each route, improving efficiency.
- **Enhanced safety and compliance**. Identifies route constraints using digital twins and swept path analysis.
- **Reduced operational costs**. Minimises trial-and-error in route planning, saving time and resources.

Main beneficiary:

All companies involved in the operation of HGVs



Technology readiness level : *7*

Implementation stage : ***Pilot***

DETERMINING THE RIGHT VEHICLE FOR THE RIGHT DUTY

Long-haul & regional road transport

Digital Twins, AI and predictive technologies

ZEFES

Intelligent access

Returns the feasibility of driving a type of EMS combination on a particular road network

- Fully automated workflow
- Using advanced vehicle dynamics models
- Digital twinning of vehicle and road infrastructure

Swept path analysis

- Roundabouts
- Sharp turns

Watch how these digital twins work ->

www.zefes.eu

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Long-haul & regional road transport

Electrification

Reliable mission planning for Electric Vehicles Trucks

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101095856

Developed by :

PTV GROUP

HAN_UNIVERSITY OF APPLIED SCIENCES

Project by :

ZEFES

Operational fields | Technologies | Solutions

RELIABLE MISSION PLANNING FOR EV TRUCKS

Long-haul & regional road transport

Electrification

ZEFES

Solution description

IT based mission planning tool

IT-based solution enabling realistic mission planning for electric trucks.

By simulating routes with digital twins, it accounts for variables such as weather, terrain, payload, battery status, and traffic.

This ensures accurate calculations of energy consumption, range, and optimal charging strategies for complex, multi-stop logistics operations.

Benefits

- Calculate routes using digital twins of electric trucks and gain insight into how these vehicles operate on the road.
- Calculate energy consumption, range, and optimized charging scenarios for realistic truck routes that include multiple stops with varying payloads, considering weather, elevation, truck restrictions, road traffic, or driver behavior.
- Simulation of different weather conditions, battery aging, or battery condition settings.

Main beneficiaries:

For LSPs and for fleet owners

Technology readiness level : *7*
Implementation stage : ***Pilot***

RELIABLE MISSION PLANNING FOR EV TRUCKS

Long-haul & regional road transport

Electrification

ZEFES

This solution will help you:

Calculating routes in a realistic scenario, with multi-stop routes, weather truck restrictions etc. provides valuable insights, into which routes are feasible for specific vehicles and which not.

Time to simulate: How does the vehicle behave in winter/summer, with strong headwinds, or if the battery is only half full? Where do you have to place chargers, so routes are feasible, and how long do they have to charge?

Take a photo of this slide and get in touch to learn how we can support your EV fleet planning.

www.zefes.eu

Would you like to know more? Take contact :

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Zero emission vehicle buying decision tool

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101095856

Developed by :

RICARDO

TNO

VUB

Fraunhofer

Project by :

ZEFES

ZERO EMISSION VEHICLE BUYING DECISION TOOL

Long-haul & regional road transport

Electrification

ZEFES

Solution description

A digital tool designed to support HGV fleet operators and buyers in evaluating the transition to zero-emission vehicles.

It assesses the suitability of different powertrains and calculates operational and capital expenditure to determine the most cost-effective and sustainable options for specific logistics operations.

The tool enables informed decision-making in planning future fleet composition and decarbonisation strategies.

Benefits

- Identifies the most cost-effective zero-emission vehicle options
- Optimises fleet powertrain mix for operational efficiency
- Calculates Total Cost of Ownership, including OPEX and CAPEX
- Supports strategic planning for sustainable fleet transition

Main beneficiaries:
All companies involved in the purchase and/or operation of HGV's

Technology readiness level : *7*
Implementation stage : *Pilot*

ZERO EMISSION VEHICLE BUYING DECISION TOOL

ZEFES

Interested? Snap a photo of the contact details and get in touch to learn more!

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URBAN LOGISTICS / LAST MILE

alice | Alliance for Logistics Innovation through Collaboration in Europe

- Analytic processing platform on top of data spaces
- Mobility monitoring using swarms of drones
- Urban Access Control integration in transport planning tool
- Urban Freight Data Space
- Strategic Planning for Optimized Urban Logistics Hubs Location
- Small Flexible Autonomous Zero-emission Vessel (SFAZ)
- Safe GeoFenced N1 right-sized vehicle
- CitIQore: An URBANE Digital Twin Application
- Next generation of Electric Powertrains
- Electric Trucks Digital Twinning
- Medium duty freight transport: cost-effective electric solutions
- Zero emission and autonomous sailing: X-Barge
- Dynamically optimised vehicle space - Dual transport & Cargo Hitching
- Modular Swappable Load Unit Concept
- Holistic energy management for electric vehicles deliveries in cold chains
- Multi-Temperature Cargo Body & Optimised Thermal Comfort
- Helsinki: shared micro-hubs with Autonomous Delivery Vehicles
- Shared parcel locker network by Blockchain smart contracts

Analytic processing platform on top of data spaces

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101104263

Developed by :

NTT DATA

Project by :

DELPHI

ANALYTIC PROCESSING PLATFORM ON TOP OF DATA SPACES

Urban logistics / Last mile

Traffic and access management, navigation

DELPHI

Solution description

The solution provides a secure, controlled, traceable and data governance compliance environment for data exchange using a European Mobility Data Space Connector.

It **automates data transfers** with Apache Airflow, large-scaled data storage is handled by ClickHouse, and enables real-time **visualisation and monitoring via Grafana**.

Each component supports reliable, scalable processing and analysis of mobility and transport data across urban ecosystems.

Benefits

- Integrates multimodal transport data for better coordination
- Secures data exchange with full traceability
- Supports transparent, open data governance
- Enables data-driven urban mobility decisions
- Automates data transfers and updates
- Provides real-time operational insights

Main beneficiaries:

- Municipalities managing urban mobility.
- Public transportation authorities and operators.
- Providers of mobility and transportation services.

Technology readiness level : ***6***
Implementation stage : ***Pilot***

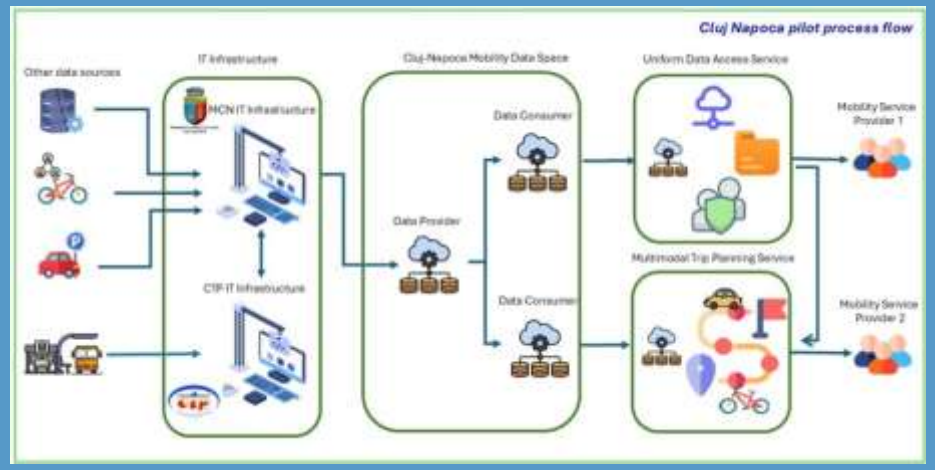
ANALYTIC PROCESSING PLATFORM ON TOP OF DATA SPACES

Urban logistics / Last mile

Traffic and access management, navigation

DELPHI

Cluj-Napoca municipality mobility data sharing



Connect to Mihail Huela on LinkedIn

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Urban logistics / Last mile

Traffic and access management, navigation

Mobility monitoring using swarms of drones

Developed by :

MOBILYSIS

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101104263

Project by :

DELPHI

Mobility monitoring using swarms of drones

Urban logistics / Last mile

Traffic and access management, navigation

DELPHI

Solution description

Innovative mobility solutions for sustainable cities

Cutting-edge traffic analysis: Leveraging AI and drones for multimodal mobility insights

Privacy-friendly data collection: Advanced computer vision without personal data risks

Optimised urban mobility: Data-driven solutions to reduce congestion and emissions

Bridging research & practice: Translating top-tier academic findings into real-world impact

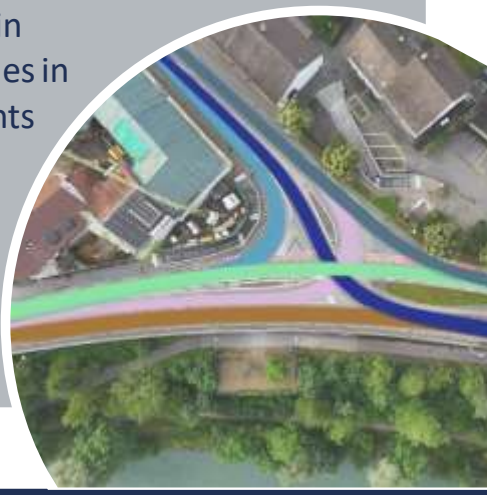
Benefits

- **Comprehensive AI-driven multimodal analysis**
- **High-resolution, large-scale data collection**
- **Cost-effective & scalable**
- **Impactful insights for decision-making**
  - Inclusion of soft modes & VRUs
  - Reduced congestion
  - Reduced emissions
  - Road safety

Main beneficiaries:

- Cities & Municipalities
- Mobility Consultants
- Research Institutions

- École polytechnique fédérale de Lausanne (EPFL) spin-off
- Presence in 10 countries in 4 continents



Technology readiness level : *9*
Implementation stage : ***Market-ready***

Mobility monitoring using swarms of drones

Urban logistics / Last mile

Traffic and access management, navigation

DELPHI

Our DELPHI use cases

Madrid: Leveraging drone data to optimise micro-mobility for last-mile delivery, considering safety, emissions, and efficiency.

Mykonos: Utilising drones to gather high-quality traffic data, enhancing optimization strategies for local bus operations.

Athens: Deploying drones for traffic monitoring, CO_2 and noise emission estimation, and correlation analysis.

Find out more here

Would you like to know more? Take contact :

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Urban logistics / Last mile

Traffic and access management, navigation

Urban Access Control integration in transport planning tool

Developed by :

BEMOBILE

EMPOWERING LOGISTICS

imec

Project by :

DISC

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101103954

Operational fields | Technologies | Solutions

URBAN ACCESS CONTROL INTEGRATION IN TRANSPORT PLANNING TOOL

Urban logistics / Last mile

Traffic and access management, navigation

Solution description

A tool for optimizing your transport planning system and route navigation

Urban Access Control (UAC): create value out of data-sharing between cities and logistics providers by **integrating access rules (UVAR) in logistics processes.**

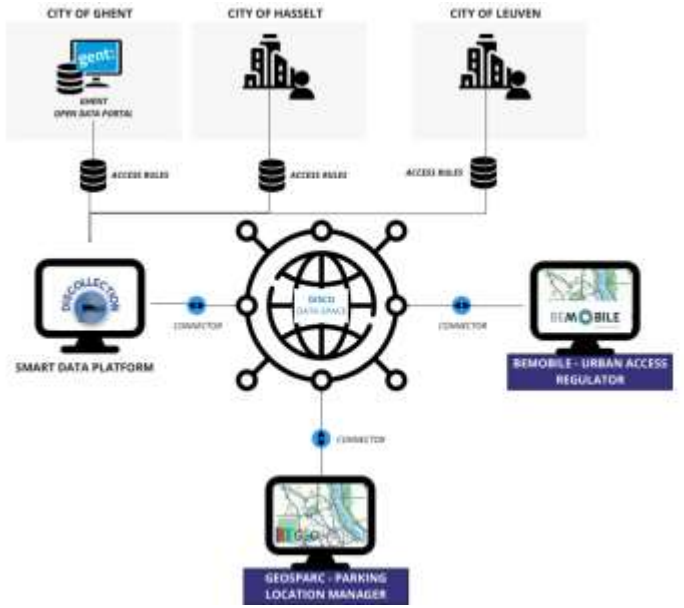
Benefits

The Urban Access Control platform:

- **Integrates access rules** in logistics planning tools
- Calculates and proposes **sustainable alternatives**
- Provides **optimized real-time route navigation** enriched with Points Of Interests (POI)

Main beneficiaries:

Cities, transport planning systems, transport companies



Technology readiness level : *8*
Implementation stage : *pilot*

URBAN ACCESS CONTROL INTEGRATION IN TRANSPORT PLANNING TOOL

Urban logistics / Last mile

Traffic and access management, navigation

Coordinated by FIT

Ghent city – Dropon (tms-provider)

- Ghent digitized all access regulations, (un)loading zones, school zones,…
- This data is provided to the dataspace of DISCO
- The UAC platform is also integrated with the dataspace to receive this data.
- The TMS system Dropon is integrated with the UAC, and retrieves the necessary data to make an optimised planning.

=> averagely, in a route of 10km, the UAC warns for no less than 10 dangerous spots and warns for 7 adaptations in vehicle / route planning!

Implement Urban Access Control for yourself!

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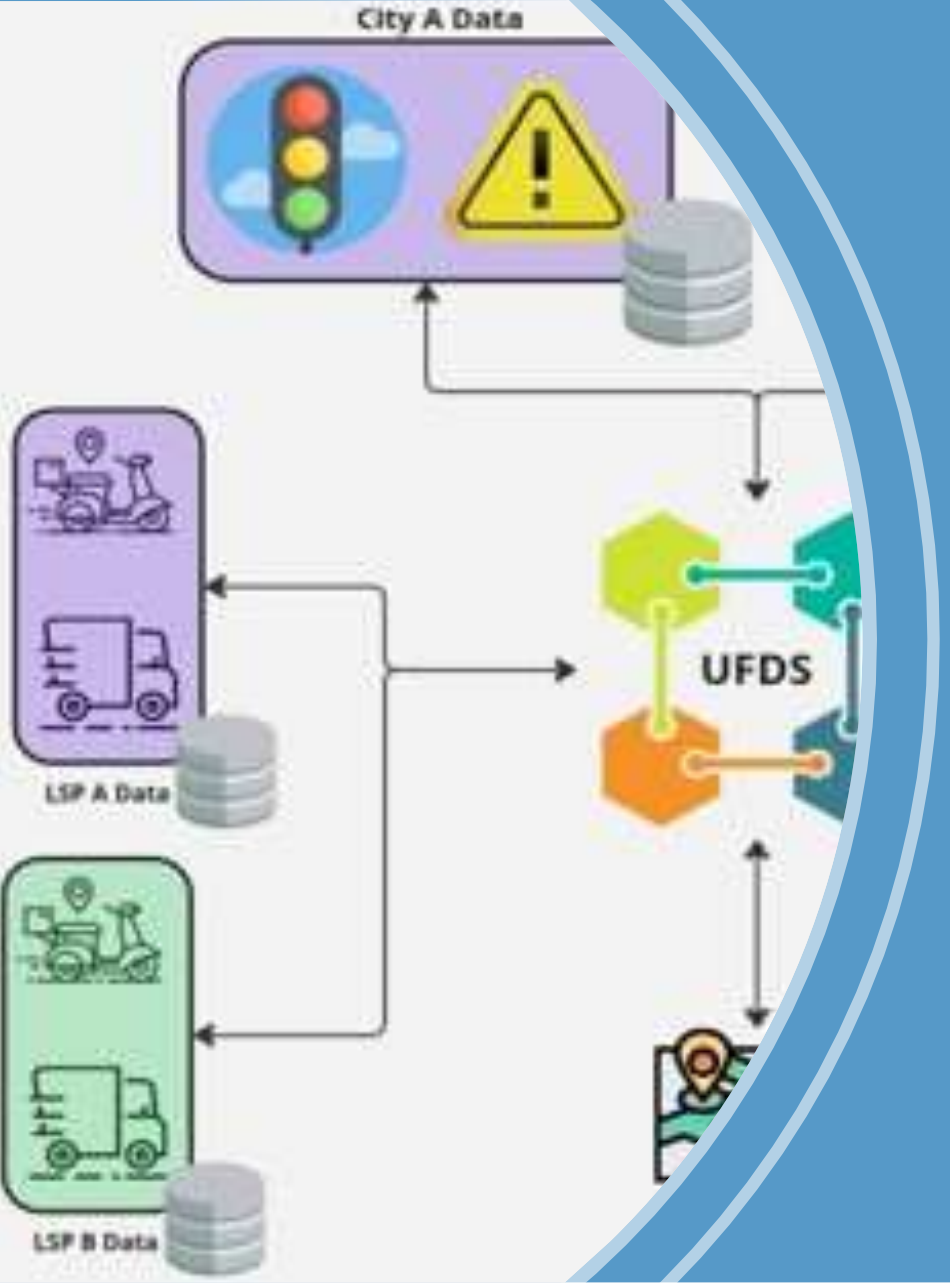


Urban Freight Data Space

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101103954

Developed by :

inlecom

AKKODIS

imec

Project by :

DISC

URBAN FREIGHT DATA SPACE

Urban logistics / Last mile

Collaborative processes, connectivity and data

Solution description

URBAN FREIGHT DATA SPACE

The Urban Freight Data Space (UFDS) is an innovative **data-sharing ecosystem** designed to revolutionize urban logistics by enabling secure, standardized, and collaborative data exchange between various stakeholders.

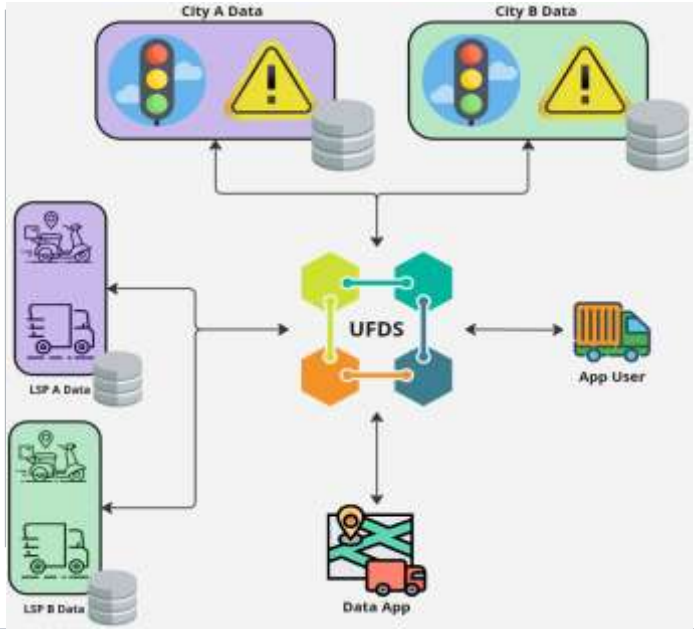
It promotes data sovereignty, ensuring participants maintain control over their data while benefiting from shared insights. UFDS provides a scalable platform for integrating city-owned and private datasets, enhancing collaboration and operational efficiency in urban freight logistics.

Benefits

- **Collaboration & efficiency:** Connects stakeholders (transport operators, city planners, retailers) for seamless, optimized logistics.
- **Data sovereignty:** Retains data control while enabling shared insights.
- **Standardization & interoperability:** Provides a framework for seamless integration of various data sources and standards, promoting unified operations.
- **Future-proof platform:** Ready for private data integration.

Target Audience & Stakeholders:

- **Beneficiaries:** Transport operators, city planners, retailers, delivery services, municipalities.
- **Data Providers:** City-owned sources (Ghent, Thessaloniki), future private data owners.
- **Users:** Application developers, analysts, logistics companies, city authorities, researchers.



Technology readiness level : ***TRL 6-7***
Implementation stage : ***PILOT***

URBAN FREIGHT DATA SPACE

Urban logistics / Last mile

Collaborative processes, connectivity and data

Coordinated by FIT

Take a photo of this slide and get in touch to learn more about the Urban Freight Data Space

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Urban logistics / Last mile

Digital Twins, AI and predictive technologies

Strategic Planning for Optimized Urban Logistics Hubs Location

Developed by :

URBAN RADAR

Las Rozas Innova

BRAGA

Project by :

eit Urban Mobility

Co-funded by the European Union

Operational fields | Technologies | Solutions

STRATEGIC PLANNING FOR OPTIMIZED URBAN LOGISTICS HUBS LOCATION

Urban logistics / Last mile

Digital Twins, AI and predictive technologies

URBAN RADAR

Solution description

An innovative digital platform for strategic planning of urban logistics hubs.

It integrates **multi-source data** with advanced spatial analytics, offering a **dynamic dashboard**, interactive **map-based data visualisation**, and precision filtering to identify optimal micro-hub locations and improve last-mile delivery efficiency in smart cities.

Benefits

- Identifies optimal micro-hub locations with precision
- Enhances efficiency of last-mile delivery
- Reduces urban congestion and emissions
- Supports data-driven urban logistics planning
- Facilitates collaboration among stakeholders
- Improves quality of life in cities
- Enables real-time, location-specific decision-making

Main beneficiary:

Municipalities and urban planners

Technology readiness level : *8*
Implementation stage : ***Pilot***

STRATEGIC PLANNING FOR OPTIMIZED URBAN LOGISTICS HUBS LOCATION

Urban logistics / Last mile

Digital Twins, AI and predictive technologies

- **Multi-Source Data Integration**: Incorporates historical, static, and dynamic data types for a comprehensive, layered analysis.
- **Integrated Dashboard**: Offers a powerful dashboard that allows users to dive deeper into specific analytics and metrics.
- **Map-Based Data Visualization**: Provides clear, map-based views of data, making it easier to interpret spatial information and patterns.
- **Advanced Filtering System**: Customized filters based on location, time range, vehicle type, and other parameters, allowing for targeted, precise data analysis and enhanced decision-making.

Spatial analytics for smart cities

Urban Radar website

Urban Radar LinkedIn

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Urban logistics / Last mile

Automation (physical) and robotics

Small Flexible Autonomous Zero-emission Vessel (SFAZ)

Developed by :

NEAC INDUSTRY

HOUT & BOUW OPLEIDINGSCENTRUM

Project by :

FOREMAST

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101138261

SMALL FLEXIBLE AUTONOMOUS ZERO-EMISSION VESSEL (SFAZ)

Urban logistics / Last mile

Automation (physical) and robotics

FOREMAST

Solution description

The vessel is less than 20 meters and can sail in estuaries, urban waterways an in shallow waters.

Tight turns can be taken and cargo of different kinds can be (un)loaded.

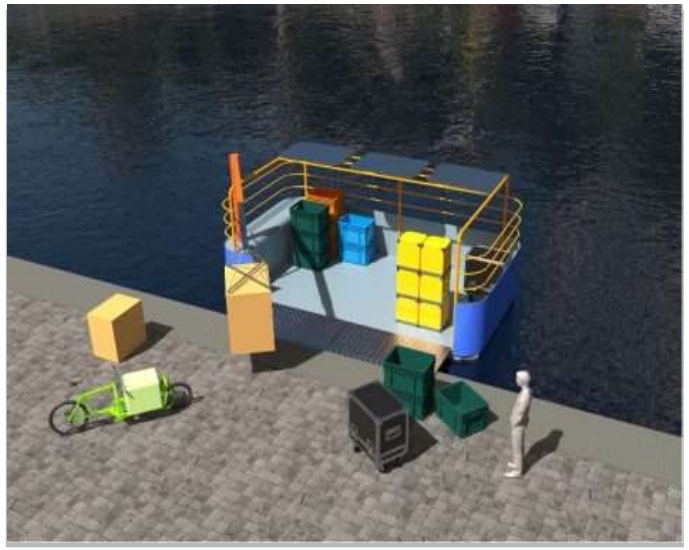
Autonomous sailing is foreseen and Swarming and Platooning will be a possibility.

Zero-emission by means of hybrid and/or electric energy solutions.

Benefits

- Alternative for (electric) vans/trucks used for urban logistics.
- Use resources more efficiently, cutting energy consumption and emissions
- Reduces congestion in the cities
- Safer urban environment for pedestrians, cyclists,..
- Increase terminal capacity

Main beneficiary:
Cities (and their citizens, visitors) having an exploitable Urban Waterway Network



Technology readiness level : *6*
Implementation stage : *Pilot*

SMALL FLEXIBLE AUTONOMOUS ZERO-EMISSION VESSEL (SFAZ)

Urban logistics / Last mile

Automation (physical) and robotics

FOREMAST

Demo's :

Gent (BE):
transporting cargo between **urban industrial sites** via canals

Caen (FR):
using small automated vessels to move goods within the city's canals as an alternative to road vans

Share your contact details and we'll get in touch with you!

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https://www.etp-logistics.eu/
https://foremast.eu/

Urban logistics / Last mile

Transport planning and execution

Safe GeoFenced N1 right-sized vehicle

Developed by :

PAXSTER a better day

toi Institute of Transport Economics Norwegian Centre for Transport Research

alkè

CERTH/HIT Hellenic Institute of Transport

Moving innovation

eurecat

Project by : Horizon Europe

SHIFT2ZERO

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192375

GEOFENCED N1 RIGHT-SIZED VEHICLE

Urban logistics / Last mile

Transport planning and execution

SHIFT2ZERO

Solution description

Geofenced N1 right-sized vehicles for safe driving in restricted urban areas

Advanced geofencing tools to manage urban logistics more effectively, using open standards already adopted by cities.

Working on vehicle-to-infrastructure connectivity, leveraging IoT and existing digital platforms of IVECO and Alkè that enable real-time monitoring of vehicles locations in the cloud.

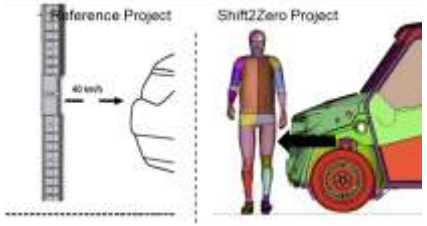
This concept extends beyond speed limits in geofencing, to explore various parameters such as specific delivery permissions and load restrictions in those areas.

Benefits

- Offering city authorities and operators a **smarter way to manage logistics** in **increasingly regulated environments.**
- **Vehicle-to-infrastructure** connectivity enhances **safety and compliance**, with in-cabin alerts that guide drivers in sensitive areas.
- Vehicle passengers' and pedestrians' safety is optimized with 3D-printed components and sustainable materials that reduce emissions.

Main beneficiaries:
Infrastructure manager & operator, Fleet managers, logistics operators, car sharing operators

- Smart way to manage logistics
- Enhanced safety
- Increase market penetration of eLCV made in Europe



Technology readiness level : ***TRL 7 / TRL 8***
Implementation stage : ***Pilot***

GEOFENCED N1 RIGHT-SIZED VEHICLE

Urban logistics / Last mile

Transport planning and execution

Modularity & standardisation and transhipment

- **Modularity & standardisation (Bergen)**: Revealing the e-LCVs movements and allowing for more streamlined interaction with available infrastructure and other road users, while supporting UVAR implementation.
- **Transhipment (Thessaloniki)**: Allowing for optimal transportation network design and dynamic traffic management, supporting strategic planning for fleet, space, and operational characteristics of provided service.
- **Transhipment (Bologna)**: Responding to the user need for extended time windows for battery EVs in the city centre.

Safe and ergonomic systems design

- **Pedestrian safety:** Bonnet & Bumper re-styling and Frontal area review
- **Passive safety:** Door Trim redesign with Bio-Plastic and auxetic structure

Visit our website!

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Urban logistics / Last mile

Digital Twins, AI and predictive technologies

CitIQore: An URBANE Digital Twin Application

Developed by :

Vonnecta systems

Project by :

URBANE

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069782

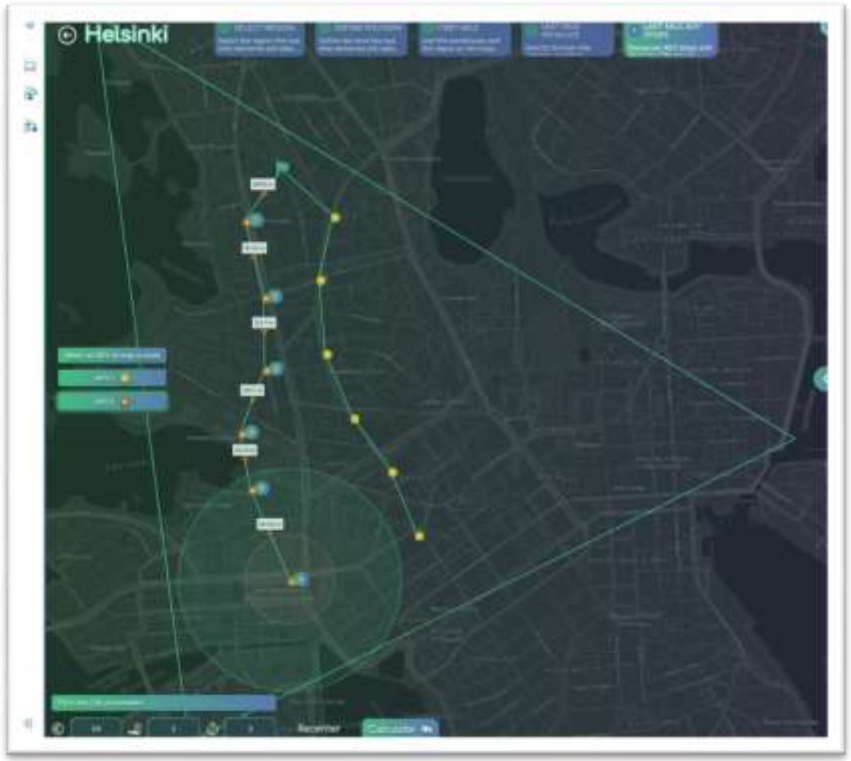
CitIQore: An URBANE Digital Twin Application

Urban logistics / Last mile

Digital Twins, AI and predictive technologies

URBANE

Autonomous Delivery Vehicles (ADV)



E-Cargo Bikes

Technology readiness level :
Implementation stage :

CitIQore: An URBANE Digital Twin Application

Urban logistics / Last mile

Digital Twins, AI and predictive technologies

- **REPLICABILITY:** CitIQore can be used in scenarios applied to different urban contexts across Europe. **Follower** cities have been added as markers on the map.
- **SCALABILITY:** By integrating new models to the DT, new interventions can be developed and included in CitIQore (e.g., sister projects).
- **EASE OF USE:** Key lesson learned: User-friendly interfaces enhance engagement & efficiency of the developed solutions.

www.urbane-horizoneurope.eu

Check our videos:

Last Mile Delivery with ADVs

Collaborative Delivery between Last Milers

Last Mile Delivery with e-Bikes

Urban logistics / Last mile

Electrification

Next generation of Electric Powertrains

Developed by :

Irizar

FORD OTOSAN

Jema innovative energy

TNO

Project by :

NextETRUCK

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101056740

NEXT GENERATION OF ELECTRIC POWERTRAINS

Urban logistics / Last mile

Electrification

Solution description

Electric powertrains offer zero tailpipe emissions, lower operating costs, reduced noise, and smoother acceleration.

They require less maintenance than diesel engines and support sustainability goals, making them ideal for urban transport and environmentally conscious operations.

Benefits

- **Integrated e-axles:** Combination of e-motor, inverters and gearboxes improve efficiency & installation.
- **Advanced regenerative braking systems:** Enhanced energy recovery extends range and reduces wear & tear.
- **Smart thermal management:** Intelligent cooling and heating systems optimised for battery and motor performance across varying load conditions.

Main beneficiary:

OEMs

Technology readiness level : *7*
Implementation stage : ***PILOT***

NEXT GENERATION OF ELECTRIC POWERTRAINS

Urban logistics / Last mile

Electrification

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NextETRUCK.EU

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Urban logistics / Last mile

Electrification

Electric Trucks Digital Twinning

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101056740

Developed by :

AVL

VUB VRIJE UNIVERSITEIT BRUSSEL

TNO

Project by :

NextETRUCK

Operational fields | Technologies | Solutions

ELECTRIC TRUCKS DIGITAL TWINNING

Urban logistics / Last mile

Electrification

Solution description

Digital twinning creates a virtual replica of physical assets, enabling real-time monitoring, predictive maintenance, and performance optimisation.

It's a smart, innovative tool driving efficiency and better decision-making across industries.

Benefits

- **Improved maintenance planning:** Real-time monitoring helps predict component wear and prevent unexpected breakdowns.
- **Enhanced energy efficiency:** Simulations optimise route planning and battery usage, reducing operational costs.
- **Faster design iterations:** Virtual testing accelerates development of performance upgrades and customisations.

Main beneficiary:

Fleet Managers

Technology readiness level : ***7***
Implementation stage : ***PILOT***

ELECTRIC TRUCKS DIGITAL TWINNING

Urban logistics / Last mile

Electrification

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Urban logistics / Last mile

Electrification

Medium duty freight transport: cost-effective urban freight electric solutions

Developed by :

Irizar

FORD OTOSAN

Jema Irizar Group | innovative energy

TNO

Project by :

NextETRUCK

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101056740

MEDIUM DUTY FREIGHT TRANSPORT: COST-EFFECTIVE URBAN FREIGHT ELECTRIC SOLUTIONS

Urban logistics / Last mile

Electrification

Solution description

Electric medium duty trucks offer a cost-effective urban freight solution by reducing fuel and maintenance costs.

These vehicles allow to omit emissions charges, and potentially benefiting from government incentives.

Benefits

- **Zero Emissions & Reduced Noise:** No impact by access regulations (LEZs & UVARs)
- **Right-Sized for Urban Access:** 18 tons trucks balance payload capacity and manoeuvrability for historic centres & curb side unloading
- **Lower TCO:** Lower maintenance costs and sufficient range (200+km, tested over +6 months) offer competitive long-term savings.

Main beneficiary:

Logistics Providers

Technology readiness level : *7*
Implementation stage : ***PILOT***

MEDIUM DUTY FREIGHT TRANSPORT: COST-EFFECTIVE URBAN FREIGHT ELECTRIC SOLUTIONS

Urban logistics / Last mile

Electrification

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Urban logistics / Last mile

Automation (Physical) and Robotics

Zero emission and autonomous sailing: X-Barge

Developed by :

imec

ZULU ASSOCIATES

Project by :

SEAMLESS

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096923

ZERO EMISSION AND AUTONOMOUS SAILING: X-BARGE

Urban logistics / Last mile

Automation (Physical) and Robotics

SEAMLESS

Ships As A Service" ("SAAS")

The service will operate on a **time-charter basis** and include a full-service package encompassing remote monitoring and control, energy bunkering, cargo and port handling, maintenance, and data gathering. The X-Barges are supported by integrated green port infrastructure and energy bunkering systems, enabling seamless operations along inland waterways. The first vessels are expected to be operational by Q3 2026, delivering sustainable and efficient logistics for cargo owners and operators.

Benefits

- Sustainable
- Tackles crew shortages
- Modular energy packs
- Energy efficient design
- Futureproof design
- Reduction/elimination of human error
- Standardisation of risk

Main beneficiaries:
Shipping companies, logistics providers, freight forwarders

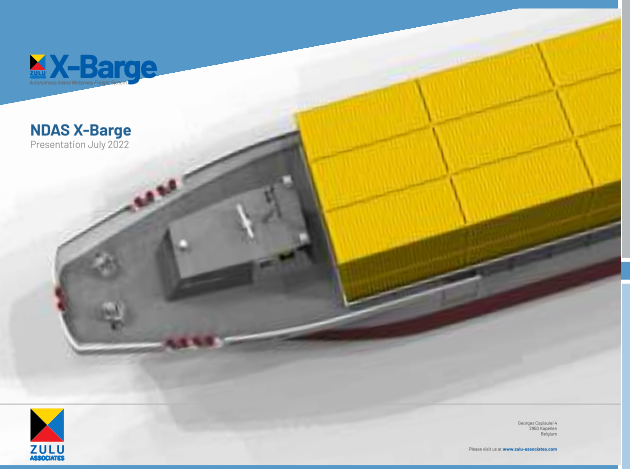
Technology readiness level : ***TRL9***
Implementation stage : ***Market ready***

ZERO EMISSION AND AUTONOMOUS SAILING: X-BARGE

Urban logistics / Last mile

Automation (Physical) and Robotics

SEAMLESS



Learn more

Project QR code to website

Project QR code to LinkedIn

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ZULU ASSOCIATES

Urban logistics / Last mile

Asset design, sharing & modularity

Dynamically optimised vehicle space - Dual transport & Cargo Hitching

Developed by :

IVECO

alkè

Applus IDIADA

toi Institute of Transport Economics Norwegian Centre for Transport Research

ika | RWTH AACHEN UNIVERSITY

PAXSTER a better day

eurecat

Project by : Horizon Europe

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This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192375

SHIFT2ZERO

Operational fields | Technologies | Solutions

DYNAMICALLY OPTIMISED VEHICLE SPACE: DUAL TRANSPORT & CARGO HITCHING

Urban logistics / Last mile

Asset design, sharing & modularity

SHIFT2ZERO

Solution description

Dynamically optimised space in modular 4-6-seater vehicles for dual transport of goods and people

Introducing an innovative dual-use solution for Alkè's 6-seater vehicle, enabling the transport of up to 6 passengers and goods simultaneously.

With foldable seats and a movable protective partition, the vehicle easily transitions between people and cargo transport - maintaining safety, comfort, and efficiency.

Advanced IoT systems ensure secure rental and operation.

Benefits

- Offering unmatched versatility by combining people and goods transport in a single vehicle.
- Operators can switch functions in real-time, optimizing vehicle use throughout the day.
- By reducing the need for separate vehicles, the solution cuts costs, emissions, and time, supporting more sustainable and agile transport services.

Main beneficiaries:
Fleet managers, OEMs, logistics operators, car sharing operators

- Logistics as a service
- Dual transport (freight and people)
- Innovation business model

Technology readiness level : ***TRL 7 / TRL 8***
Implementation stage : ***Pilot***

DYNAMICALLY OPTIMISED VEHICLE SPACE: DUAL TRANSPORT & CARGO HITCHING

Urban logistics / Last mile

Asset design, sharing & modularity

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Urban logistics / Last mile

Asset design & modularity

Modular Swappable Load Unit Concept

Developed by :

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SHIFT2ZERO

Operational fields | Technologies | Solutions

MODULAR SWAPPABLE LOAD UNIT CONCEPT

Urban logistics / Last mile

Asset design & modularity

SHIFT2ZERO

Solution description

Modular swappable concept enabling seamless standardised transhipments

An innovative swappable cargo solution designed to streamline package movement across the logistics chain.

Using standardised, modular swap boxes, the system ensures seamless cargo transfers between different vehicle types - ranging from heavy-duty trucks to light electric vehicles and even two- and three-wheelers.

Benefits

- Supporting efficient transhipment at terminals, micro hubs, or vehicle-to-vehicle, aligning with dynamic urban logistics needs and regulations such as LEZs and ZEZs.
- Compatible with different OEMs, it enhances fleet adaptability and facilitates collaborative logistics models.

Main beneficiaries:

- Fleet managers
- Cold-chain operators
- Logistics operators

- Modularity & standardisation
- Seamless transhipment between HDV operations and eLCVs
- Synchromodality to reduce loading and unloading time

Technology readiness level : ***TRL 7 / TRL 8***
Implementation stage : ***Pilot***

MODULAR SWAPPABLELOAD UNIT CONCEPT

Urban logistics / Last mile

Asset design & modularity

Transhipment (Thessaloniki): Testing dry and refrigerated goods to optimise fluctuating demands and types of deliveries.

Transhipment (Bologna): Integrating this solution to transport wine and groceries from an urban transhipment hub.

Snap a photo & contact the us to learn more!

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Urban logistics / Last mile

Electrification

Holistic energy management for electric vehicles deliveries in cold chains

Developed by :

IVECO, alkè, Łukasiewicz, MICHELIN, brembo, AIT Austrian Institute of Technology, COLD CAR, eurecat

Project by : Horizon Europe

SHIFT2ZERO

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192375

HOLISTIC ENERGY MANAGEMENT FOR ELECTRIC VEHICLES DELIVERIES IN COLD CHAINS

Urban logistics / Last mile

Electrification

SHIFT2ZERO

Solution description

Holistic energy management for cold value chain deliveries

Combination of intelligent regenerative braking strategies and advanced tyre technologies to improve vehicle efficiency and reduce non-exhaust emissions. By optimising energy recovery and reducing friction through low-resistance tyres, the solution enhances performance, especially in stop-and-go urban missions.

Digital Twin models support the calibration of braking and tyre systems to minimize particle emissions.

Benefits

- Boosting vehicle efficiency by recovering more energy during braking and reducing rolling resistance through advanced tyres.
- Reducing emissions via optimised brake and tyre systems, while bi-directional charging turns vehicles into mobile energy assets.
- Lowering costs, enabling grid support, and expanding delivery reach.

Main beneficiaries:

Fleet managers, OEMs, cold-chain operators, logistics operators infrastructure providers

- Support cold chain deliveries while serving as energy sources for optimized charging operations.
- Two-way charging capability enabling the charging of smaller vehicles and various logistics tools directly from the EVs.

Technology readiness level : ***TRL 7 / TRL 8***
Implementation stage : ***Pilot***

HOLISTIC ENERGY MANAGEMENT FOR ELECTRIC VEHICLES DELIVERIES IN COLD CHAINS

Urban logistics / Last mile

Electrification

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Urban logistics / Last mile

Asset design, sharing & modularity

Multi-Temperature Cargo Body & Optimised Thermal Comfort

Developed by :

IVECO, alkè, Łukasiewicz, MICHELIN, brembo, AIT AUSTRIAN INSTITUTE OF TECHNOLOGY, COLD CAR, eurecat

Project by : Horizon Europe

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192375

SHIFT2ZERO

Operational fields | Technologies | Solutions

MULTI-TEMPERATURE CARGO BODY & OPTIMISED THERMAL COMFORT

Urban logistics / Last mile

Asset design, sharing & modularity

SHIFT2ZERO

Solution description

Multi-temperature controlled, optimised and energy-efficient cargo body

Integration of movable panels systems and a multi-temperature modular cargo body enabling a solution that can dynamically optimise temperature distribution in the inner compartments using smart sensors integrated with the vehicle's thermal system ensure precise monitoring and control.

Optimised thermal comfort and safe ergonomics in N1 vehicles' cabin

Introduction of an IR Heating Panel, offering a lightweight, energy-efficient solution that quickly heats the cabin to maximise the comfort for drivers and passengers.

Benefits

- Enabling the transport of goods at multiple temperatures in a single trip, increasing delivery efficiency and reducing operational costs.
- Ensuring product integrity, especially for sensitive goods.
- The modular and scalable design allows easy integration into different vehicle types, while energy-efficient technologies support sustainability and lower environmental impact.
- Delivering rapid, even heat distribution for superior passenger comfort with minimal energy use.

Main beneficiaries:

Fleet managers, warehouse owners, cold-chain operators, logistics operators

- Transport dry, refrigerated goods, wines, fresh products;
- Combination of fresh products with parcels through multi-temperature cargo-body;
- Maximise comfort.

Technology readiness level : ***TRL 7 / TRL 8***
Implementation stage : ***Pilot***

SMART MULTI-TEMPERATURE CARGO AND CABIN COMFORT SOLUTION

Urban logistics / Last mile

Asset design, sharing & modularity

Use cases

Synchromodality (Wroclaw): Enhancing fleet efficiency by combining parcel and fresh products deliveries with the multi-temperature cargo body, reducing trips and improving resource utilisation.

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Urban logistics / Last mile

Automation (Physical) and robotics

Helsinki: shared micro-hubs with Autonomous Delivery Vehicles (ADV)

Developed by :

Project by :

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069782

Operational fields | Technologies | Solutions

SHARED MICRO-HUBS IN CITY CENTRE

Urban logistics / Last mile

Automation (Physical) and robotics

URBANE

Solution description

Shared micro-hubs in city centre

A micro-hub in the city centre in Helsinki has been established in order to explore whether the number of vehicles can be reduced, and last-mile deliveries facilitated in city centres that are difficult to reach and with limited access to parking. The micro-hub **supported operations executed by an Autonomous Delivery Vehicles (ADV)** which has an integrated modular parcel locker system.

The goal was to contribute to physical internet by enhancing the collaboration of the ecosystem using a data-driven micro-hub. In addition, it would enable fusing and managing the physical, digital, virtual, emerging technologies, data, people, companies, ideas and business models in a novel way.

Benefits

- Collaboration: the micro-hub has been used by big players, e.g. DB Schenker and DHL Express.
- Use of existing space: the micro-hub is in a shopping centre and enable
- Smart contract to ensure data security: Block-chain enabled smart contracts to protect privacy and commercial interests

Main beneficiaries:

- E-commerce providers
- Logistics service providers
- Operators and owners of parcel lockers, pick-up points and micro-hubs
- Local authorities & real estate owners

With help from Autonomous Driven Vehicles (ADV)

Technology readiness level : *6*
Implementation stage : ***Pilot***

SHARED MICRO-HUBS WIT ADVS ASSETS AND SPACE

Urban logistics / Last mile

Automation (Physical) and robotics

- **Physical Internet** (PI) concept enabling the consolidation and knowledge exchange inside a shared space.
- **Physical infrastructure**: a private property, a manned service point of DHL Express with charging infrastructure for ADVs and cargo bikes.
- **Digital infrastructure:** data integration between players.

Join us to experience the micro-hub in Helsinki

Would you like to know more? Take contact :

https://www.urbane-horizoneurope.eu/demonstration-cities/lighthouse-living-labs/helsinki-finland/

www.urbane-horizoneurope.eu

Shared parcel locker network by Blockchain smart contracts

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069782

Developed by :

ogel PROXIMITY

Comune di Bologna

ITL ISTITUTO sui TRASPORTI e la LOGISTICA

typ

DUE TORRI

Project by :

URBANE

SHARED NETWORK OF PARCEL LOCKERS & MICRO-HUBS

Urban logistics / Last mile

Collaborative processes, connectivity and data

URBANE

Solution description

Shared parcel locker network can connect all parcel lockers to enable use by various operators

GEL Proximity is a service that allows service providers to make deliveries and returns to Pick-up Points. Likewise, it allows the Networks and possibly also the eCommerce businesses themselves to make their Pick-up Points available and manage the operational flows that a Network of Pick-up Points needs.

The GEL Proximity platform allows integration via dedicated libraries and APIs that can be used by any IT system without limitations. The purpose of GEL Proximity is to make integration with different Pick-up Point Networks simple and unified, internally managing all the complexities of standardizing heterogeneous data and exposing unique and scalable integration methods.

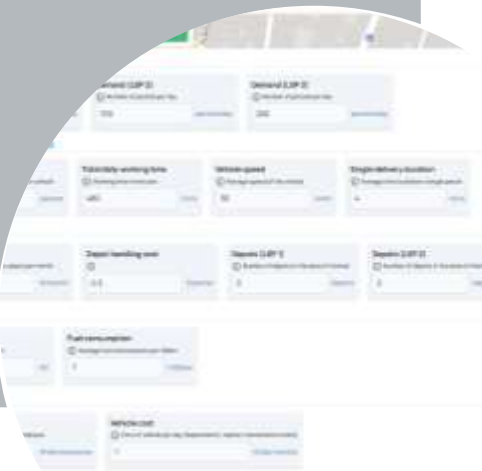
Benefits

- Automations: The GEL Proximity platform is designed to manage a high number of transaction volumes efficiently.
- Importing shipments and returns: The GEL Proximity system records all requests for confirmation of new shipping or return orders that are made by each Merchant.
- Smart contract to ensure data security: Block-chain enabled smart contracts to protect privacy and commercial interests

Main beneficiaries:

- E-commerce providers
- Logistics service providers
- Operators and owners of parcel lockers, pick-up points and micro-hubs

Smart contract to serve as Proof of Delivery:



Technology readiness level : *6*

Implementation stage : ***Pilot***

SHARED NETWORK OF PARCEL LOCKERS & MICRO-HUBS

Urban logistics / Last mile

Collaborative processes, connectivity and data

URBANE

Block-chain enabled smart contract

- All actors have visibility and can access information during and after the shipment process to have steps certified (according to respective needs).
- The focus of the smart contracts is to improve visibility of the Supply Chain for operators and by this manner enhance their collaboration.

Join us to share your assets or explore parcel lockers networks in all European countries

Would you like to know more? Take contact :

https://gelproximity.com/en/contacts/

https://www.urbane-horizoneurope.eu/demonstration-cities/lighthouse-living-labs/bologna-italy/#

RAIL FREIGHT

alice | Alliance for Logistics Innovation through Collaboration in Europe

Autonomous Rail Shunting in Intermodal Terminals

Decision Support System for Predictive Wagon Maintenance

Autonomous Rail Shunting in Intermodal Terminals

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147693

Developed by :

MIS Magli Intermodal Service

mosaicfactor

EURNEX

Project by :

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

AUTONOMOUS RAIL SHUNTING IN INTERMODAL TERMINALS

Rail freight

Digitalisation and processes automation

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

Solution description

This solution explores and evaluates the implementation of **autonomous technologies in rail shunting operations** within an inland intermodal terminal (MIS terminal).

The goal is to **optimize operational flows in a complex and evolving layout** and assess the adaptability of automation.

Shunting operations are crucial for assembling, disassembling, and positioning trains for intermodal transport.

Benefits

- Increased efficiency and reliability in shunting operations.
- Reduced time for coupling and uncoupling wagons.
- Optimization of locomotive management.
- Improvement of safety.
- Support for the shift towards multimodal logistics.

Main beneficiaries:
Inland Intermodal Terminal Operators, Rail Freight Operators

Technology readiness level : ***4***
Implementation stage : ***Concept***

AUTONOMOUS RAIL SHUNTING IN INTERMODAL TERMINALS

Rail freight

Digitalisation and processes automation

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

Connect to the project

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https://automotif-project.eu

Rail freight

Digital Twins, AI and predictive technologies

Decision Support System for Predictive Wagon Maintenance

Developed by :

ARS Adriafer Rail Services

Vonnecta systems

Project by :

AUTOSUP

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147468

DECISION SUPPORT SYSTEM FOR PREDICTIVE WAGON MAINTENANCE

Rail freight

Digital Twins, AI and predictive technologies

AUTOSUP

Solution description

A predictive, data-driven maintenance ecosystem for rail wagons

Using automation, IoT and AI technologies :

- **Smart Gate with Sensors** at the port scans all incoming/outgoing wagons, collecting real-time data for diagnostics.
- **Predictive Maintenance** detects faults before they occur, minimizing unplanned downtime and increasing reliability.
- **Dual Maintenance Locations**

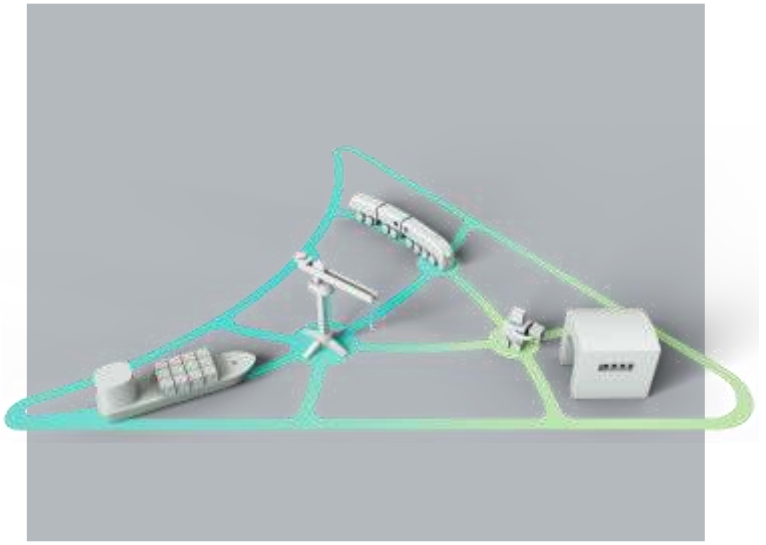
Enabling a shift from reactive to proactive maintenance strategy.

Benefits

- Reduced downtime
- Increased rail freight efficiency
- Optimized asset utilization
- Cost reduction
- Modal Shift towards rail
- Improved service quality
- Data Driven predictive maintenance

Main beneficiary:

Strategic Decision Support for T&L Stakeholders



Technology readiness level : ***5***
Implementation stage : ***Simulation***

DECISION SUPPORT SYSTEM FOR PREDICTIVE WAGON MAINTENANCE

Rail freight

Digital Twins, AI and predictive technologies

AUTOSUP

Smart Maintenance for Port-Rail Last-Mile Efficiency in Trieste

Inefficient, mileage-based maintenance leads to costly empty wagon trips and frequent unplanned repairs at the Trieste L-Hub.

This use case addresses these issues by implementing data-driven, condition-based predictive maintenance and establishing local repair facilities in Trieste and Gorizia. The goal is to reduce downtime, minimize empty trips, and improve the reliability and capacity of freight operations

Join our Stakeholder Forum here

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WATERBORNE

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- Inland Waterway Navigability and Condition Monitoring
- Navigability & water level forecasting solutions
- Predictive maintenance & infrastructure management
- Designing a Small Autonomous Zero-emission Vessel (SFAZ) by means of Digital Twin and Simulation Tool
- Simulating an autonomous vessel (SFAZ) network for urban logistics
- Floating Modular Platform
- Remote Control Centre for Urban Autonomous Barges

Waterborne

Digital Twins, AI and predictive technologies

Inland Waterway Navigability and Condition Monitoring

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069838

Developed by :

Fraunhofer IML

Łukasiewicz Poznań Institute of Technology

University of Gdańsk

Faculty of Economics

Project by :

CRISTAL

Operational fields | Technologies | Solutions

INLAND WATERWAY NAVIGABILITY AND CONDITION MONITORING

Waterborne

Digital Twins, AI and predictive technologies

CRISTAL

Solution description

Digital Twin platform for intelligent buoys that aggregates real-time environmental and operational data (e.g., water depth, ice thickness, wind speed, GPS position) and visualizes it on digital maps for navigation and planning.

Benefits

- Reduces delays and disruptions due to environmental factors
- Increases transparency and situational awareness for all stakeholders
- Enables proactive responses to changing waterway conditions

Main beneficiary:

IWT Logistics stakeholders

Buoy overview in Digital Twin

Technology readiness level : *6*
Implementation stage : ***Pilot***

INLAND WATERWAY NAVIGABILITY AND CONDITION MONITORING

Waterborne

Digital Twins, AI and predictive technologies

CRISTAL

Key performance indicators

RIVER'S CONDITIONS
- river depth in the selected location - under the buoy
- clearance under the bridge
- water temperature, speed, direction

WEATHER CONDITIONS
- air temperature; air pressure wind speed, wind direction

TRAFFIC CONDITIONS
- counting passing ships

DIRECT COMMUNICATION WITH VESSELS

Let's get in contact!

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Navigability & water level forecasting solutions

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069838

Developed by :

Fraunhofer IML

AIPo Agenzia Interregionale per il fiume Po INTERREGIONAL AGENCY FOR THE PO RIVER

Project by :

CRISTAL

NAVIGABILITY & WATER LEVEL FORECASTING SOLUTIONS

Waterborne

Digital Twins, AI and predictive technologies

CRISTAL

Solution description

Digital twin that combines historical and real-time water level data with weather forecasts to deliver accurate, short- and medium-term predictions of river navigability, especially during extreme weather events.

Expected impacts are numerous:

- Increases efficiency and resilience of inland waterway transport
- Enables better resource deployment during floods or droughts
- Reduces costs from unexpected low or high water events
- Strengthens the competitiveness and sustainability of waterborne logistics

Benefits

- Reliable water level forecasts up to 14 days ahead
- Integrates multiple data sources for high prediction accuracy
- Provides actionable insights for risk mitigation and transport planning
- Essential tool for adapting to climate change impacts on waterways

Main beneficiary:
IWT Logistics stakeholders

Technology readiness level : ***6***
Implementation stage : ***Pilot***

NAVIGABILITY & WATER LEVEL FORECASTING SOLUTIONS

Waterborne

Digital Twins, AI and predictive technologies

CRISTAL

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Predictive maintenance & infrastructure management

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069838

Developed by :

Fraunhofer IML

Newcastle University

HELLENIC INSTITUTE OF TRANSPORT CERTH / HIT

Project by :

CRISTAL

PREDICTIVE MAINTENANCE & INFRASTRUCTURE MANAGEMENT

Waterborne

Digital Twins, AI and predictive technologies

CRISTAL

Solution description

Digital twin for water infrastructures

This system uses sound and radar sensors to constantly check the condition of lock gates and walls.

It works in real time, meaning it always knows what's happening. If it finds signs of damage or wear, it can warn operators before something serious goes wrong.

This helps prevent unexpected breakdowns, makes maintenance easier to plan, and keeps the locks working safely and efficiently.

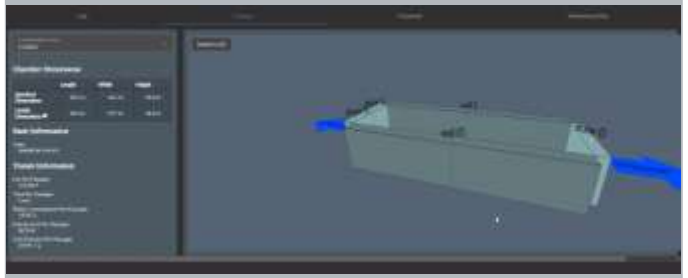
Benefits

- **Early detection** of mechanical and structural issues of water infrastructures
- **Minimizes unplanned downtime** and costly emergency repairs
- **Automated recommendations and alerts** integrated with planning platforms
- Enables **proactive maintenance strategies**

Main beneficiary:

Infrastructures managers

Lock dashboard



Technology readiness level : *6*
Implementation stage : ***Pilot***

PREDICTIVE MAINTENANCE & INFRASTRUCTURE MANAGEMENT

Waterborne

Digital Twins, AI and predictive technologies

CRISTAL

Expected impacts:

- Improved reliability and lifespan of lock infrastructure
- Lower maintenance costs and fewer unexpected closures
- Increases efficiency and resilience of inland waterway logistics

Let‘s get in contact!

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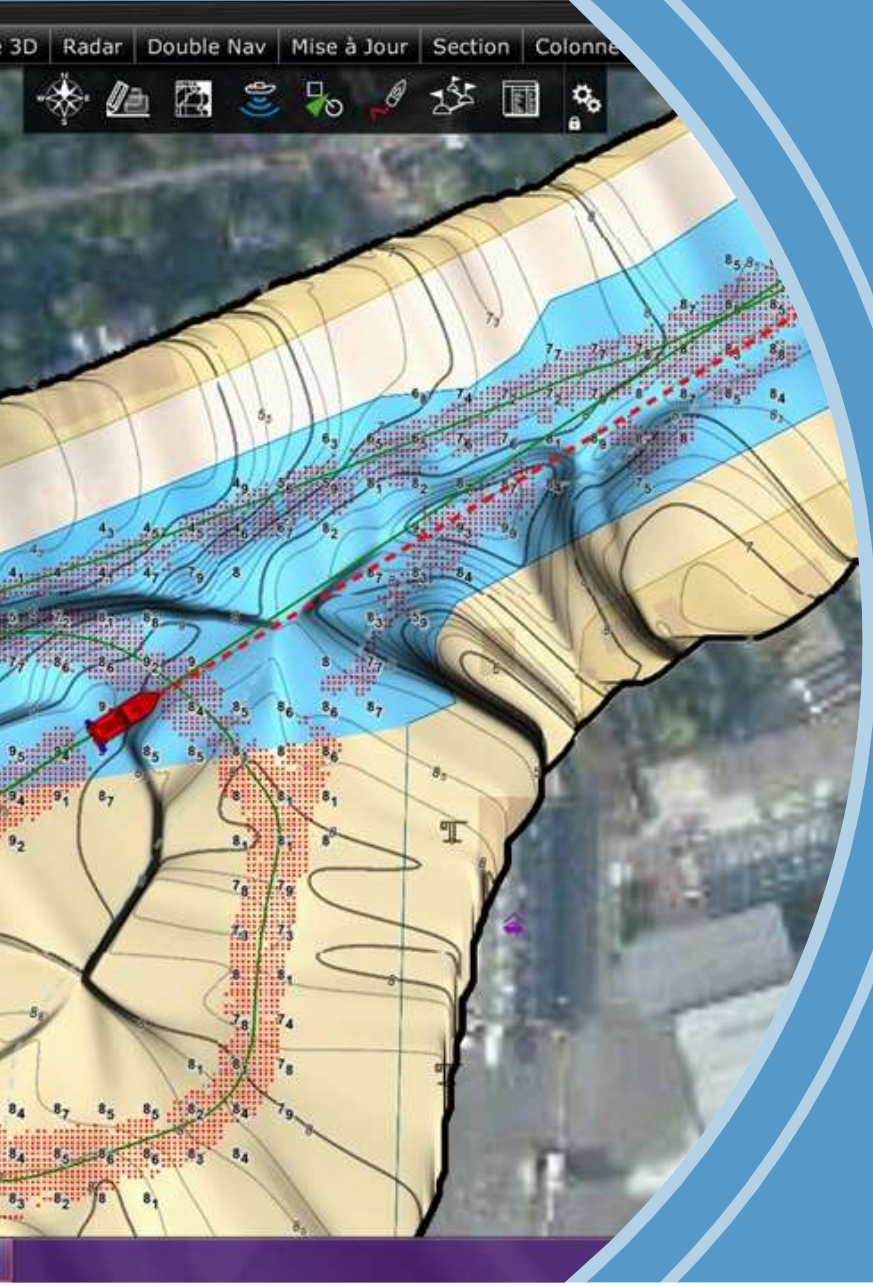


Designing a Small Autonomous Zero-emission Vessel (SFAZ) by means of Digital Twin and Simulation Tool

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101138261

Developed by :

"DUNAREA DE JOS" UNIVERSITY OF GALATI

ABB

SEAFAR

Project by :

FOREMAST

DESIGNING A SMALL AUTONOMOUS ZERO-EMISSION VESSEL (SFAZ) BY MEANS OF DIGITAL TWIN AND SIMULATION TOOL

Waterborne

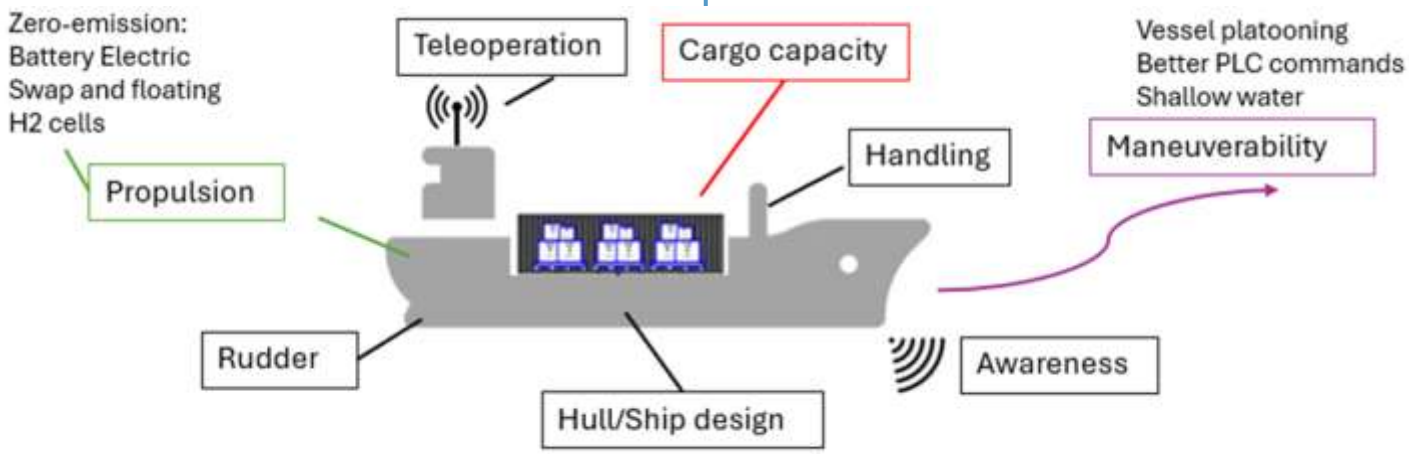
Asset design, sharing & modularity

Solution description

- To optimise **hull and vessel designs for SFAZ** tailored to shallow and narrow urban waterways.
- To design with modular components for improved manoeuvrability, reduced emissions and cost efficient construction.
- Drawings and CAD models (hull geometry, propulsion integration) providing a basis for vessel construction and integration into Digital Twin Platform.
- A platform for creating and testing DT's of SFAZ's integrating hull, propulsion, energy, route & environment,… Designers and operators can simulate performance to refine design and plan operations.

Benefits

- Ability to design, engineer, build, vessels that match the requirements of sailing in specific urban waterways and urban logistics



Main beneficiary:

Ship designers/builders; LSP's, shippers, who want their next vessel to be 100 % tailormade.

Technology readiness level : *5*

Implementation stage : *Concept*

DESIGNING A SMALL AUTONOMOUS ZERO-EMISSION VESSEL (SFAZ) BY MEANS OF DIGITAL TWIN AND SIMULATION TOOL

Waterborne

Asset design, sharing & modularity

FOREMAST

Share your contact details and we'll get in touch with you!

PNO BY PNO GROUP

magellan circle

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Waterborne

Digital Twins, AI and predictive technologies

Simulating an autonomous vessel (SFAZ) network for urban logistics

Developed by :

vltn

inlecom

ita

Project by :

FOREMAST

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101138261

SIMULATING AN AUTONOMOUS VESSEL (SFAZ) NETWORK FOR URBAN LOGISTICS

Waterborne

Digital Twins, AI and predictive technologies

FOREMAST

Solution description

Simulating entire urban waterway transport networks with multiple vessels and routes.

Evaluating scenarios such as routing strategies, convoying/platooning, fleet sizing and traffic rules.

Modelling feasibility, efficiency and impact of deploying SFAZ in multimodal chains by simulating their interactions with each other and with infrastructure

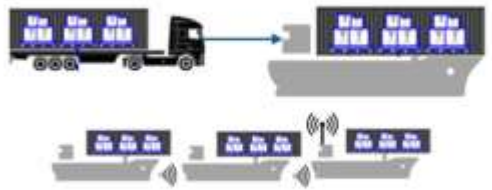
Identifying optimal network configuration, service schedules and conditions where SFAZ outperform other modes

Benefits

- Coordination of vessel operations with trucks, vans, cargo bikes, terminals to create efficient end to end delivery.
- Maximisation of asset use, reduce delays, …
- Use of Urban Waterway Network for last mile/first mile and shuttle services.

Main beneficiaries:

Multimodal LSP's and Barge owners/operators who want to extend their services.



Technology readiness level : *5*

Implementation stage : *Concept*

SIMULATING AN AUTONOMOUS VESSEL (SFAZ) NETWORK FOR URBAN LOGISTICS

Waterborne

Digital Twins, AI and predictive technologies

FOREMAST

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Floating Modular Platform

Developed by :

"DUNAREA DE JOS" UNIVERSITY OF GALATI

HOUT & BOUW OPLEIDINGSCENTRUM

Project by :

ReNEW
Resilience-centric Smart, Green, Networked EU Inland Waterways

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069682

FLOATING MODULAR PLATFORM

Waterborne

Asset design, sharing & modularity

ReNEW
Resilience-centric Smart, Green, Networked EU Inland Waterways

Solution description

Floating Modular Platform (FMP)

The FMP is a sustainable, modular barge system designed for flexible freight transport and emergency deployment in urban inland waterways.

Comprising AVATAR II and III barges, it features electric propulsion, vacuum mooring for fast, secure docking, and a resilient design validated through CFD, FEM, and seakeeping simulations.

The platform supports green logistics, adapts to extreme events, and enhances climate resilience in line with the European Green Deal.

Benefits

- **Modular, Rapid-Deployment Design**
  Enables flexible freight and emergency operations in dense urban areas, with vacuum mooring for fast, secure barge connection - ideal for crisis response and adaptive logistics.
- **Validated Resilience and Safety**
  Backed by CFD, FEM, and seakeeping simulations ensuring structural integrity, operational safety, and stability in wave conditions up to 1.2 meters.
- **Zero-Emission, Green Transport Solution**
  Fully electric propulsion system supports the European Green Deal by reducing emissions, noise, and road congestion through inland waterway freight mobility.

Main beneficiaries:
Emergency planners, port operators, disaster response teams

The Floating Modular Platform is a zero-emission, fast-deployable solution combining green logistics with climate resilience for inland waterways.

Technology readiness level : ***7***
Implementation stage : ***Pilot***

FLOATING MODULAR PLATFORM

Waterborne

Asset design, sharing & modularity

ReNEW
Resilience-centric Smart, Green, Networked EU Inland Waterways

Want to receive insights on business needs and Use Cases for resilient and sustainable IWT**?**

Join us for the ReNEW's final conference and demonstration on 19 June in Ghent, Belgium!

More info on our website >>

Join the ReNEW Stakeholder Community

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Waterborne

Automation (physical) and robotics

Remote Control Centre for Urban Autonomous Barges

Developed by :

SEAFAR

HOUT & BOUW OPLEIDINGSCENTRUM

Project by :

ReNEW
Resilience-centric Smart, Green, Networked EU Inland Waterways

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069682

REMOTE CONTROL CENTRE FOR URBAN AUTONOMOUS BARGES

Waterborne

Automation (physical) and robotics

ReNEW
Resilience-centric Smart, Green, Networked EU Inland Waterways

Solution description

Remote Control Centre for Urban Autonomous Barges

A land-based operations hub enabling real-time, **remote piloting of urban autonomous barges** via a secure, multi-layered communication system. It integrates sensor data, high-precision GNSS positioning (GALILEO), and video feeds using Seafar Cloud architecture, 4G/5G, and satellite redundancy.

The system ensures **safe navigation, remote docking, and command continuity** through distributed control centers and a mobile backup unit - enhancing resilience and operational efficiency in dense urban environments.

Benefits

- **High-precision, resilient remote navigation** using GALILEO-based GNSS positioning, 4G/5G with satellite backup, and real-time nautical chart integration—ensuring safe operations even in dense urban waterways.
- **Operational continuity and disaster resilience** through a distributed control setup, including a Mobile Command Center capable of seamlessly taking over vessel operations in the event of system failure.
- **Optimized human and technical resources**, enabling centralized piloting of multiple vessels, reduced onboard crew, and remote docking—delivering efficiency, scalability, and cost savings for IWT operators.

Main beneficiaries:

- Vessel and fleet operators
- RCC solution providers

Deployable Prototype Mobile Command Center for control continuity during system failures/field operations.

Technology readiness level : ***7***
Implementation stage : ***Pilot***

REMOTE CONTROL CENTRE FOR URBAN AUTONOMOUS BARGES

Waterborne

Automation (physical) and robotics

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PORTS & AIRPORTS

alice | Alliance for Logistics Innovation through Collaboration in Europe

- Port automation: berthing & terminal simulation
- Intelligent and Automated Ro-Ro Port Terminals
- Decision Support System for Autonomous Vehicles and Rail Wagons in Ports
- Enabling co-existence of human and automated trucks in ports & terminals
- Smart rail cargo flow monitoring for inland terminals
- Multimodal node Digital Twin
- Predictive maintenance of port handling equipment
- Maritime 5G for intelligent vessel location
- Container Transport Forecast for Road Haulage
- Port Digital Twin for efficient operations tracking of CO_2 emissions

Ports & airports

Automation (physical) and robotics

Port Automation: Berthing & Terminal Simulation

Developed by :

ΕΠΙΣΕΥ ICCS

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147693

Project by :

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

Operational fields | Technologies | Solutions

PORT AUTOMATION: BERTHING & TERMINAL SIMULATION

Ports & airports

Automation (physical) and robotics

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

Solution description

A fully simulated port berthing automation solution evaluating all phases of a vessel's port call: arrival, manoeuvring, berthing, and unberthing.

It integrates autonomous tugboats and an Automated Mooring System at Piraeus Port to model complex operations under varied conditions.

The simulation uses digitalisation and AI to replicate real-world scenarios and assess performance, safety, and operational innovation.

Benefits

- Increased operational efficiency.
- Reduced manoeuvring and berthing/unberthing times.
- Increased port traffic capacity.
- Enhanced safety during critical operations.
- Potential environmental impact reduction.
- Reduction of energy consumption

Main beneficiaries:
Ports, Vessel Operators, Tugboat Operators, Logistics Providers

Technology readiness level : *4*
Implementation stage : *Simulation*

PORT AUTOMATION: BERTHING & TERMINAL SIMULATION

Ports & airports

Automation (physical) and robotics

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

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https://automotif-project.eu

Ports & airports

Digitalisation and processes automation

Intelligent and Automated Ro-Ro Port Terminals

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147693

Developed by :

vicomtech
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

TB TOROYBETOLAZA

ΕΠΙΣΕΥ ICCS

Project by :

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

INTELLIGENT AND AUTOMATED RO-RO PORT TERMINALS

Ports & airports

Digitalisation and processes automation

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

Solution description

This solution demonstrates the benefits of automating port terminal processes through simulation, specifically focusing on operations from vessel arrival to cargo storage.

It covers cargo handling, warehouse operations, and vehicle flows, with a particular focus on Roll-on/Roll-off (Ro-Ro) operations in the Port of Bilbao.

The simulation aims to find an optimal terminal configuration that minimizes inefficiencies and enhances synchronization.

Benefits

- Optimization of operations and transit times.
- Increased efficiency in cargo management.
- Improved synchronization within the logistics chain.
- Reduction of environmental impact.
- Provision of comprehensive forecasts for strategic planning.

Main beneficiaries:
Ports, Vessel Operators, Tugboat Operators, Logistics Providers

Technology readiness level : ***4***
Implementation stage : ***Simulation***

Intelligent and Automated Ro-Ro Port Terminals

Ports & airports

Digitalisation and processes automation

AutoMoTIF
LOGISTICS SOLUTIONS SYNERGIES

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Ports & airports

Digitalisation and processes automation

Decision Support System for Autonomous Vehicles and Rail Wagons in Ports

Developed by :

Port of Antwerp Bruges

Vonnecta systems

Project by :

AUTOSUP

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147468

DECISION SUPPORT SYSTEM FOR AUTONOMOUS VEHICLES AND RAIL WAGONS IN PORTS

Ports & airports

Digitalisation and processes automation

AUTOSUP

Solution description

Optimizing intra port movements with autonomous systems

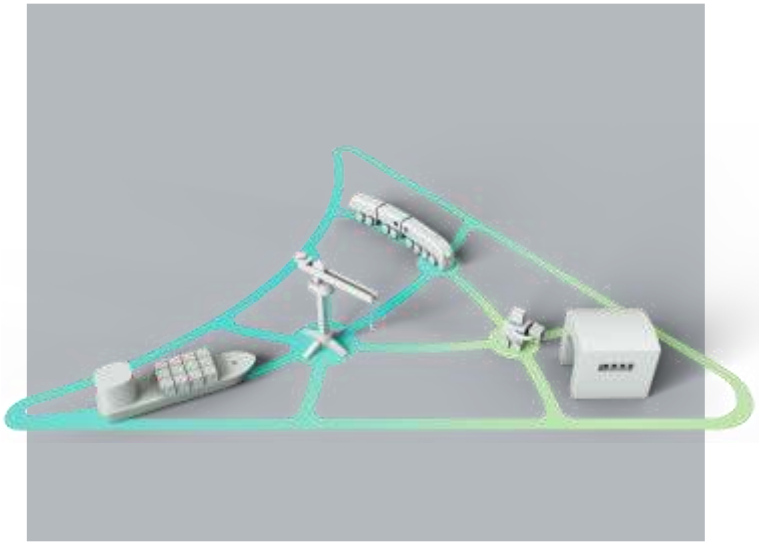
- Use of autonomous vehicles in a controlled closed loop environment
- Use of autonomous rail wagons equipped with linear motors that can move containers autonomously that can operate in small groups instead of full trainsets
- Use of both systems in a hybrid environment with autonomous and manual operated vehicles and trains

Benefits

- 24/7 Operations
- Higher reliability
- Increased Efficiency
- Optimized Asset Utilization
- Cost Reductions
- Improved Safety
- Reduced environmental impact

Main beneficiary:

Strategic Decision Support for T&L Stakeholders



Technology readiness level : ***5***
Implementation stage : ***Simulation***

DECISION SUPPORT SYSTEM FOR AUTONOMOUS VEHICLES AND RAIL WAGONS IN PORTS

Ports & airports

Digitalisation and processes automation

AUTOSUP

Optimizing Terminal Container Movements and Rail Last-Mile Efficiency in the Port of Antwerp-Bruges

Intra-port and intra-terminal movements still often rely on **manual labour and polluting assets**, creating operational inefficiencies and environmental concerns.

In this use case, the DSS calculates the impact of the use of autonomous trucks to reposition containers between a terminal and a depot via a private circuit, and the use of autonomous rail wagons between a terminal and a rail bundle in the port

Join our Stakeholder Forum here

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Ports & airports

Automation (physical) and robotics

Enabling co-existence of human and automated trucks in ports & terminals

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101076810

Developed by :

APM TERMINALS
Lifting Global Trade

TNO

DAF

Project by :

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

ENABLING CO-EXISTENCE OF HUMAN AND AUTOMATED TRUCKS IN PORTS & TERMINALS

Ports & airports

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Solution description

Safely operated **L4 automated and remotely operated trucks** running in existing terminals and port environments.

Automated and human driven operations can co-exist without disrupting terminal activity.

Demonstration and validation is conducted within MODI project by APM terminals, DAF trucks and Port of Rotterdam with support of the Dutch Technology centre, TNO.

Focusing on logistics coordination and support procedures.

Benefits

- Enhance **efficiency and throughput/capacity** at ports/terminals reducing idle time.
- **Lower emissions** (electric trucks) and **fuel consumption** due to optimized container and truck moves
- **Safer operations** by reducing manual yard traffic (expecting overall improved logistics efficiency).

Main beneficiaries:

- Terminal operators
- Port equipment providers

Technology readiness level : ***6-7***
Implementation stage : ***Pilot***

ENABLING CO-EXISTENCE OF HUMAN AND AUTOMATED TRUCKS IN PORTS & TERMINALS

Ports & airports

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Use Case Netherlands: Port operations

1. Remote control and automation of trucks/vehicles at confined areas. Handover of control of the vehicle at arrival to the control tower.
2. System for mixed traffic of current Automated Guided, non-automated and automated vehicles in confined areas, with a central control tower concept in an operational environment.
3. Mixed traffic driving in normal terminal operation between large numbers of manually driving trucks.

Join CCAM Logistics Task Force to know more on MODI solutions!

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Ports & airports

Automation (physical) and robotics

Smart rail cargo flow monitoring for inland terminals

Developed by :

ASE

Fraunhofer

duisport

Project by :

MultiRELOAD

PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069796

SMART RAIL CARGO FLOW MONITORING FOR INLAND TERMINALS

Ports & airports

Automation (physical) and robotics

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Solution description

This digital solution improves cargo handling in inland terminals by using camera sensors at the rail gate to capture loading and unloading activities.

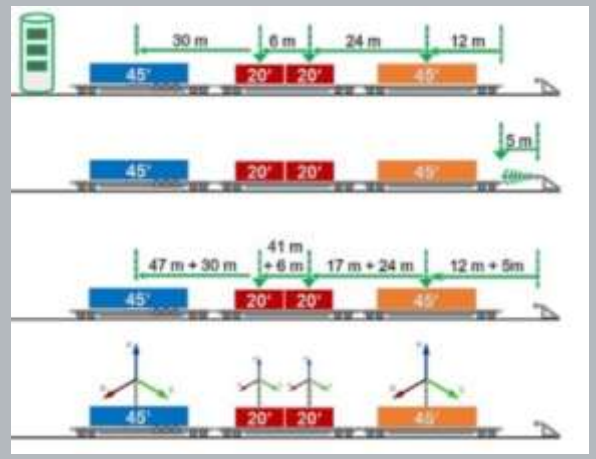
It feeds data into a Digital Twin, offering real-time visibility of cargo status and location.

The system also detects and stores the total train length and wagon positions through buffer analysis, enhancing terminal efficiency.

Benefits

KEY BENEFITS	VALUE DRIVERS
Operational efficiency	Faster processing, reduced idle times & automated documentation
Cost savings	Lower manual labor, optimized resource utilization, reduced operational costs
Sustainability	Reduced CO_2 emissions & energy consumption, rail freight promotion
Safety & Transparency	Real-time tracking, error prevention & more precise planning
Technological Innovation	Digital Twins, camera sensors, seamless IT integration

Main beneficiary:
TERMINAL OPERATORS



Technology readiness level : ***8***
Implementation stage : ***Pilot***

SMART RAIL CARGO FLOW MONITORING FOR INLAND TERMINALS

Ports & airports

Automation (physical) and robotics

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

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Ports & airports

Digital Twins, AI and predictive technologies

Multimodal node Digital Twin

Developed by :

prodevelop

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069796

Project by :

MultiRELOAD

PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

MULTIMODAL NODE DIGITAL TWIN

Ports & airports

Digital Twins, AI and predictive technologies

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Solution description

The Multimodal Node Digital Twin is a digital system that helps manage ports more efficiently. It collects data from sensors and port equipment to show what's happening at the port in real-time and in the past.

Using big data and Artificial Intelligence, it can predict future issues and help make smarter decisions.

The system is flexible, can grow with changing needs, and automatically handles data collection, tracking, and analysis to boost efficiency.

Benefits

- Optimised operations & efficiency
- Real-time situational awareness
- Data-driven decision making
- Scalability & adaptability
- Enhanced safety & compliance

Main beneficiary:

PORT AUTHORITIES

Technology readiness level : ***8***
Implementation stage : ***Market-Ready***

MULTIMODAL NODE DIGITAL TWIN

Ports & airports

Digital Twins, AI and predictive technologies

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Share your contact details and we'll get in touch with you!

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https://www.prodevelop.es/

Ports & airports

Digital Twins, AI and predictive technologies

Predictive maintenance of port handling equipment

Developed by :

duisport

DST

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069796

Project by :

MultiRELOAD

PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

PREDICTIVE MAINTENANCE OF PORT HANDLING EQUIPMENT

Ports & airports

Digital Twins, AI and predictive technologies

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Solution description

A cloud-based system is being developed to enable predictive maintenance for inland port/ terminal equipment.

Data from cranes and reach stackers is collected and processed remotely, allowing real-time monitoring without heavy on-site IT infrastructure.

The solution includes sensor-based condition monitoring, automated crane operations adapted to wind conditions to reduce energy use, and optimised control of crane electrical drives.

Benefits

- **Better visibility on equipment assets by anticipating maintenance**
- **Improved uptime**
- **Reduced repair costs**

Main beneficiary

TERMINAL & CRANE OPERATOR

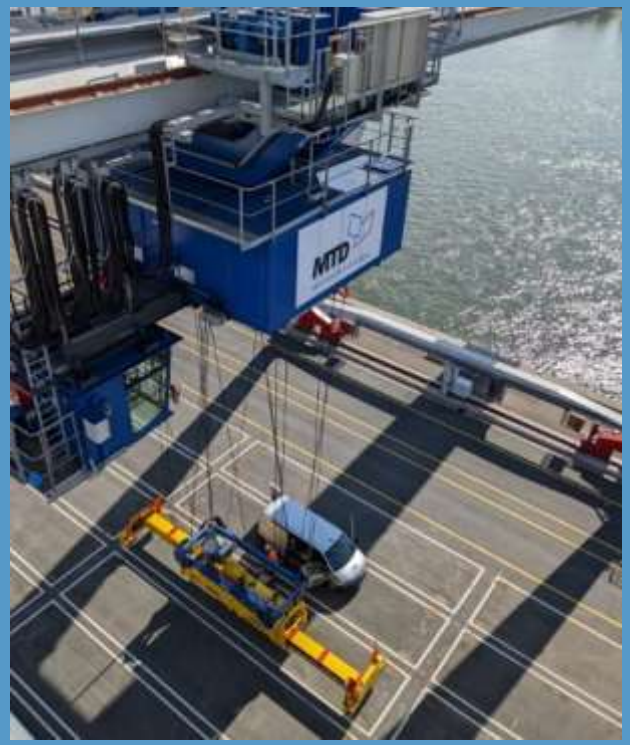
Technology readiness level : ***8***
Implementation stage : ***Pilot***

PREDICTIVE MAINTENANCE FOR PORT HANDLING EQUIPMENT

Ports & airports

Digital Twins, AI and predictive technologies

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY



ONLINE SURVEY

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Ports & airports

Traffic and access management, navigation

Maritime 5G for intelligent vessel location

Developed by :

Port de Barcelona

cenit Science for Transport
An Innovation Unit of CIMNE

Project by :

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101037564

Operational fields | Technologies | Solutions

MARITIME 5G FOR INTELLIGENT VESSEL LOCATION

Ports & airports

Traffic and access management, navigation

PIONEERS

Solution description

The Maritime 5G solution provides precise, real-time vessel geolocation within the Port of Barcelona by integrating a 5G network, high-resolution cameras, and advanced artificial intelligence algorithms.

Cameras installed across the port continuously stream live video, which the AI system analyses to pinpoint the exact position and shape of vessels, addressing limitations found in traditional RADAR and AIS systems. This robust combination ensures accurate and immediate vessel tracking, significantly enhancing port operational safety and efficiency.

Benefits

- Precise real-time tracking of vessel positions
- Reliable detection of small vessels, overcoming AIS limitations
- Reduced latency and immediate data availability through 5G connectivity
- Improved port safety and operational awareness
- Enhanced capacity to monitor multiple vessels simultaneously (over 25 at once)

Main beneficiaries:
Ports and Administration

Technology readiness level : ***7***
Implementation stage : ***Pilot***

MARITIME 5G FOR INTELLIGENT VESSEL LOCATION

Ports & airports

Traffic and access management, navigation

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Fill our short survey if you're interested

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Container Transport Forecast for Road Haulage

Developed by :

mosaicfactor

Port de Barcelona

Project by :

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101037564

CONTAINER TRANSPORT FORECAST FOR ROAD HAULAGE

Ports & airports

Transport planning and execution

PIONEERS

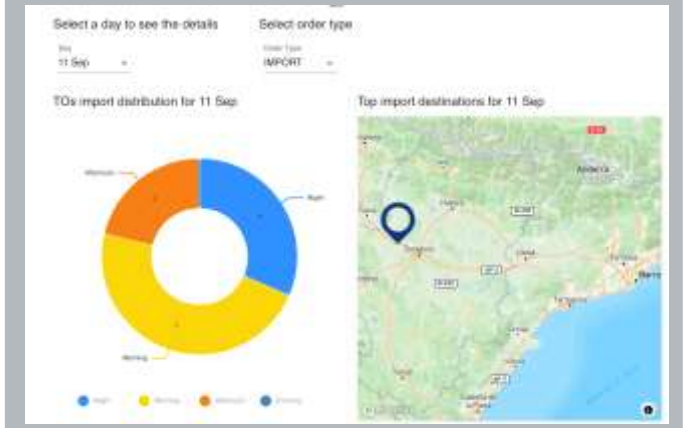
Solution description

The Container Transport Forecast solution utilizes advanced machine learning models to accurately predict inbound and outbound truck movements specifically for SMEs operating within the Port of Barcelona. The predictions are generated using data sourced directly from the Port Community System (PCS), **enabling truck operators to anticipate transportation demands one week in advance**. Additionally, the system optimizes fleet management by automatically allocating transport orders based on criteria such as cost, speed, or environmental impact, thus significantly improving logistics efficiency and planning.

Benefits

- Enhanced efficiency in transport planning and operations for SMEs
- Significant reduction in congestion at port terminals
- Lower emissions due to optimized routing and fleet utilization
- Improved strategic decision-making through precise demand forecasting
- Automation of order allocation, reducing manual planning effort

SME truck transport companies
Port terminal managers



Technology readiness level : ***TRL 5***
Implementation stage : ***Pilot***

CONTAINER TRANSPORT FORECAST FOR ROAD HAULAGE

Ports & airports

Transport planning and execution

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Fill short survey if you're interested

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Ports & airports

Digital Twins, AI and predictive technologies

Port Digital Twin for efficient operations tracking of CO_2 emissions

Developed by :

univers

mec

Port of Antwerp Bruges

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101037564

Project by :

PIONEERS

Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Operational fields | Technologies | Solutions

PORT DIGITAL TWIN FOR EFFICIENT OPERATIONS TRACKING OF CO2 EMISSIONS

Ports & airports

Digital Twins, AI and predictive technologies

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Solution description

The Port Digital Twin solution integrates diverse data sources into a unified digital platform to enhance visibility and management of port operations, focusing particularly on CO_2 emissions. It includes three practical functionalities: predicting vessel movements to reduce congestion and waiting times, mapping CO_2 emissions to evaluate the effectiveness of emission reduction strategies and optimizing train operations by providing end-to-end visibility of train movements. Additionally, the platform employs AI-based scenario simulations, enabling stakeholders to evaluate the impact of various operational strategies before their actual implementation.

Benefits

- Real-time prediction and avoidance of vessel traffic conflicts.
- Comprehensive tracking and mapping of CO_2 emissions for informed environmental strategies.
- Optimized train scheduling, reducing delays and increasing efficiency.
- Enhanced decision-making through realistic scenario simulations.
- Transferable and scalable solution applicable to other port environments.

SME truck transport companies
Port terminal managers

Technology readiness level : ***9***
Implementation stage : ***Pilot***

PORT DIGITAL TWIN FOR EFFICIENT OPERATIONS TRACKING OF CO2 EMISSIONS

Ports & airports

Digital Twins, AI and predictive technologies

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Fill our short survey if you're interested

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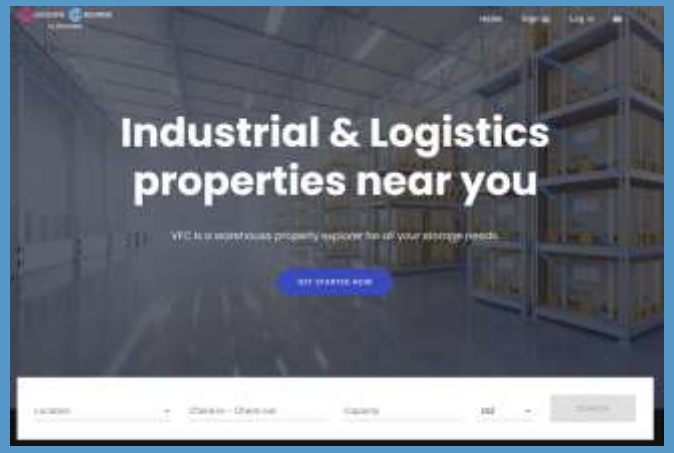
WAREHOUSING & FULFILMENT

alice | Alliance for Logistics Innovation through Collaboration in Europe

Digital marketplace for warehouse and storage capacity

DISCOESTATE DISCOPROXI

by WareM&O



Digital marketplace for warehouse and storage capacity

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101103954

Developed by :

CERTH/HIT Hellenic Institute of Transport

TIF HELEXPO

ACS

CITY OF THESSALONIKI

Project by :

DISC

DIGITAL MARKETPLACE FOR WAREHOUSE AND STORAGE CAPACITY

DISCOESTATE DISCOPROXI by WareM&O

Warehousing & fulfilment

Asset design, sharing & modularity

DISC

Solution description

The WareM&O platform is a **digital marketplace** where **warehouse** owners can list available spaces and tenants can easily search, compare, and book the capacity they need.

It integrates **e-signatures and blockchain-based smart contracts** for secure, transparent transactions.

By offering **real-time updates on space availability**, the platform enables more efficient and collaborative logistics operations.

API Documentation has been developed and tested to connect the WMSs and Building Management Systems to update the capacities dynamically on the platform.

Value drivers:

- **Real-time visibility**: Tenants see up-to-date capacity and pricing.
- **Secure transactions**: Blockchain smart contracts and e-signatures reduce administrative overhead and potential disputes.
- **Scalable collaboration**: Multiple operators can share the same space, lowering costs and reducing wasted capacity.

Main beneficiaries:

- Warehouse Owners and Managers
- Logistics Providers and Couriers
- Retailers and eCommerce Operators
- Local Authorities

Technology readiness level : ***8***
Implementation stage : ***Pilot***

DIGITAL MARKETPLACE FOR WAREHOUSE AND STORAGE CAPACITY

Warehousing & fulfilment

Asset design, sharing & modularity

DISCOESTATE DISCOPROXI by WareM&O

DISCO

Coordinated by FIT

DISCOESTATE pilot during the DISCO Project

During the DISCOESTATE pilot, TIF-HELEXPO's underused pavilions, shops, and offices were transformed into logistics hubs using the WareM&O platform.

Real-time capacity tracking, e-signatures, and blockchain-based smart contracts enabled a smooth collaboration between TIF-HELEXPO and ACS Courier, which resulted to the relocation of ACS most important depot reducing congestion in Thessaloniki's historical center. Infrastructure upgrades such as RFID access and around-the-clock operations further streamlined processes, showcasing how large event venues can be repurposed for more flexible, sustainable urban freight solutions.

DISCOESTATE DISCOPROXI by WareM&O

Interested in learning more or implementing the WareM&O platform for your logistics needs? Contact us to discuss potential collaborations.

See what DISCO is about

See the WareM&O platform

Would you like to know more? Take contact :

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TERMINALS AND TRANSHIPMENT FACILITIES

alice | Alliance for Logistics Innovation through Collaboration in Europe

Automated loading/unloading of autonomous trucks

Predictive container positioning in terminal

Battery Storage and Smart Management of Green Energy in terminal operations

Automated loading/unloading of autonomous trucks

Developed by :

einride

DFDS

Project by :

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101076810

Automated loading/unloading of autonomous trucks

Terminals and transhipment facilities

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Solution description

An innovative automated loading/unloading robotic/AI control solution for automated trucks.

The system enables fully autonomous truck alignment with the bay, loading and unloading without human intervention.

Designed for logistics hubs and autonomous fleets, it showcases the role of digitalisation and automation in enhancing operational continuity and transforming freight handling.

Benefits

- Significant safety and efficiency gains.
- Automated loading eliminates on-site human labor, reducing workplace risk.
- It also enables longer operation times (even 24/7) and supports business cases where manual labor is scarce or expensive.

Beneficiaries: Logistics centers, warehouse operators, fleet operators, cross-docking facilities, truck OEMs, drivers' associations

Technology readiness level : ***6-7***
Implementation stage : ***Pilot***

Automated loading/unloading of autonomous trucks

Terminals and transhipment facilities

Automation (physical) and robotics

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Demonstration:

- To constantly increase the level of autonomy across supply chains, Einride is exploring how loading and unloading of their autonomous vehicles can be done without a human intervention or presence.
- A prototype system at a logistics site where boxes or pallets are autonomously moved onto/off the CCAM truck.
- This demonstration aims to underscore the critical role of digitalization and automation in transforming the logistics industry.

Join our CCAM Logistics Task Force to know more on MODI solutions!

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Predictive container positioning in terminal

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069796

Developed by :

BOKU UNIVERSITY

IMPROVEM
DATA DRIVEN PLANNING - DECISION SUPPORT

HAFEN WIEN
ein unternehmen der wienholding

WIEN CONT
ein unternehmen der wienholding

Project by :

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

PREDICTIVE CONTAINER POSITIONING IN TERMINAL

Terminals and transhipment facilities

Digital Twins, AI and predictive technologies

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Solution description

This solution uses simulation and Artificial Intelligence to optimise container positioning in terminals.

By analysing historical data, it predicts the best locations for containers, reducing unproductive movements.

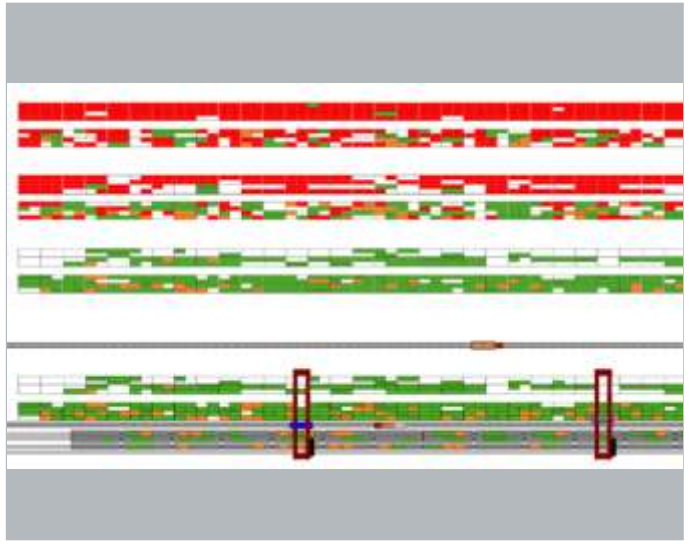
This digital model allows you to test strategies in a virtual environment, improving planning and operational efficiency without disrupting daily operations.

Benefits

- **Reduce unproductive container movements** to lower operational costs
- **Use resources more efficiently**, cutting energy consumption and emissions
- **Increase terminal capacity** by optimising use of higher-level slots

Main beneficiary:

TERMINAL OPERATORS



Technology readiness level : *8*
Implementation stage : *Pilot*

PREDICTIVE CONTAINER POSITIONING IN TERMINAL

Terminals and transhipment facilities

Digital Twins, AI and predictive technologies

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Share your contact details and we'll get in touch with you!

Demonstration of simulation:

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https://www.improvem.at/en/

Battery Storage and Smart Management of Green Energy in terminal operations

Developed by :

univers

AET

Project by :

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101037564

BATTERY STORAGE AND SMART MANAGEMENT OF GREEN ENERGY IN TERMINAL OPERATIONS

Terminals and transhipment facilities

Electrification

PIONEERS

Solution description

The Battery Storage and Smart Energy Management solution integrates a **Battery Energy Storage System** (BESS) with a smart Energy Management System (EMS) to **optimize and monitor the use of renewable energy (wind and solar) in port terminal operations.**

It tracks energy production, analyses real-time usage data, and intelligently manages energy storage to ensure the most efficient and economical utilization of green energy. Additionally, the system enables peak shaving to stabilize the local electricity grid, aligning operational energy consumption with sustainability and regulatory requirements.

Benefits

- Enhanced efficiency in green energy use and storage
- Significant cost reduction through optimized energy dispatch
- Improved grid stability by managing energy demand peaks
- Lower environmental footprint through increased use of renewable energy
- Compliance with energy regulations and sustainability objectives

Main beneficiaries:

- Port Terminals
- Grid operators

Technology readiness level : ***7***
Implementation stage : ***Pilot***

BATTERY STORAGE AND SMART MANAGEMENT OF GREEN ENERGY IN TERMINAL OPERATIONS

Terminals and transhipment facilities

Electrification

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Interested? Fill short survey here

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https://pioneers-ports.eu/

MULTIMODALITY

alice | Alliance for Logistics Innovation through Collaboration in Europe

- Digital Twin-based Planning Multimodal Corridor Automation
- Influencing Transport Emissions Legislative Landscape
- Repository for future proof and harmonized Emission Factors
- Synchromodal Corridor Management System
- High-capacity multimodal container for LCL & LTL consolidation
- Multimodal container for bulk and pallets
- Multimodal Corridor Digital Management Service
- IT Platform for multimodal planning
- Multimodal transport platforms federation and orchestration
- Routing algorithm enabling synchromodal transport chains
- Unified data pool for resilient transport and logistics
- Agent-based SimulaTion for Resilience Of Intermodal Transportation (ASTROIT)

Digital Twin-based Planning Multimodal Corridor Automation

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147468

Developed by :

GRUBER LOGISTICS

P&G

Vonnecta systems

Project by :

AUTOSUP

DIGITAL TWIN-BASED PLANNING FOR MULTIMODAL CORRIDOR AUTOMATION

Multimodality

Transport planning and execution

AUTOSUP

Solution description

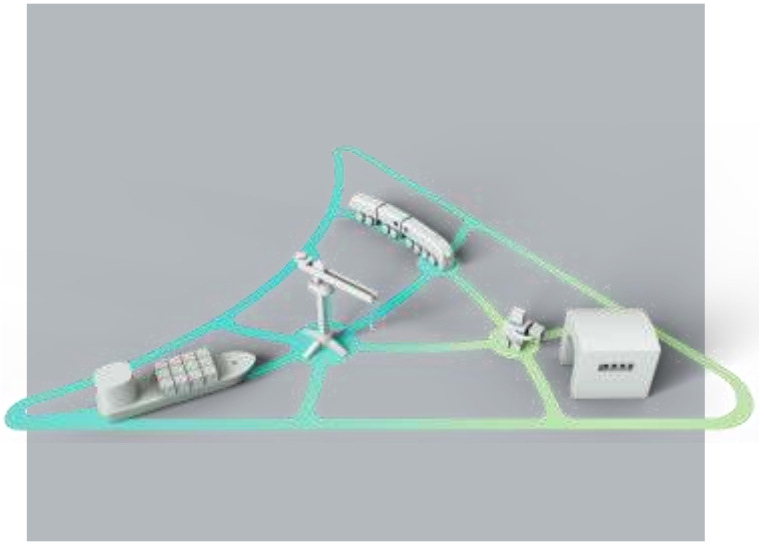
Simulation-based strategic planning Decision Support tool

- Digital Twins for advanced transport simulation and predictive models
- What-if scenarios
- Optimizing the transport planning of the first and last mile leg of multimodal flows
- Eliminate inefficiencies and losses throughout the entire supply chain

Benefits

- Enhanced Visibility
- Reduction of Waiting Times
- Improved Truck Driver Availability
- Optimized Resource Allocation
- Cost Reductions
- Improved Intermodal Efficiency
- Faster data-driven decisions

Main beneficiary:
Shippers, freight forwarders and multimodal carriers



Technology readiness level : ***5***
Implementation stage : ***Simulation***

DIGITAL TWIN-BASED PLANNING FOR MULTIMODAL CORRIDOR AUTOMATION

Multimodality

Transport planning and execution

AUTOSUP

Enhancing operational efficiency of Grubers operations along the corridor Port of Trieste - Port of Ambarli (Turkey), covering both the first mile in Italy and the last mile in Turkey.

Elimination of waiting times within the entire P&G supply chain along the corridors UK - Zeebrugge- Italy/Iberia.

Join our Stakeholder Forum here

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Influencing Transport Emissions Legislative Landscape

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101146908

Developed by :

alice Alliance for Logistics Innovation through Collaboration in Europe

Smart Freight Centre

UITP ADVANCING PUBLIC TRANSPORT

Project by :

CLEVER

INFLUENCING TRANSPORT EMISSIONS LEGISLATIVE LANDSCAPE

Multimodality

Measuring and reducing emissions

CLEVER

Solution description

A strategic interface connecting the transport industry with EU regulators, enabling direct engagement with policy developments, early awareness of legislative changes, and active contribution to emissions-related regulations.

- Overview of the key legislative files
- Stay in line with current and future rules
- Stay in contact with key people and stakeholders preparing the legislative files

Benefits

- **Regulatory alignment**: as we get direct contact with regulators and stakeholders
- **Policy influence**: sharing your insights and needs.
- **Awareness of changes**: be on the loop of the latest legislation updates

Main beneficiary:

- Transport industry

Technology readiness level : ***Not applicable***
Implementation stage : ***Market ready***

INFLUENCING TRANSPORT EMISSIONS LEGISLATIVE LANDSCAPE

Multimodality

Measuring and reducing emissions

CLEVER

Share your contact details and we'll get in touch with you!

CLEVER Project & LinkedIn

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https://emissionfactors.eu/

Repository for future proof and harmonized Emission Factors

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101146908

Developed by :

alice Alliance for Logistics Innovation through Collaboration in Europe

Smart Freight Centre

e:misia

UITP ADVANCING PUBLIC TRANSPORT

RICARDO

ifeu INSTITUT FÜR ENERGIE- UND UMWELTFORSCHUNG HEIDELBERG

Project by :

CLEVER

REPOSITORY FOR FUTURE PROOF AND HARMONIZED EMISSION FACTORS

Multimodality

Measuring and reducing emissions

CLEVER

Solution description

An online platform providing **structured access to scientific research, regulatory updates, and expert resources on emission factors** across all transport mode **supporting informed decision-making**.

In the platform you find:

- Relevant initiatives
- Existing and emerging regulatory framework
- Scientific State of the Art
- CLEVER project use cases, reports and recommendations

Benefits

- Enhance your knowledge on Emission Measurement and reporting
- Stay informed on the latest developments: scientific, implementation and policy.
- Be part of an expert community

Main beneficiary:

- Transport industry

What can you find in CLEVER Repository?

- Scientific papers
- Articles
- Key stakeholders in the field (certification, standardization, regulators)
- Updates on regulations related with emission factors
- Deliverables

Technology readiness level : ***Not applicable***
Implementation stage : ***Market ready***

REPOSITORY FOR FUTURE PROOF AND HARMONIZED EMISSION FACTORS

CLEVER

Share your contact details and we'll get in touch with you!

Access to the Repository & LinkedIn

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Multimodality

Transport planning and execution

Synchromodal Corridor Management System

Developed by :

CERTH
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

HELLENIC INSTITUTE OF TRANSPORT
CERTH / HIT

Project by :

CRISTAL

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069838

Operational fields | Technologies | Solutions

SYNCHROMODAL CORRIDOR MANAGEMENT SYSTEM

Multimodality

Transport planning and execution

CRISTAL

Solution description

SCMS (Synchromodal Corridor Management System) is an IT platform that collects and shares information on river transport disruptions with operational stakeholders (companies that plan or execute logistics operations in rivers).

It supports planning and re-planning of operations, suggests alternative routes using rail and road, and provides data and analytics to facilitate decision-making and regional policy development.

Benefits

- One single point to get **all river disruption alerts**
- **Forecasts** on river conditions and infrastructure issues
- View **alternative routes** by rail or road

Main beneficiary:

IWT Logistics stakeholders

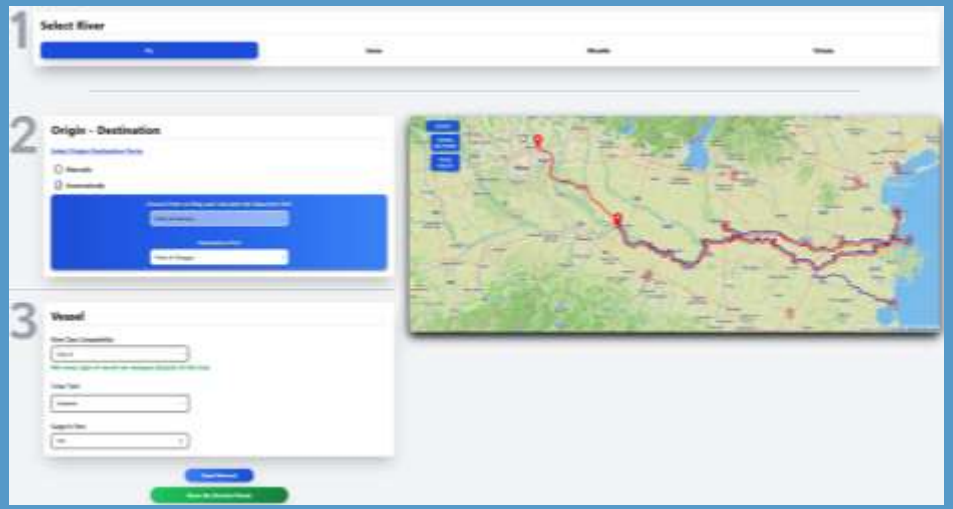
Technology readiness level : ***7***
Implementation stage : ***Pilot***

SYNCHROMODAL CORRIDOR MANAGEMENT SYSTEM

Multimodality

Transport planning and execution

CRISTAL



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High-capacity multimodal container for LCL & LTL consolidation

Developed by :

CargoBeamer®

Fraunhofer

Project by :

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069796

High-capacity multimodal container for LCL & LTL consolidation

Multimodality

Asset design, sharing & modularity

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Solution description

The CBoXX is a high-capacity rail container to consolidate and carry less-than-truckload (LTL) cargo. It can carry up to 4 times more than a 40-foot container.

Featuring movable shelves for flexible loading, it can handle almost any cargo type and supports fully automated road-to-rail transfer. It is compatible with CargoBeamer systems.

CargoBeamer's CBoXX aims to redefine rail cargo transportation by providing a rail service for both LCL and LTL cargo.

Benefits

- **High efficiency and flexible storage** for any cargo size, enabling full loading unit accessibility.
- Enhanced cargo monitoring and **security with sensor integration options**.
- Fast, low-impact loading/unloading and fully automated multimodal transition.
- Compatibility with CargoBeamer technology for **seamless intermodal operations.**

Main beneficiary:

FREIGHT FORWARDERS

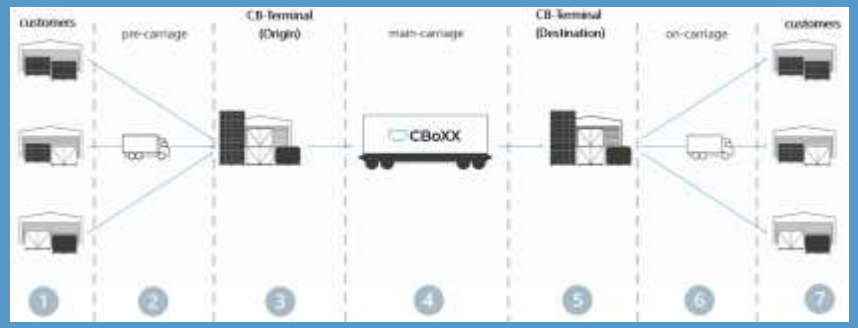
Technology readiness level : ***8***
Implementation stage : ***Pilot***

High-capacity multimodal container for LCL & LTL consolidation

Multimodality

Asset design, sharing & modularity

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY



LTL-Logistic provides a solution for customers with smaller shipment volumes, enabling them to benefit from the advantages of the intermodal transport.

By consolidating shipments and using the CBoXX as a loading unit, CargoBeamer offers a sustainable multimodal logistics solution tailored to the LTL and LCL transport needs of customers.

LET'S DISCUSS
5 June at 13:30
CARGOBEAMER
BOOTH A4.309/408

Would you like to know more? Take contact :

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Operational fields | Technologies | Solutions

Multimodal container for bulk and pallets

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069796

Developed by :

Project by :

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

MULTIMODAL CONTAINER FOR BULK AND PALLETS

Multimodality

Asset design, sharing & modularity

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Solution description

Innovative multimodal containers enable easy transfer of bulk goods, such as grain, fertiliser and chemicals, by road, rail and inland waterways.

They can be loaded from the top for bulk materials and from the front for palletised products.

Thanks to their pallet-wide design, they fit standard Euro pallets and are therefore suitable for almost any type of cargo.

Benefits

- **Flexibility & accessibility**: Increased operational flexibility and access to intermodal solutions.
- **Efficiency & cost savings**: Improved operations, cost efficiency, and reliability.
- **Sustainability & labour**: Environmental benefits and better working conditions.
- **Innovation & collaboration**: Support for innovative supply chains and shared solutions.

Main beneficiary:

FORWARDERS

Technology readiness level : ***9***
Implementation stage : ***Market-Ready***

MULTIMODAL CONTAINER FOR BULK AND PALLETS

Multimodality

Asset design, sharing & modularity

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Watch the video to explore the solution in action

LET'S DISCUSS
5 June at 15:30
ALICE BOOTH A3.400

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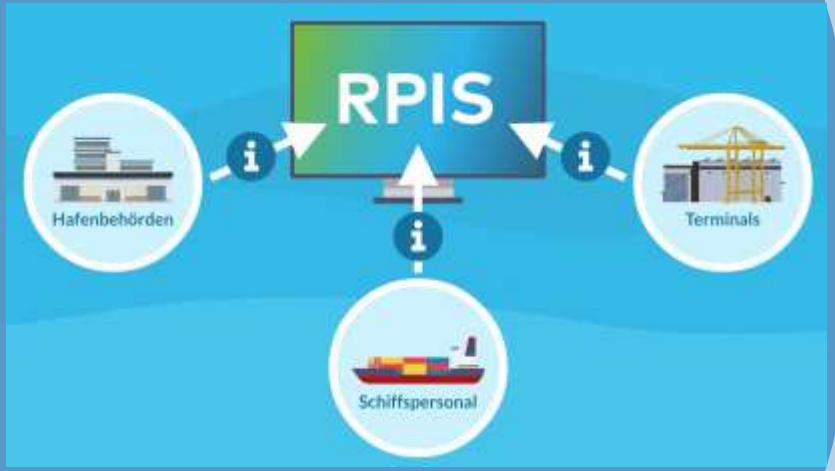
Multimodality

Digitalisation and processes automation



Multimodal Corridor Digital Management Service

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069796

Developed by :

PORT OF SWITZERLAND

RHEINPORTS

pro DANUBE MANAGEMENT GMBH

Project by :

MultiRELOAD

PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Operational fields | Technologies | Solutions

Multimodal Corridor Digital Management Service

Multimodality

Digitalisation and processes automation

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Solution description

RPIS is a key enabler of digital transformation in Europe's multimodal logistics networks.

The **RiverPorts Planning and Information System (RPIS)** is a digital platform designed to optimize multimodal transport chains along international logistics corridors.

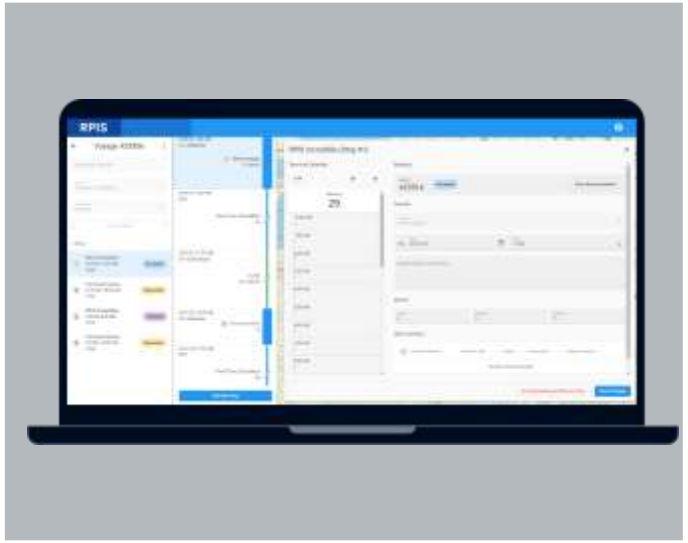
It connects stakeholders from inland waterways, rail, road, and terminals in real time, providing end-to-end transparency and supporting more efficient and sustainable transport operations.

Benefits

Seamless Integration	Connects all transport modes and systems across borders
Real-Time Insights	Provides live data and forecasts to optimize operations.
Scalable & Compatible	Modular setup aligned with EU PCS standards.
Process Automation	Digitizes workflows to reduce manual effort and errors.

Main beneficiary:

PORT AUTHORITIES



Technology readiness level : ***9***
Implementation stage : ***Market ready***

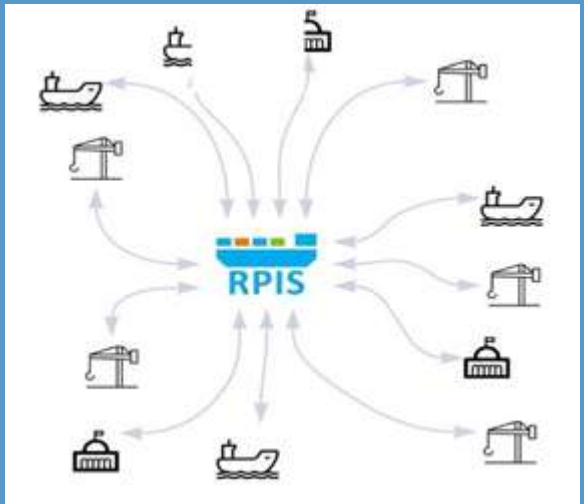
Multimodal Corridor Digital Management Service

Multimodality

Digitalisation and processes automation

MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

VALUE



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IT Platform for multimodal planning

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101037564

Developed by :

INFRABEL Right On Track

Port of Antwerp Bruges

Project by :

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

IT PLATFORM FOR MULTIMODAL PLANNING

Multimodality

Collaborative processes, connectivity and data

PIONEERS

Solution description

The IT platform provides a **centralized digital environment** enabling comprehensive data sharing and communication between all entities involved in multimodal freight operations at the Port of Antwerp-Bruges. It replaces existing manual logistics processes with digital workflows, allowing stakeholders real-time access to accurate supply chain data.

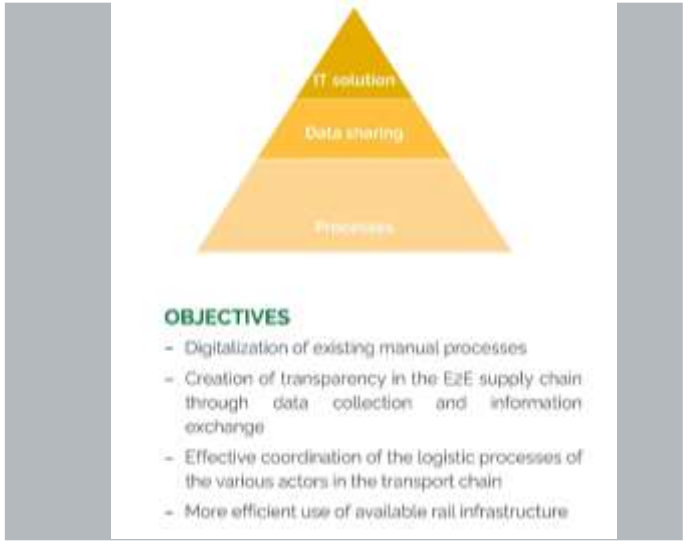
By integrating operational data across rail transport activities, the platform enhances coordination, optimizes rail infrastructure utilization, and facilitates transparent end-to-end logistics management.

Benefits

- Increased transparency and traceability of logistics processes
- Improved coordination among different transport operators
- Efficient utilization of available rail infrastructure
- Reduction of manual workload through process digitization
- Support of sustainability goals by promoting modal shift to rail

Main beneficiaries:

- Freight transport and Logistics operators
- Rail infrastructure management entities



Technology readiness level : ***5***
Implementation stage : ***Pilot***

IT PLATFORM FOR MULTIMODAL PLANNING

PIONEERS
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

Fill our survey if you're interested

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https://pioneers-ports.eu/

ReMuNet

Pioneering resilient and adaptive multimodal transport networks

Multimodal transport platforms federation and orchestration

Developed by :

4PL Intermodal

PTV GROUP

vedia

fir an der RWTH Aachen

MANSIO

Project by :

ReMuNet

Pioneering resilient and adaptive multimodal transport networks

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101104072

MULTIMODAL TRANSPORT PLATFORMS FEDERATION AND ORCHESTRATION

Multimodality

Collaborative processes, connectivity and data

ReMuNet
Pioneering resilient and adaptive multimodal transport networks

Solution description

Collaborative digital infrastructure that connects logistics stakeholders (carriers, forwarders, operators, and service providers) via secure, decentralised data exchange.

It supports API and SFTP, enabling real-time and query-based access to booking, transport, and emissions data.

Based on the XXP protocol, ReMuNet ensures interoperability, scalability, and GDPR-compliant communication across diverse IT systems in multimodal transport networks.

The platform federation acts as an authentication broker, enabling peer-to-peer data exchange as the system scales.

Benefits

- **Interoperability & Scalability:** Supports both direct and decentralized data exchange. Compatible with existing systems. Works across diverse stakeholder IT capabilities
- **Security & Compliance:** Cybersecurity by design: firewalls, access controls, encryption, virus scanning. GDPR-compliant data handling. Authentication brokering ensures secure, trusted information flows
- **Smart Logistics Integration:** Real-time and static data exchange on booking, traffic, emissions, capacity. Enables coordinated decision-making across modes and stakeholders. Reduces latency and overhead in multimodal transport planning

Main beneficiaries:
Carriers, LSPs, Infrastructure managers

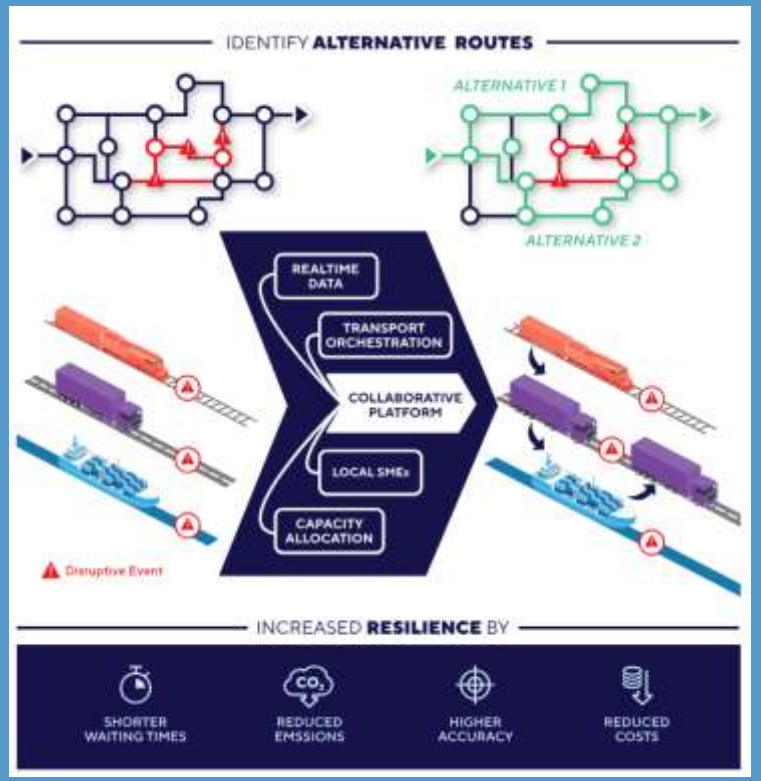
- Real-time data on booking, traffic, emissions, and capacity.
- API and SFTP support for all system types.
- Secure, GDPR-compliant XXP-based data exchange.

Technology readiness level : *7*
Implementation stage : *Pilot*

MULTIMODAL TRANSPORT PLATFORMS FEDERATION AND ORCHESTRATION

Multimodality

Collaborative processes, connectivity and data



Join our next webinar on 10th June to know more

ReMuNet
Pioneering resilient and adaptive multimodal transport networks

Share your contact details and we'll get in touch with you!

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Operational fields | Technologies | Solutions

Multimodality

Transport planning and execution

ReMuNet

Pioneering resilient and adaptive multimodal transport networks

Routing algorithm enabling synchromodal transport chains

Developed by :

PTV GROUP

CONTARGO® trimodal network

vedia

fir an der RWTH Aachen

Fraunhofer AUSTRIA

Project by :

ReMuNet

Pioneering resilient and adaptive multimodal transport networks

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101104072

Operational fields

Technologies

Solutions

ROUTING ALGORITHM ENABLING SYNCHROMODAL TRANSPORT CHAINS

Multimodality

Transport planning and execution

ReMuNet
Pioneering resilient and adaptive multimodal transport networks

Solution description

High-Performance Routing Algorithm that enables synchromodal door-to-door transport chains across Europe by integrating road, rail, inland waterway, and sea modes.

Key features include:

- Multimodal route optimization with real-time updates
- Simulation of disruptions (e.g., strikes, weather, infrastructure failures)
- Dynamic rerouting and cost-emission trade-offs
- Integration with timetable and relay transport data
- AI-based trailer swap coordination (MANSIO)

The system uses advanced graph models, Dijkstra's variants, and precomputed routing networks (HPR) to deliver fast, accurate, and scalable routing results.

Benefits

- Optimised multimodal routing improves logistics efficiency
- Reduces empty runs and enables door-to-door planning
- Supports modal shift to greener transport, cutting CO_2 emissions
- Real-time disruption management enhances resilience
- Balances cost, time, and emissions for optimal routing
- Seamlessly integrates with existing TMS and planning systems

Main beneficiaries:
LSPs, Freight Forwarders & Shippers, Intermodal Operators & Carriers

Technology readiness level : ***7***
Implementation stage : ***Pilot***

ROUTING ALGORITHM ENABLING SYNCHROMODAL TRANSPORT CHAINS

Multimodality

Transport planning and execution

Join our next webinar on 10th June to know more

ReMuNet
Pioneering resilient and adaptive multimodal transport networks

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Multimodality

Collaborative processes, connectivity and data

ReMuNet

Pioneering resilient and adaptive multimodal transport networks

Unified data pool for resilient transport and logistics

Developed by :

Fraunhofer AUSTRIA

Project by :

ReMuNet

Pioneering resilient and adaptive multimodal transport networks

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101104072

Operational fields

Technologies

Solutions

UNIFIED DATA POOL FOR RESILIENT TRANSPORT AND LOGISTICS

Multimodality

Collaborative processes, connectivity and data

ReMuNet
Pioneering resilient and adaptive multimodal transport networks

Solution description

A unified data pool based on a standardised model that maps multimodal transport networks, integrating road, rail, inland waterways, and maritime modes.

It captures **static and dynamic data on goods, nodes, routes, and disruptions** within a single database, enabling structured, cross-sector information exchange and supporting resilient, interoperable transport planning and operations.

Benefits

- **Harmonises** data across transport modes and systems
- Enhances coordination and operational efficiency
- Enables real-time disruption monitoring and response
- Supports strategic planning and risk analysis
- Scales easily to new corridors and data sources
- Aligns with EU regulations for compliance and transparency
- Improves data-driven decision-making for all stakeholders

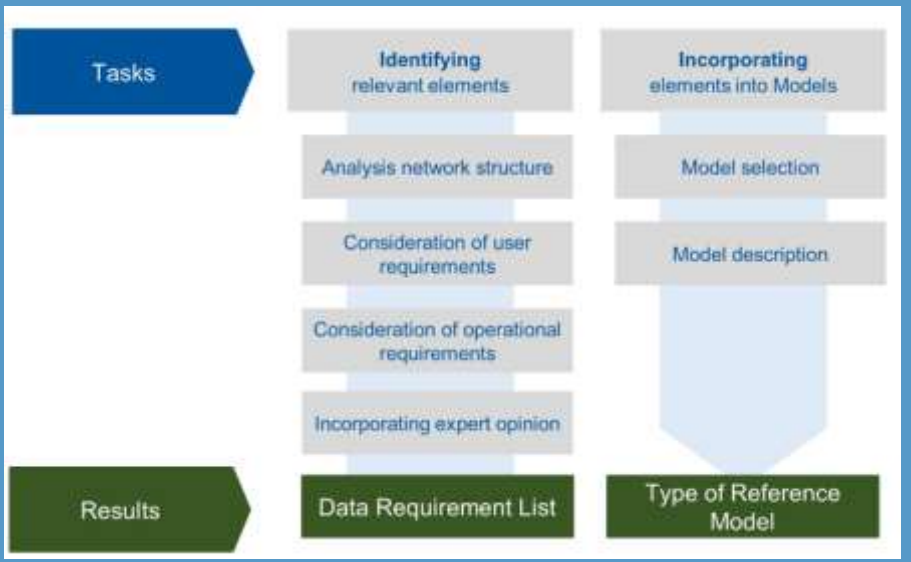
Main beneficiaries:
Infrastructure Planners & Policy Makers, TMS/IT System Developers, Freight Operators

Technology readiness level : *6*
Implementation stage :
Pilot

UNIFIED DATA POOL FOR RESILIENT TRANSPORT AND LOGISTICS

Multimodality

Collaborative processes, connectivity and data



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ReMuNet
Pioneering resilient and adaptive multimodal transport networks

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Operational fields | Technologies | Solutions

Multimodality

Transport planning and execution

SARIL

Agent-based SimulaTion for Resilience Of Intermodal Transportation (ASTROIT)

Developed by :

Fraunhofer

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101103978

Project by :

SARIL

Operational fields

Technologies

Solutions

AGENT-BASED SIMULATION FOR RESILIENCE OF INTERMODAL TRANSPORTATION (ASTROIT)

Multimodality

Transport planning and execution

SARIL

Solution description

ASTROIT is a customizable simulation tool designed to model cargo transport as an agent-based system.

Each cargo unit (agent) autonomously selects the most optimal route from origin to destination based on user-defined cost minimization preferences (e.g., operational cost per km, CO_2 emissions per km, and travel time).

Benefits

- **Vehicle Customization:** Vehicles differ by type, capacity, speed, CO_2 emissions, and operational costs. They operate on specific, scheduled routes suitable for their type.
- **Dynamic Disruption Handling:** Network disruptions lower the performance of nodes/edges, increasing delays or causing total failure. Agents recalculate routes after a set reaction time.
- **Congestion Management:** Overloaded nodes trigger the spawning of additional vehicles on connecting routes to relieve congestion. These auxiliary vehicles are removed once normal conditions resume.
- **Full Customization:** Users can configure the network layout, vehicle characteristics, route schedules, and disruption scenarios at both node and edge levels.

Main beneficiary:
Carriers, LSPs, Infrastructure managers

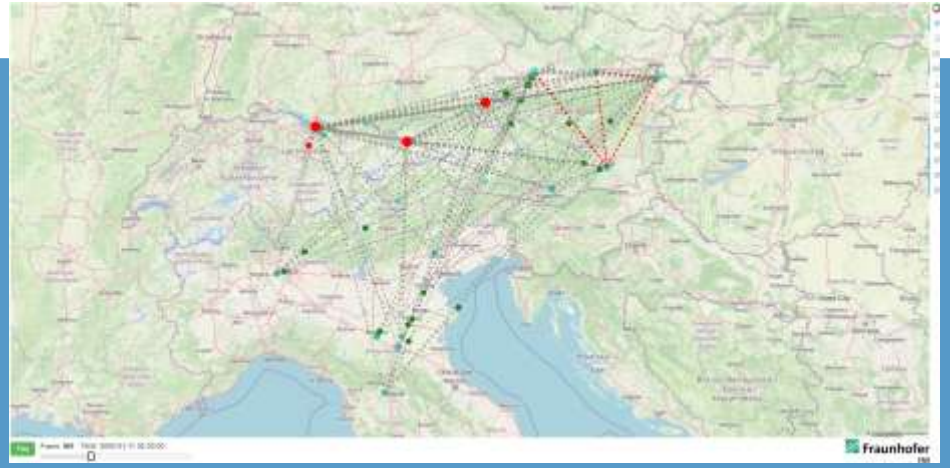
Technology readiness level : *6*
Implementation stage :
Pilot

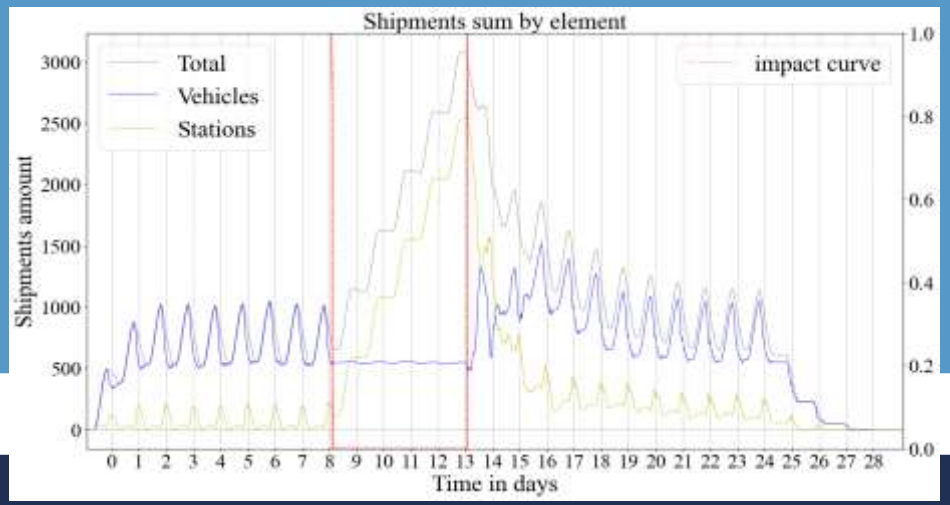
AGENT-BASED SIMULATION FOR RESILIENCE OF INTERMODAL TRANSPORTATION (ASTROIT)

Multimodality

Transport planning and execution

SARIL





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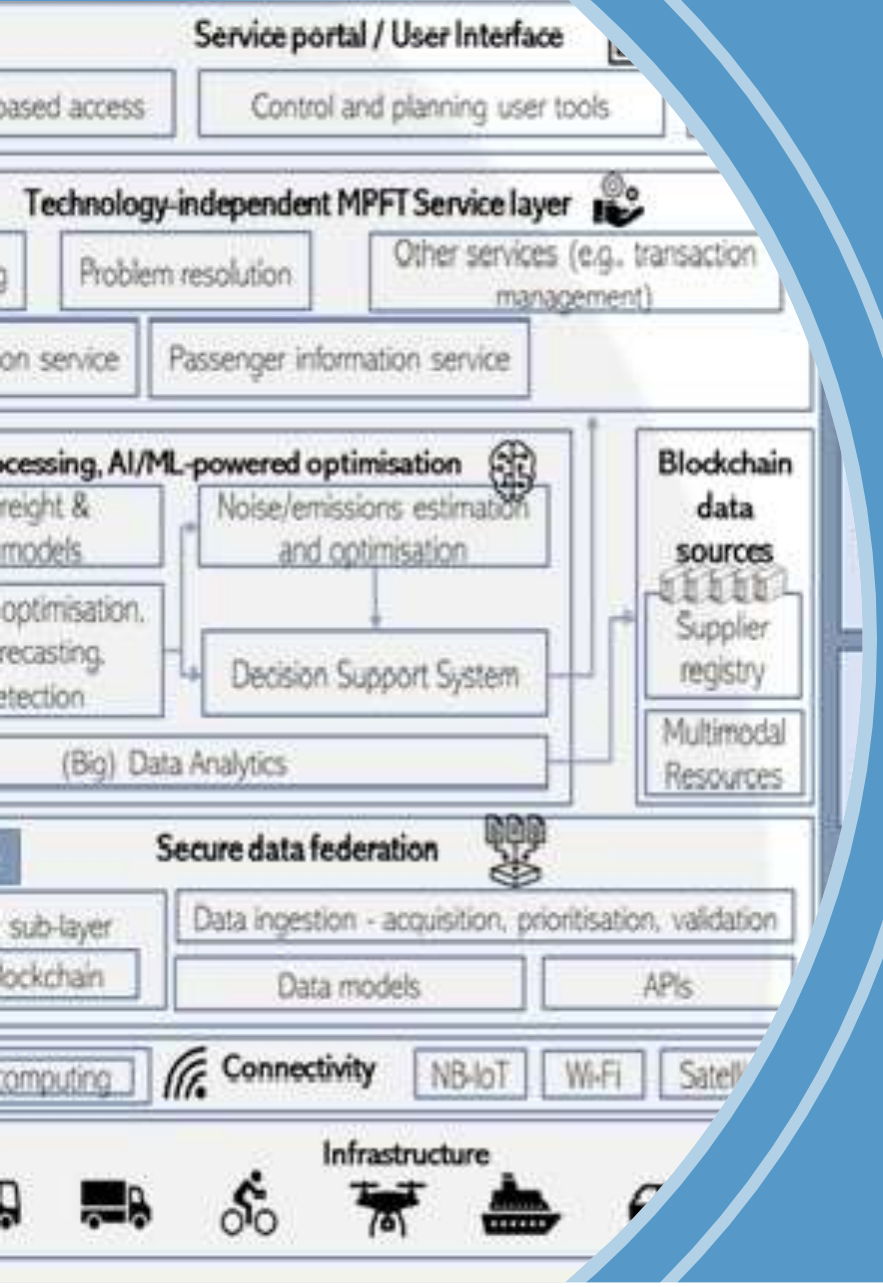
CROSS-CUTTING IT SYSTEMS AND PLATFORMS

alice | Alliance for Logistics Innovation through Collaboration in Europe

- Federated reference architecture
- Megawatt charging hub business case assessment tool
- EcoDyna: Dynamic LCA for Sustainable Freight
- Supply Chain Strategic Decisions tool for Resilience Fit
- Disruption Information Interface for multimodal transport
- Route energy & emissions Intelligence module
- ModalNET: Real-Time Digital Twin for Integrated Freight Management



Federated reference architecture

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101104263

Developed by :

wings.

Project by :

DELPHI

FEDERATED REFERENCE ARCHITECTURE

Cross-cutting IT systems and platforms

Collaborative processes, connectivity and data

DELPHI

Solution description

A federated architecture enabling integration across multimodal passenger and freight transport platforms.

It is designed to facilitate research and development across sectors. This cloud-based framework supports data spaces and standardised interfaces, allowing users to co-develop services and components.

The architecture can be adapted to diverse technologies and facilitates collaboration in decentralised environments.

Benefits

- Decentralised architecture enables simultaneous multi-user collaboration
- Supports faster adaptation to market needs
- Enhances interoperability across platforms and systems
- Ensures secure data exposure and exchange
- Enables flexible integration of new components and services
- Cloud-based, leveraging data spaces for scalability and efficiency

Main beneficiaries:

- Research Institutions
- Market sectors
- Cloud/service providers

Develop the technology of tomorrow

AI powered solutions

wings.

Technology readiness level :
Implementation stage :

FEDERATED REFERENCE ARCHITECTURE

Cross-cutting IT systems and platforms

Collaborative processes, connectivity and data

DELPHI

Our DELPHI use cases

Athens: Installing IoT solutions in Attica road in Athens to predict road structural failures and traffic optimisation. Provision of real time data for effective means of traffic communication.

Find out more:

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Megawatt charging hub business case assessment tool

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101192466

Developed by :

Fraunhofer ISI

CHALMERS UNIVERSITY OF TECHNOLOGY

FIER SUSTAINABLE MOBILITY

cenex

Project by :

MEGAWATT CHARGING HUB BUSINESS CASE ASSESSMENT TOOL

Cross-cutting IT systems and platforms

Electrification

MACBETH

Solution description

Financial Assessment for Smart Planning of Megawatt Charging System (MCS) Hubs

The MCS Business Case Assessment Tool is an advanced simulation-based planning software aiming at helping stakeholders assess the financial viability and sustainability of MCS hubs by integrating investment costs, operational expenses, and potential revenue streams.

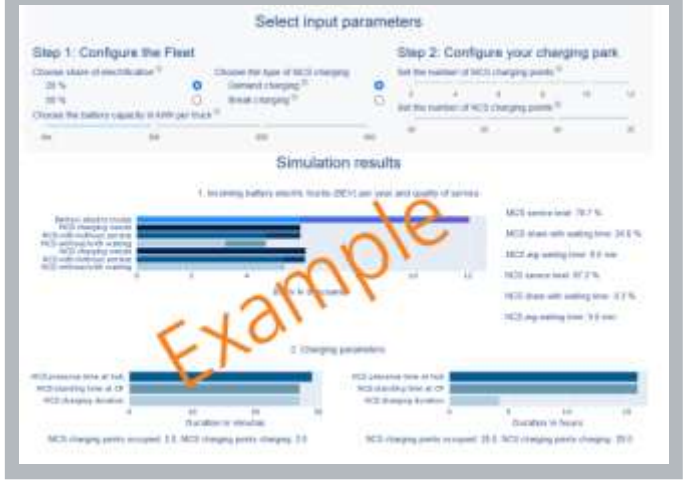
Designed for CPOs, energy providers and infrastructure planners it enables data-driven decision-making for deploying and scaling high-power truck charging infrastructure.

Benefits

- **Comprehensive simulation engine**
  Combines CAPEX, OPEX, and revenue forecasting including auxiliary revenue (e.g., food, lodging, services) and TCO impact.
- **Dynamic price modeling**
  Accounts for hourly energy prices and grid fees to reflect real-world operational contexts.
- **Scalable & transferable**
  Adaptable to different regions and corridor configurations across the EU, accelerating market uptake of BE-HDVs by reducing uncertainty in deploying MCS hubs.

Main beneficiary:
CHARGING POINT OPERATORS

Example of User Interface



Technology readiness level : *8*
Implementation stage : ***Pilot***

MEGAWATT CHARGING HUB BUSINESS CASE ASSESSMENT TOOL

Cross-cutting IT systems and platforms

Electrification

MACBETH

Want to receive insights on business needs and Use Cases for ultra-fast charging infrastructure?

Share your contact details and we'll get in touch with you!

Learn more about Use Cases for high-power charging hubs!

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Cross-cutting IT systems and platforms

Measuring and reducing emissions

ecoDYNA

EcoDyna: Dynamic LCA for Sustainable Freight

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096598

Funded by the European Union

Developed by :

UNIVERSITY OF SURREY

DLR Institute of Vehicle Concepts

virtual vehicle

pbx

LAT

inegi

Project by :

ESCALATE

FEV

UNIVERSITY OF SURREY

Operational fields | Technologies | Solutions

ECODYNA: DYNAMIC LCA FOR SUSTAINABLE FREIGHT

Cross-cutting IT systems and platforms

Measuring and reducing emissions

ESCALATE

Solution description

- **Full Lifecycle Environmental Impact:** Analyze cradle-to-grave emissions for freight
- **Dynamic Life Cycle Assessment (LCA) for Future Accuracy:** Accounts for changing tech and energy.
- **Optimized for Zero-Emission Fleets:** Deep dive into BEV, FCEV, and range extenders
- **Model Future Scenarios & Optimize:** Plan for sustainable logistics

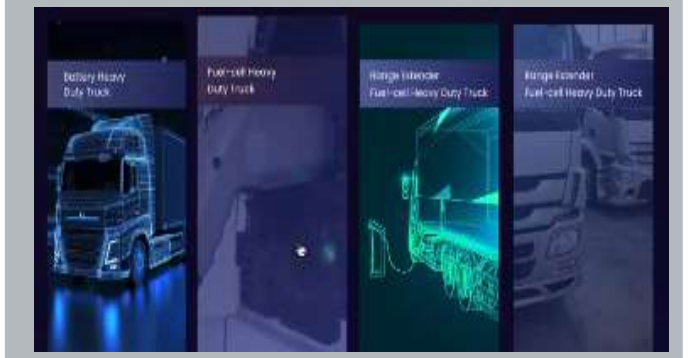
Benefits

- **Easy-to-Use LCA Tool**: Accessible for various stakeholders
- **Actionable Emissions Analysis**: Identify hotspots and improvement areas
- **Regionally Adaptable Analysis**: Tailor to specific contexts
- **Scalable & Transparent Solution**

ecoDYNA

Main beneficiaries:
Vehicle manufacturers,
Tier 1 Suppliers, Fleet operators,
Infrastructure Planners,
Policy Advisors

Jumpstart Electrification Decisions



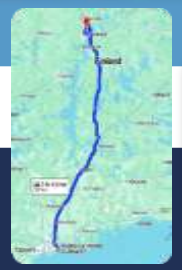
Technology readiness level : ***TRL 7***
Implementation stage : ***Pilot***

ECODYNA: DYNAMIC LCA FOR SUSTAINABLE FREIGHT

Cross-cutting IT systems and platforms

Measuring and reducing emissions

Real-World Demos



ecoDYNA

8 Different Mission in Europe and UK

https://www.escalate-eu.com/

https://www.linkedin.com/company/escalate-eu-project/

ESCALATE

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Operational fields | Technologies | Solutions

Cross-cutting IT systems and platforms

Digital Twins, AI and predictive technologies

Supply Chain Strategic Decisions tool for Resilience Fit

Developed by :

Project by :

RISE SME

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101138645

Operational fields

Technologies

Solutions

Supply Chain Strategic Decisions tool for Resilience Fit

Cross-cutting IT systems and platforms

Digital Twins, AI and predictive technologies

Solution description

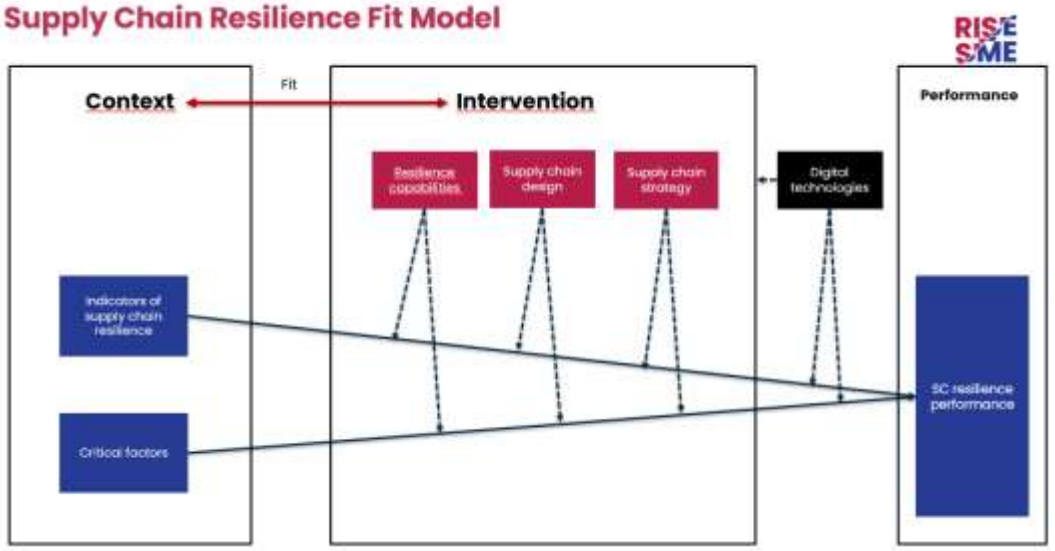
Resilience is not just about recovering to the original state but also about innovating and adapting to new realities.

Strategic fit, or the alignment between a company's environment and its strategic actions, is fundamental to supply chain resilience.

Benefits

The Supply Chain Resilience Fit Model helps to **understand how different strategic actions – SC design, SC strategies, resilient capabilities** – taken by SC actors lead to **improvements in supply chain resilience performance.**

The solution is aimed to all actors in the supply chain, with a special focus on SMEs



Technology readiness level : *4*
Implementation stage : ***Concept***

Supply Chain Strategic Decisions tool for Resilience Fit

Cross-cutting IT systems and platforms

Digital Twins, AI and predictive technologies

Carolina Cipres

Director of Research at Zaragoza Logistics Center

Coordinator of the RISE-SME Project

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Cross-cutting IT systems and platforms

Collaborative processes, connectivity and data

SARIL

Disruption Information Interface for multimodal transport

Developed by :

Łukasiewicz
Poznański Instytut Technologiczny

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101103978

Project by :

SARIL

Operational fields | Technologies | Solutions

DISRUPTION INFORMATION INTERFACE FOR MULTIMODAL TRANSPORT

Cross-cutting IT systems and platforms

Collaborative processes, connectivity and data

SARIL

Solution description

This tool is designed to collect and disseminate information about transport disruptions across three modes: road, rail, and sea.

It serves as an integration layer between various data sources and other transport management tools.

Benefits

- **Data Collection:** Gathers real-time disruption information from government APIs and industry platforms used by partners, via both active scraping and passive API submission.
- **Infrastructure & Storage:** Built with Python 3.11, Docker, PostgreSQL with PostGIS, and Elasticsearch for scalable deployment and robust data logging.
- **Disruption Insights:** Delivers detailed reports including location, timing, impact type, affected infrastructure, and predictive insights (e.g., estimated disruption end time via AI-based Survival Analysis).

Main beneficiaries:

Carriers, LSPs, Infrastructure managers, Public Authorities

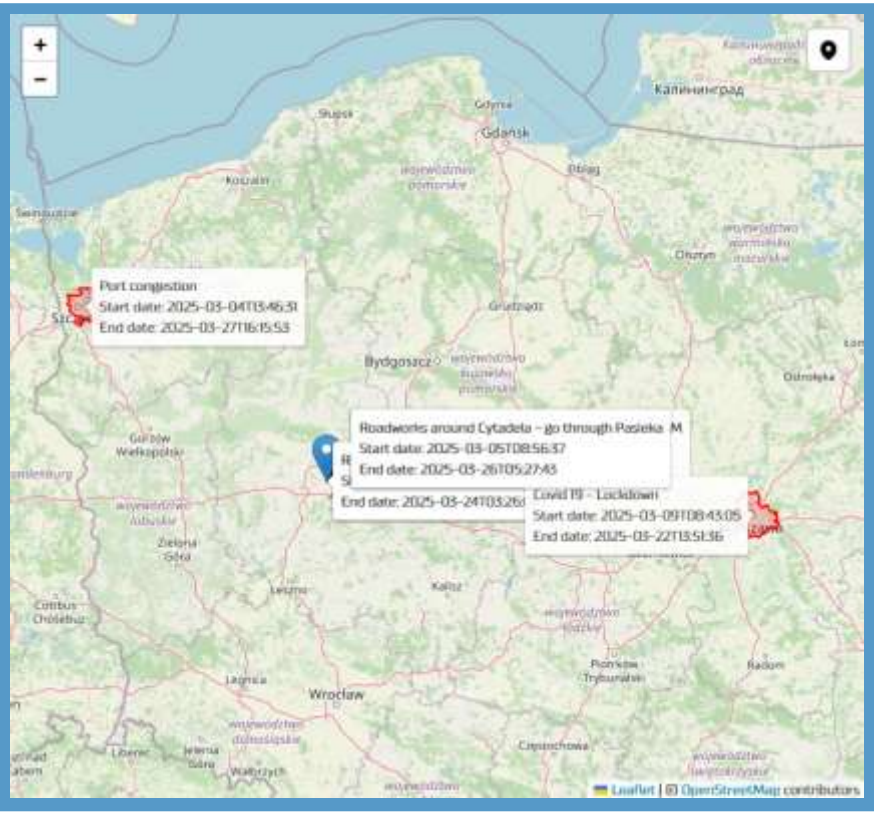
Technology readiness level : *6*
Implementation stage : ***Pilot***

DISRUPTION INFORMATION INTERFACE FOR MULTIMODAL TRANSPORT

Cross-cutting IT systems and platforms

Collaborative processes, connectivity and data

SARIL



Join our next webinar on 10th June to know more

Share your contact details and we'll get in touch with you!

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Cross-cutting IT systems and platforms

Transport planning and execution

SARIL

Route energy & emissions Intelligence module

Developed by :

SINTEF

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101103978

Project by :

SARIL

Operational fields | Technologies | Solutions

ROUTE ENERGY & EMISSIONS INTELLIGENCE MODULE

Cross-cutting IT systems and platforms

Transport planning and execution

SARIL

Solution description

The Energy Module is designed to estimate travel time, energy or fuel consumption, and emissions (CO_2 and NOx) based on road infrastructure and vehicle characteristics. Users can input data either manually or via an API.

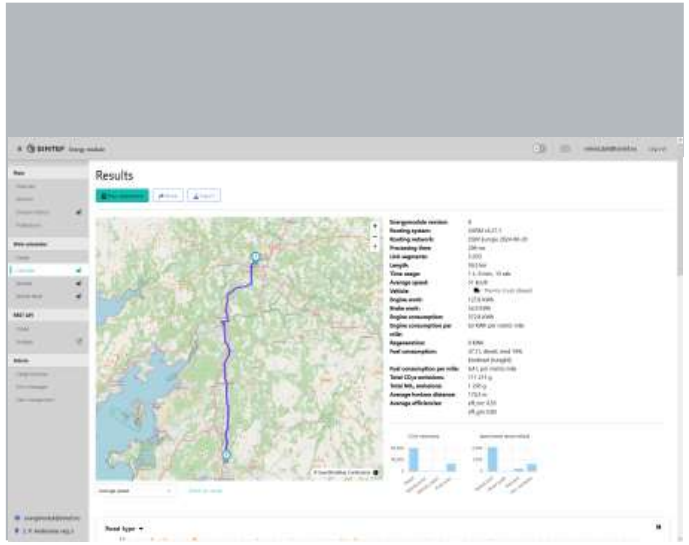
The tool uses a speed model influenced by infrastructure features like speed limits, lanes, curvature, and vehicle details. Route options include user-defined paths or automatic shortest-path calculations. Results can be accessed through a web interface or a REST API, both requiring an API key from SINTEF for access.

Benefits

- **Accurate Environmental Impact Analysis:** Provides precise estimates of energy consumption and emissions (CO_2, NOx), supporting greener transport planning.
- **Customizable and Flexible Routing:** Users can define routes manually or let the tool calculate the most efficient path based on infrastructure data.
- **Detailed Infrastructure Insight:** Considers road features (e.g., lanes, speed limits, tolls) to improve accuracy in route performance evaluation.
- **Interoperability via API**: Easily integrates with other models or systems through a REST API, enabling seamless data exchange
- **Decision Support**: Assists policymakers, transport planners, and logistics operators in making data-driven, sustainable decisions.

Main beneficiaries:

- Carriers
- LSPs



Technology readiness level : ***5***
Implementation stage : ***Pilot***

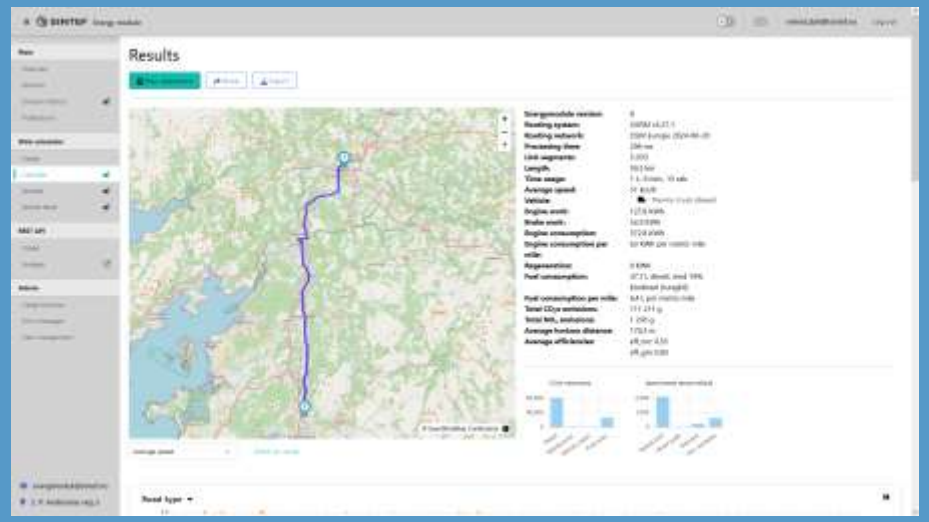
ROUTE ENERGY & EMISSIONS INTELLIGENCE MODULE

Cross-cutting IT systems and platforms

Transport planning and execution

SARIL

Join our next webinar on 10th June to know more



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Cross-cutting IT systems and platforms

Transport planning and execution

ModalNET: Real-Time Digital Twin for Integrated Freight Management

Developed by :

FUNDACIÓN VALENCIAPORT

Project by :

SEAMLESS

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096923

MODALNET: REAL-TIME DIGITAL TWIN FOR INTEGRATED FREIGHT MANAGEMENT

Cross-cutting IT systems and platforms

Transport planning and execution

SEAMLESS

Solution description

Tracking freight

ModalNET is a digital platform to monitor the logistics chain to provide a macro-level view of the freight flow, the transport modes and connected physical assets.

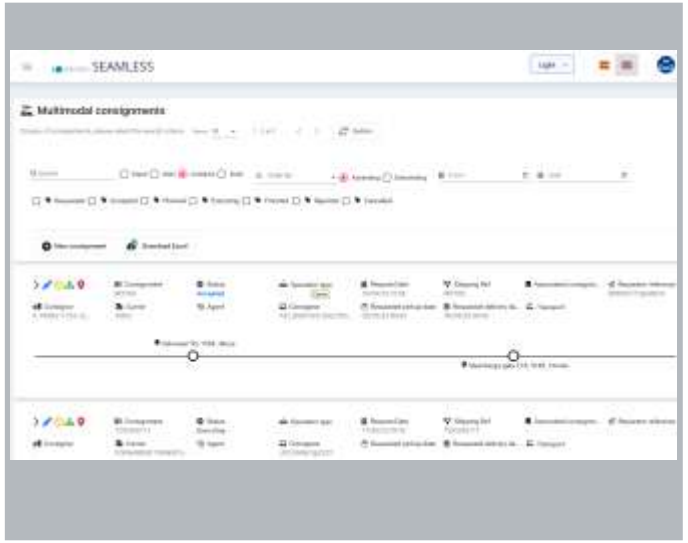
Additionally, it offers capabilities to perform the booking, create vessel schedules, and provide alternatives route options.

Benefits

- **Consignor** can make any booking through ModalNet and select the most suitable route and vessel
- **Freight-forwarders** managing different transport operations from different clients can monitor the real-time status
- Shipping line can offer their services through the platform

Main beneficiaries:

- Consignor
- Freight-forwarders
- Shipping lines



Technology readiness level : ***7***
Implementation stage : ***Pilot***

MODALNET: REAL-TIME DIGITAL TWIN FOR INTEGRATED FREIGHT MANAGEMENT

Cross-cutting IT systems and platforms

Transport planning and execution

SEAMLESS

Learn more

Project QR code to website

Project QR code to LinkedIn

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