

Pilot action evaluation report - topic 2

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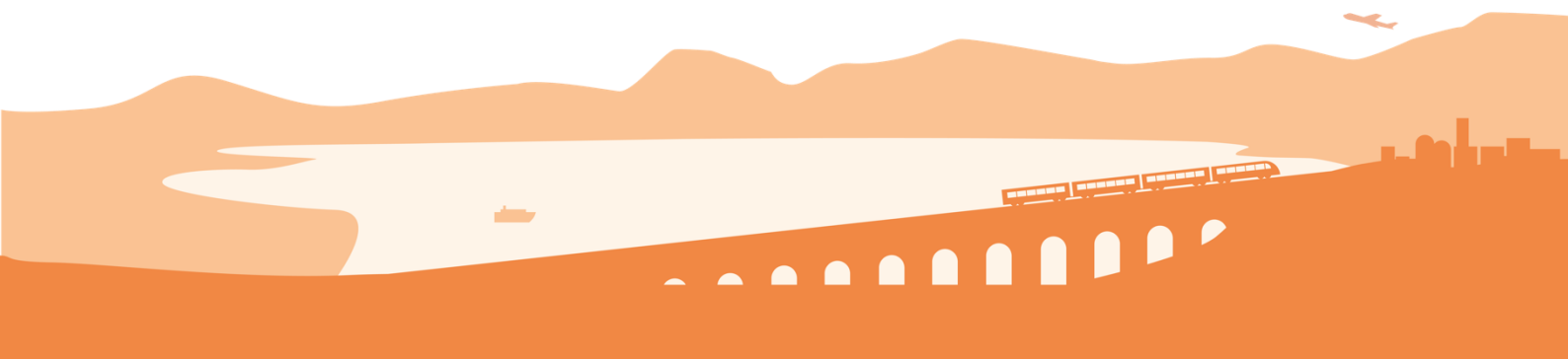
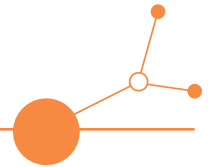




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1. Introduction

1.1. General introduction about pilot action

The ACCESSMILE project aims to strengthen the connection between rural and peripheral areas and the Trans-European Transport Network (TEN-T) by leveraging smart, inclusive, and sustainable mobility solutions. Within this framework, **Activity 2.2** is devoted to the co-design, implementation, and evaluation of pilot actions developed by project partners in their respective territories, each responding to a specific thematic challenge.

Topic 2, to which this deliverable refers, focuses on the **use of ICT systems at gates and entry/exit points** of logistics nodes—such as ports, terminals, and dry ports—to improve operational efficiency, accessibility, and environmental performance. These access points represent critical interfaces between modes of transport and between territories. Delays, inefficiencies, or gaps in these areas can significantly impact the fluidity and reliability of freight transport chains, particularly for regions located outside core transport corridors.

Many logistics platforms today face growing pressure from increased freight volumes, higher service expectations, and the need to meet environmental and digital transformation targets. These challenges are compounded in rural or peripheral areas, which often lack the infrastructure, investment capacity, or technological maturity of their urban counterparts. In this context, enhancing access infrastructure through ICT is not simply a technical upgrade—it is a strategic tool to support economic development, social cohesion, and competitiveness.

The pilot actions developed under Topic 2 explored a variety of digital solutions tailored to specific local needs:

- **Automated gate operations,**
- **Real-time vehicle tracking,**
- **OCR-based container scanning,**
- **Weight-in-motion systems, and**
- **Integrated platforms for truck access and coordination.**

Despite the diversity of tools and contexts, all pilots shared the same guiding principle: to enhance the **last-mile accessibility** of logistics infrastructure by removing operational bottlenecks, reducing paperwork and delays, and increasing interoperability and data visibility.

This report presents the final result of the five pilot actions implemented under Topic 2 by the following project partners:

- **Zailog** (Verona, Italy),
- **Eastern Ligurian Sea Port Authority** (La Spezia, Italy),
- **Luka Koper** (Koper, Slovenia),
- **RSOE** (Budapest, Hungary), and
- **BCT Gdynia** (Gdynia, Poland).

Each pilot has been structured according to a shared methodology, with sections describing the **ex-ante situation**, the **pilot action**, the **results**, and the **main conclusions**. Taken together, these pilots offer a practical demonstration of how digital innovation can promote more inclusive, efficient, and sustainable access to Europe's transport backbone, starting from the gates.



2. Ex-ante situation

2.1. Zailog

The Interterminal site in Verona was already equipped with a Terminal Operating System (I-TOS), yet several operational limitations were identified. Manual operations at gates caused delays, and the system lacked flexibility in managing changes to unit data once accepted. Traceability for road deliveries was limited, while critical documents, such as waybills, had to be generated manually. Without targeted upgrades, the terminal risked becoming a bottleneck, particularly for logistics operators from peripheral areas.

2.2. Eastern Ligurian Sea Port Authority

The dry port of Santo Stefano Magra, despite its strategic position, registered low container traffic and limited digital integration with the main port of La Spezia. Although a Trucking Federative Platform was in place, it was not yet fully connected to the Port Community System (PCS), and real-time visibility of truck movements was not available. This hindered effective coordination and limited accessibility from hinterland zones.

2.3. Luka Koper

Koper's container terminal, a gateway to three TEN-T corridors, faced growing traffic volumes, with peaks of 2,000 trucks per day. Despite this, access control at the Bertoki gate relied on manual checks, lacking OCR technology or integrated digital systems. This situation created congestion risks, operational inefficiencies, and safety concerns, especially at a time when traffic from the Far East was rapidly increasing.

2.4. RSOE

Most Danubian ports in Hungary did not have digital systems for managing truck access. Communication between terminals and drivers was manual and inconsistent, often resulting in trucks waiting for long periods outside the gate, without accurate instructions or real-time updates. This affected efficiency, reliability and safety, particularly in peripheral regions.

2.5. Baltic Container Terminal Gdynia

At BCT Gdynia, trucks exited the terminal based on weights declared in shipping documents, which were often inaccurate. This led to overweight vehicles using public roads, causing infrastructure degradation and legal consequences. No system was in place to verify truck or axle weight efficiently, and traditional weighing tools were not suited to the terminal's fast-paced environment.



3. Pilot action description

3.1. Zailog

The pilot action implemented by Zailog at the Interterminal site in Verona focused on the digital enhancement of the existing Terminal Operating System (I-TOS), with the objective of improving gate management, data traceability, and operational flexibility.

Starting from the operational bottlenecks identified in the ex-ante phase – particularly manual gate procedures, limited flexibility in modifying accepted vehicle data, and paper-based document handling – the pilot introduced a series of targeted system upgrades.

The implementation phase included:

- Development of new functionalities allowing the cancellation and modification of vehicle acceptance procedures;
- Introduction of real-time visualization of gate entries and exits;
- Digital generation and management of CMR documents directly through the system;
- Advanced seal and unit data management;
- Creation of a dedicated module for rejected unit tracking;
- Enhancement of EDI compatibility with external logistics operators;
- Introduction of advanced filtering and data extraction tools for dispatchers.

The upgraded I-TOS enables dispatchers to intervene dynamically in operational workflows, correcting data without interrupting yard processes. Gate operators can now access structured digital information in real time, reducing reliance on manual checks and paper documentation.

The pilot was implemented directly within live terminal operations, ensuring that all new functionalities were tested under real traffic conditions. The system architecture was designed to be scalable and interoperable with other digital platforms used by transport companies and intermodal operators.

Through this structured digital upgrade, Zailog aimed to demonstrate that efficiency gains at access points can be achieved not only through infrastructure expansion but also through intelligent system optimization.

3.2. Eastern Ligurian Sea Port Authority

The pilot action carried out by the Eastern Ligurian Sea Port Authority focused on strengthening digital integration between the Port of La Spezia and the dry port of Santo Stefano Magra.

Building on the existing Trucking Federative Platform, the pilot aimed to enhance interoperability with the Port Community System (PCS) and introduce real-time monitoring functionalities for shuttle operations between the two logistics nodes.

The implementation process included:

- Technical integration of the Trucking Federative Platform with the PCS;
- Development of new modules for managing shuttle missions;
- Introduction of a mobile application to provide truck drivers with real-time mission updates;
- Deployment of tools for monitoring gate entries and internal transit flows;



- Structuring a scalable digital architecture adaptable to additional terminals and corridors.

The platform allows competent offices and stakeholders to monitor missions in real time, manage documentation digitally, and coordinate road flows more effectively. The mobile application supports drivers with mission details, reducing communication gaps and increasing operational predictability.

The pilot was implemented in a live operational context, managing thousands of transport and shuttle missions during the testing phase. The architecture was designed not only to support the La Spezia-Santo Stefano corridor but also to enable future expansion to other terminals such as Terminal del Golfo.

3.3. Luka Koper

The pilot action developed by Luka Koper consisted of the design, procurement and installation of an advanced OCR (Optical Character Recognition) system at the Bertoki entrance gate of the Port of Koper.

The system was conceived as part of a broader strategy to modernize gate operations and manage increasing truck volumes in a port serving three TEN-T corridors.

The implementation included:

- Installation of container number recognition cameras;
- Automatic scanning of truck and trailer license plates;
- Seal verification;
- Recognition of hazard markings (IMO/UN);
- Integration with the port's Gate Operating System (GOS);
- Real-time communication interface for drivers (traffic light system and information screens).

The OCR equipment was installed in one of the entrance lanes at the Bertoki gate and tested under real traffic conditions. Once a vehicle passes through the scanning system, data is automatically captured and validated. Drivers receive immediate instructions through digital displays, allowing seamless access when documentation is complete.

The pilot also included comparative testing between OCR technology and traditional RFID card-based systems used in other lanes. This enabled Luka Koper to evaluate differences in processing time, operational flexibility, and security levels.

The system was designed to integrate with other digital infrastructures within the port, including crane-mounted cameras and future expansions linked to the northern extension of Pier I.

3.4. RSOE

The pilot implemented by RSOE focused on the development of a digital truck access module integrated into Hungary's national KIR platform.

The objective was to create a structured digital workflow for truck access in Danubian ports, where gate management was previously handled manually.

The implementation involved:

- Development of a truck pre-registration function via mobile application;
- Digital invitation system for port entry;
- Real-time vehicle tracking within the terminal;



- Dispatcher interface for access management and status updates;
- Map-based navigation guidance for drivers.

Truck drivers approaching the port can pre-register digitally and receive confirmation and instructions before arrival. Dispatchers monitor vehicle movements in real time and manage permissions through a web-based interface.

The system was tested in the operational context of Dunaújváros and structured in a way that allows national scalability across Hungarian inland terminals.

3.5. Baltic Container Terminal Gdynia

The pilot action at BCT Gdynia consisted of the installation and testing of a dynamic Weight-In-Motion (WIM) axle scale system at the terminal's exit gate.

The system was introduced to address the issue of overweight trucks leaving the terminal based solely on declared shipping documentation.

The implementation included:

- Installation of WIM axle scale sensors at the exit lane;
- Calibration and testing phase adapted to port-specific operational conditions;
- Automated issuance of weighing tickets;
- Real-time notification to relevant stakeholders;
- Integration with terminal operational workflows.

The WIM system allows trucks to be weighed dynamically without stopping, measuring both total vehicle weight and axle loads. The technology was adapted to function within a high-volume maritime logistics environment, where throughput speed is critical.

The pilot phase included real traffic testing and monitoring of compliance levels, confirming the operational feasibility of dynamic weighing in a port terminal context.



4. Pilot action results

4.1. Zailog

The enhancement of the I-TOS platform at Verona's Interterminal led to significant operational improvements. The new features allowed for much smoother gate and yard processes. Specifically, the ability to cancel or modify truck acceptance procedures gave dispatchers greater flexibility, enabling them to quickly resolve issues or input errors without halting the entire operational flow.

Real-time tracking of gate entries, the integration of CMR document generation and printing directly from the system, and the flexible management of seals and rejected units contributed to safer, more transparent and fully documented procedures. These digital upgrades also substantially reduced manual and paper-based tasks, raising the overall efficiency of terminal operations.

One of the most meaningful outcomes concerns the surrounding territory: transport companies and SMEs located in peripheral areas, often impacted by delays or access uncertainties, now benefit from more predictable operations, reduced waiting times, and improved reliability when connecting to the intermodal terminal. The enhanced system has increased throughput capacity without requiring physical infrastructure upgrades, simply by unlocking more value through digital optimization.

NOW
User can cancel pick-up procedure and the ITU will return on the Acceptance's page (US 06).

Interreg CENTRAL EUROPE Co-funded by the European Union ACCESSMILE

I-TOS Dichiarazione partenza Annunci treno Gate Unità trasporto Verona Interterminal

Gate-out 1 risultato trovato

Codice/targa UTI, codici ritiro

CONT 242251-0	Container	LEGNAM...	0 giorni	Verona Interterminal 724	EF000TY 24/02/25 11:50	Mezzo
---------------	-----------	-----------	----------	--------------------------	------------------------	-------

Dettaglio giacenza
Rilevamenti danni
Dichiara Gate-out

ANNULLA RITIRO

Figure 1 - Updated Gate-out procedure



NOW

The arrival truck information can be visualized by the user (US 10).

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I-TOS

Dichiarazione partenza

Annunci treno

Gate

Unità trasporto

Verona Interterminal

YR

Giacenze > CONT 242250-4

CONT 242250-4

Container 0100

80.000,00 Chilogrammi

25.000,00 Chilogrammi

2032333 (Codice a barre)

- (Codice trasporto)

- (Cod. riferimento cliente)

- (Codice PIN)

Piena

TERRATRANS 40710

Arrivata

Arrivo

TH000TH

25781 - ANTONIO BERTE

10:22

24/02/25

Giacenza

Verona Interterminal 724

10:22

24/02/25

Presente da 0 giorni

Partenza richiesta

Partenza pianificata

Figure 2 - Additional information about incoming heavy vehicles

NOW

The waybill can be generated for Mercitalia Intermodal trains by manually entering the code. (US 12).

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I-TOS

Dichiarazione partenza

Annunci treno

Gate

Unità trasporto

Verona Interterminal

YR

Treni

1 risultato trovato

Codice, traccia treno

Data

Visualizza storico

Ordina Per

TR6655	242250 Partenza	Rostock DERSK	08:58 24/02/25	MERCITALIAINT... MII	1	1
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Dettagli treno

Dichiara treno partito

Dichiara treno soppresso

Modifica traccia

GENERA LETTERA DI VETTURA

Figure 3 - Creation of completed way bill

4.2. Eastern Ligurian Sea Port Authority

The pilot implemented in La Spezia yielded significant results, both quantitative and qualitative. Over the course of just over a year, more than 43,000 transport orders and 39,000 shuttle missions were managed between the main port and the Santo Stefano Magra dry port. These figures confirm not only the system's technical performance but also its operational robustness in a live logistics environment.

The platform enabled the optimized management of road flows, providing competent offices and stakeholders with a comprehensive view of ongoing missions through real-time monitoring and informed decision-making. The close integration with the Port Community System supported the delivery of new value-added services, while reducing congestion at the gates and improving resource utilization.



The system's scalable architecture allowed for its extension to additional terminals (such as Terminal del Golfo) and the activation of new shuttle corridors, broadening the project's impact across the region. The solution remains fully operational even after the pilot's conclusion, confirming its long-term value and technical reliability.

Menu Milos TFP        								
Corridoi / Ordini di trasporto Fc								
NUOVO FILTRI RIPRISTINA GENERA EXCEL REPORT CERCA								
Missioni FC								
Ordine di trasporto Missione	Veicolo	Autista	Corridoio	Ora inizio pianificata	Container	Origine	Destinazione	Stato
3d06d5c8-613e-11f0- b601-0242ac120007 1670d817-614f-11f0- abed-0242ac12000b			NAV-SP-1 LSCT La Spezia - Area navettamento S. Stefano di M.	15/07/2025 09:41	MSDU4130300 42G1DC86	LSCT La Spezia	Area navettamento S. Stefano di M.	RUNNING
c0b8dc0b-6091-11f0- b601-0242ac120007 1849c8b3-614d-11f0- abed-0242ac12000b			TDG- S_BAR Area navettamento S. Stefano di M. - TDG San Bartolomeo	15/07/2025 09:26	ARKU8404740 4510HC96	Area navettamento S. Stefano di M.	TDG San Bartolomeo	COMPLETED
65dab8e3-5f0a-11f0- abed-0242ac12000b bf67b99b-614c-11f0- abed-0242ac12000b			NAV-SP-2 Area navettamento S. Stefano di M. - LSCT La Spezia	15/07/2025 09:24	ARKU8458372 4510HC96	Area navettamento S. Stefano di M.	LSCT La Spezia	RUNNING

Figure 4 - List of missions managed by the platform

Transiti         									
Transiti									
A partire da 15-07-2025 00:00:00									
Inizio	Fine	Direzione	Durata	Pista	Targa	OBV	PAN	Stato	
16:48:05 15-07-2025	16:48:05	IN	0 s	E01	F808JAM				 Apri
16:47:43 15-07-2025	16:47:44	IN	0 s	E01	F731MJP				 Apri
16:47:26 15-07-2025	16:47:26	IN	0 s	E01	F808JAM				 Apri
16:47:10 15-07-2025	16:47:10	IN	0 s	E01	F808JAM				 Apri
16:46:15 15-07-2025	16:46:15	IN	0 s	E02	CL33MJJ				 Apri
16:46:05 15-07-2025	16:46:05	IN	0 s	E02	CL33MJJ				 Apri
16:45:00 15-07-2025	16:45:00	IN	0 s	E02	F808JAM				 Apri
16:44:14 15-07-2025	16:44:14	IN	0 s	E01	CH420X				 Apri
16:43:28 15-07-2025	16:43:28	IN	0 s	E02	CH420X				 Apri
16:42:37 15-07-2025	16:42:37	IN	0 s	E01	CP78MFO				 Apri
1 - 10 di 1455 elementi									
Nuova ricerca									
Lama, release 1.35.0									
upview         									

Figure 5 - List of missions managed by the platform

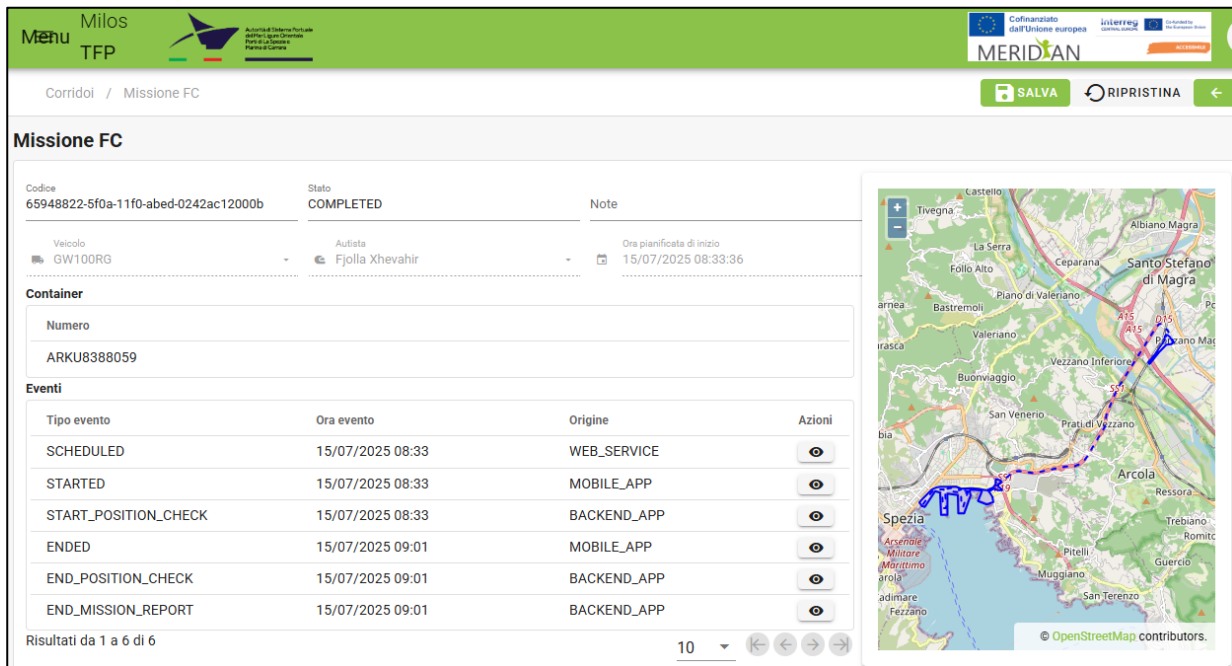


Figure 6 - Mission details and recorded monitoring information

4.3. Luka Koper

The OCR system deployed at the Bertoki entrance gate is a highly strategic investment for managing container traffic at the Port of Koper. Although the installation and testing were successfully carried out, the predicted benefits are actually confirmed.

Automated recognition of license plates, container numbers, seals, and hazard markings (IMO/UN) are automatizing the process and it significantly reduces access times and ensures more accurate, comprehensive control of inbound units. Gate staff is able to monitor truck entries remotely using real-time images, while the system generates certified visual records of container and truck status.

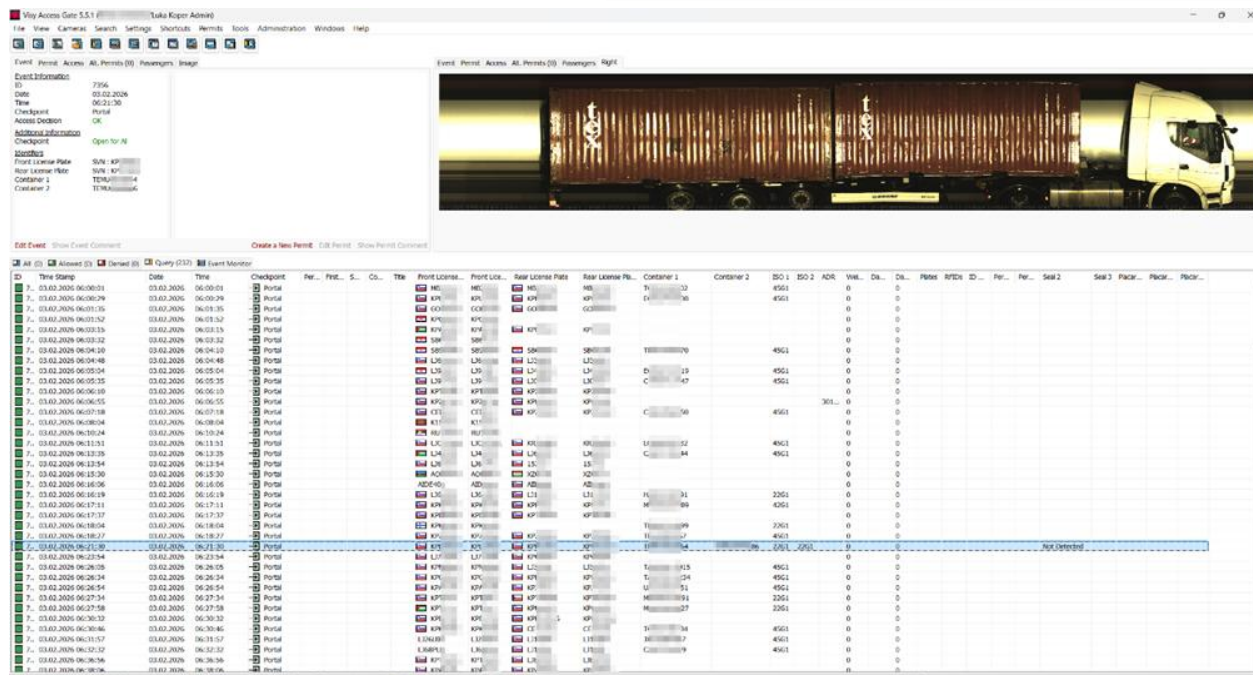


Figure 7 - Scanned truck with the container and data available in the system

Designed to be integrated with other systems in the port – such as crane-mounted cameras – the OCR solution is planned to become part of a larger digital ecosystem, especially after the completion of the northern side of Pier I, where the extension of the container terminal will require faster handlings and quicker registrations of vehicles and containers entering in terminal's area. This coordination will not only optimize operational flows but will also improve overall safety. The system is expected to support Koper's long-term strategy to manage rising volumes sustainably and remain competitive in the northern Adriatic.

The equipment provided by the ACCESSMILE project is part of a large-scale investment, which includes the reconstruction and rearrangement of the whole traffic regulation in the area of the Bertoki entrance.



Figure 8 - view of the Bertoki entrance with its traffic arrangement (source: Luka Koper's own archive)



Figure 9 - view of the OCR's location at the Bertoki entrance (source: Luka Koper's own archive)

The equipment provided through the ACCESSMILE project is mounted in one of the entrance lanes, as indicated in the above Figure 8. On the other side, the picture below shows the OCR system at work at the gate, with trucks passing through the scanning system.

After the system registers and recognizes the vehicle with the container onboard, if green light comes on, further indications are displayed on the screen in front of the driver, where the destination within the port is written. Also in case of red light, the driver is shown a no entry sign and is asked to exit while waiting for the missing documents.



Figure 10 - View of gate's road lane with trucks passing through the OCR system

To summarize the benefits provided by such a system, we can say the following: Luka Koper had the opportunity to test the effects of the OCR and compare it with the RFID cards system used on other gate's lanes. An OCR system for trucks transporting containers through the terminal gate significantly improves operational efficiency and security. By automatically reading license plates and container numbers, the system enables seamless and contactless identification without requiring the driver to stop or interact with any device.



Figure 11 - view of the green light and displayed information after the truck passes through the OCR

Compared to RFID cards that must be placed on a reader at other gate's lanes, an OCR system reduces processing time and eliminates delays caused by incorrect card positioning, damaged cards, or forgotten badges. This leads to faster truck turnaround times and reduced congestion at the terminal entrance.

In addition, OCR technology enhances data accuracy by directly capturing real-time information from the truck and container, minimizing human error and preventing card misuse or card sharing between drivers. It also lowers operational costs by reducing the need for card issuance, maintenance, and replacement.

Overall, an OCR-based gate system increases automation, improves security controls, optimizes traffic flow, allows later integrations with similar systems and provides a more reliable and scalable solution compared to traditional RFID card-based access systems.



4.4. RSOE

The pilot developed by RSOE successfully demonstrated the effectiveness of a fully digital truck access system in a rural Danube port environment. Through the new truck module integrated into Hungary's national KIR platform, drivers can now pre-register via mobile app, receive digital invitations for port entry, and follow guided navigation within the terminal.

The new workflow led to a notable reduction in waiting times, with an estimated improvement of around 10% in fully operational use cases. The dispatcher web interface allows port staff to track each vehicle in real time, modify permissions, and manage access efficiently and transparently.

The solution has proven successful in the real-world setting of Dunaújváros and is now available nationally for other inland terminals. It represents not only a local innovation but also a scalable, systemic advancement that supports digitalization and accessibility in peripheral port areas far from the TEN-T core corridors.

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Elteljesített jelszó RSOE SSO

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A Kikötői Információs Rendszert az Innovációs és Technológiai Minisztérium és az RSOE a Magyar Duna Kikötők Szövetségével partnerségben a KIR projekt keretében valósította meg az Európai Hálózati finanszírozási Eszköz társfinanszírozásával.

A Konténer modult az RSOE és a MAHART Container Center Kft. valósította meg a COMODALCE projekt keretében az Európai Unió Interreg Central Europe programja társfinanszírozásával.

A Közúti behívási és irányítási modult az RSOE valósította meg az ACCESSMILE projekt keretében az Európai Unió Interreg Central Europe programja társfinanszírozásával.

Elérhetőségek Adatkezelési tájékoztató

SZÉCHENYI
Kormányhivatal
Közlekedési és
Infokommunikációs
osztály
2023.01.11. & 2023.01.12.

Figure 12 KIR national port management pilot system login page - portinfo.hu



Figure 13 KIR national port management pilot system login page - portinfo.hu

4.5. Baltic Container Terminal Gdynia

The new Weight-In-Motion (WIM) axle scale system introduced by BCT at the terminal's exit gate produced measurable results from day one. In just five days, 2,800 truck passages were recorded, with 7% of vehicles found to exceed total weight limits and 1.5% exceeding axle load thresholds. These trucks were identified and prevented from exiting the terminal, avoiding infrastructure damage, environmental harm, and financial penalties for transport companies, drivers, and the terminal itself.

The WIM system proved capable of operating under the challenging conditions of a busy port terminal—far more demanding than the highway environments where the technology is typically used. The process is fast and non-intrusive, as trucks do not need to stop, and data is shared immediately with all relevant stakeholders.

Following the pilot's success, BCT plans to further enhance the system by introducing speed sensors and shock sensors to improve measurement accuracy and adapt the solution to regulatory exceptions. The pilot has shown that dynamic, real-time weight monitoring can make heavy vehicle operations both safer and more efficient, even in high-volume maritime contexts.



Figure 14 Gdynia Pilot



Figure 15 Gdynia Pilot

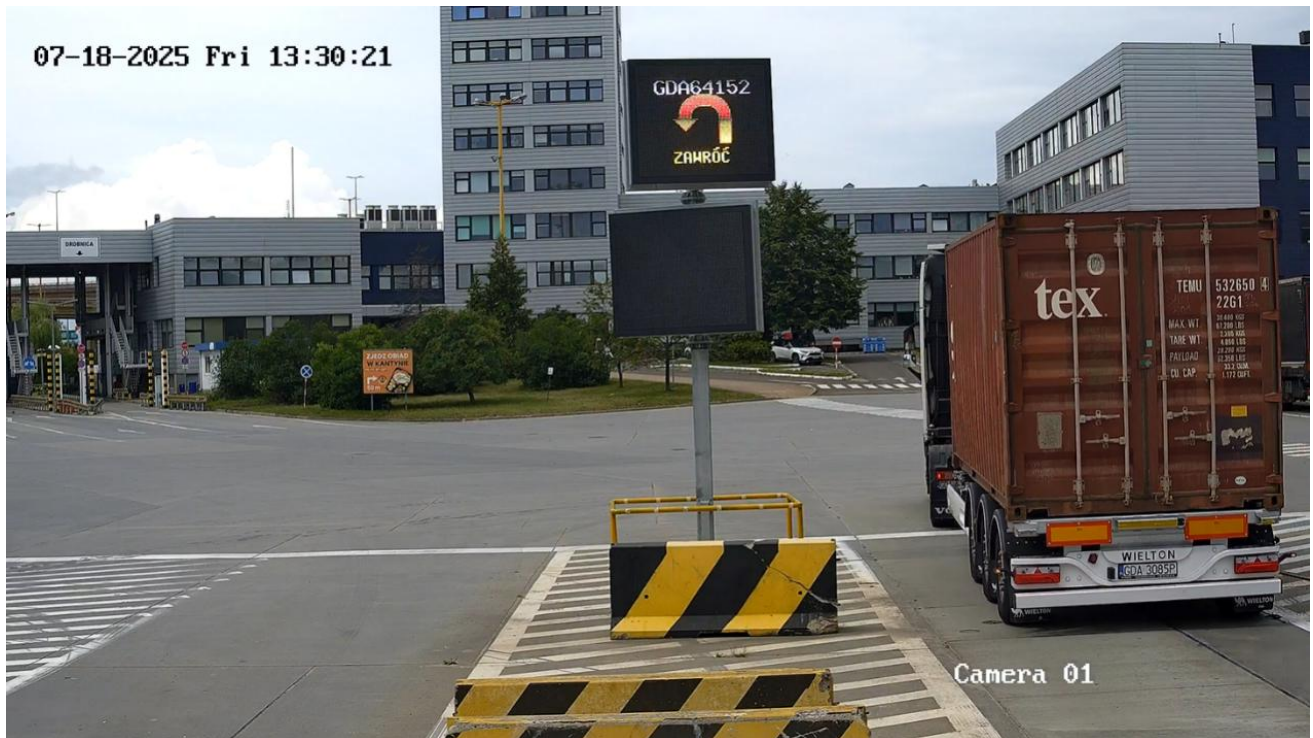


Figure 16 Gdynia Pilot



Conclusions

In many parts of Europe, particularly in Central and Eastern regions, an increasing number of logistics and transport companies are settling in rural and peripheral areas. This trend is largely driven by the greater availability of industrial land at lower costs, as well as by the opportunity to develop large-scale logistics hubs away from densely populated urban zones. Over time, these areas have become true industrial poles, hosting warehousing platforms, distribution centres, and multimodal operators.

However, despite their strategic potential, these zones often suffer from limited connectivity to core railway freight corridors and intermodal terminals. The absence of efficient last-mile infrastructure, combined with procedural bottlenecks at terminal gates, can discourage companies from using combined transport solutions. In many cases, the perceived or actual inefficiency at access points to intermodal hubs—particularly slow gate-in/gate-out operations—leads firms to continue relying exclusively on road transport, despite the economic and environmental advantages of rail.

Against this backdrop, the pilot actions carried out under Topic 2 of the ACCESSMILE project demonstrate that targeted digital and infrastructural improvements at gates and access points can have a decisive impact. By streamlining procedures, reducing waiting times, and improving visibility and coordination, terminals become more attractive and accessible to companies operating in peripheral regions. In other words, improving access is not just a question of logistics efficiency – it is a powerful enabler of modal shift and regional economic development.

Zailog's pilot in Verona showed how even well-established digital platforms like a Terminal Operating System (TOS) can be significantly enhanced through targeted updates. By improving gate control, data traceability and document management, Zailog facilitated more responsive and efficient workflows, making the terminal more attractive to peripheral transport operators who depend on reliability and speed.

In La Spezia, the Eastern Ligurian Sea Port Authority, it was demonstrated the systemic value of digital integration across multiple logistics nodes. By connecting the main port with the Santo Stefano Magra dry port and embedding real-time functionalities into the Port Community System, the pilot enabled the creation of a fluid and scalable operational environment, capable of serving a wider territory and reducing the dependency on road transport alone.

At the Port of Koper, the introduction of the OCR system at the Bertoki entrance represents a concrete step forward in gate automation and traffic management. The system is already installed and operational in one of the entrance lanes and forms part of a broader large-scale investment, including the reconstruction and rearrangement of traffic regulation in the Bertoki area. By automatically recognizing license plates, container numbers, seals and hazard markings, the OCR solution enables seamless, contactless identification and significantly reduces processing times compared to traditional RFID card-based systems. The pilot also allowed Luka Koper to directly compare OCR and RFID solutions, confirming improved operational efficiency, higher data accuracy, enhanced security controls and lower operational costs. Beyond faster throughput, the system generates certified visual records and supports remote monitoring, strengthening both safety and compliance. Its planned integration with other port digital systems further consolidates Koper's long-term strategy to manage increasing volumes sustainably and remain competitive in the northern Adriatic.

The pilot in Hungary, led by RSOE, addressed one of the most critical barriers for rural terminals: the absence of structured, real-time communication between trucks and port operators. The mobile-integrated KIR platform effectively reduced waiting times, increased transparency and facilitated more proactive coordination. Its national scalability ensures that the positive effects of the pilot will extend to other Danube ports, multiplying its territorial impact.

Finally, BCT Gdynia's application of Weight-In-Motion (WIM) technology offers a clear example of how digital tools can simultaneously enhance compliance, safety and infrastructure protection. By detecting overweight trucks before they leave the terminal, the system protects public infrastructure and reduces legal exposure



for operators. The pilot has proven that innovation can be implemented without slowing operations, even in high-throughput environments.

Taken together, these pilot actions offer a diverse and complementary set of digital solutions, all contributing to a common objective: enabling efficient, inclusive and sustainable access to the TEN-T network from all territories, not just the urban core. By focusing on digitalisation at access gates – both road and rail – the pilots directly addressed one of the key functional gaps that often prevents companies in peripheral areas from choosing intermodality.

Beyond their technical achievements, the pilots contribute meaningfully to broader European policy objectives. They promote modal shift, decarbonisation, and territorial cohesion, and support a more balanced economic geography where remote regions can remain competitive and connected. The systems, methods and lessons developed within ACCESSMILE Topic 2 will serve as a foundation for future innovations across Central Europe, validating the role of digital transformation not only as a means of improving efficiency, but as a driver of equity, connectivity and long-term sustainability.