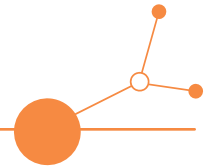


Action plan for improving the last mile
accessibility of CE rural/peripheral areas to
TEN-Ts by enhancing port/terminal gates
and entry/exit IT tools and procedures
Deliverable no. D.1.3.3 - output no. 1.4



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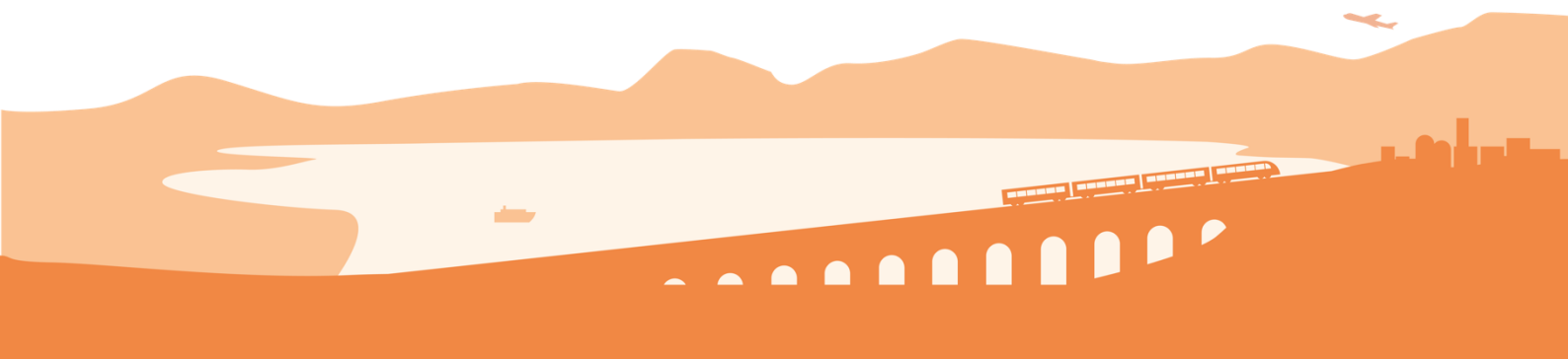




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Introduction

Activity 1.1 is devoted to jointly planning the improvement of accessibility of rural and peripheral areas to TEN-T nodes through IT tools, covering the three domains of:

1. Vehicle Booking Systems/pre-arrival or pre-exit notification, port/terminal gates;
2. Port/terminal gates and interoperability among public/private IT systems;
3. Cargo bundling

Through this document, drafted by PP2-ZAILOG, PP3-Port of La Spezia (Italy), PP4-Luka Koper (Slovenia), PP8-RSOE (Hungary) and PP9-BCT (Poland) jointly break down the goals of the transnational Strategy for improving the last mile accessibility of rural/peripheral areas to TEN-Ts through ICT (deliverable D.1.1.2) in an action plan for optimising last mile accessibility of CE rural and peripheral areas by improving port/terminal gates and entry/exit IT tools and procedures, with specific tasks for each PP, KPIs, time line, financial resources needed.



1. Executive summary

The effects of the globalization phenomena are provoking a significant increase of traffic volumes in the Central Europe area, resulting in new development opportunities for intermodal nodes operating in this zone. Therefore, the use of the multimodal transport is crucial to diminish the level of congestion on the road network and at the same time to decrease the level of pollution and of greenhouse gasses. Nevertheless, there is a capacity limit of the nodes that prevents to absorb a significant growth of freight traffic. An improvement of the ICT system is the sole solution to allow an increase of rail traffic using the current infrastructure. All participating partners in Topic 2 “Gates & entry/exit tools and procedures” are affected by long queues both inside and outside the terminal area, slowing down all daily operative activities. This causes a significant extension of the waiting times for the trucks, raising the costs and the CO2 emissions. The topic 2 group concluded that with the help of ICT tools the congestions can be reduced, the management of the terminal area can be optimized, and the time spent at the terminal can be significantly decreased so the rural and peripheral areas can be better and faster reached.

The strategy outlined within the ACCESSMILE project “Strategy for improving last mile accessibility of rural/peripheral areas to TEN-Ts through ICT” (D.1.1.2) involves the objectives and the priorities that must be achieved to improve the ICT system of the nodes involved in topic 2 as well as some means of verification to be tested in the pilot action. This document includes the action plan to improve the accessibility of rural and peripheral areas using ICT tools in the Central Europe area. Each partner involved in topic 2 (gates & entry/exit tools and procedures), after the involvement of stakeholders, has jointly developed the Action Plan despite each action plan can be different at each partner. However, all the action plans were concentrated on the improvement of the accessibility of rural and peripheral areas through ICT with a focus on the increase of the gate access with the help of ICT development.

After this phase, the topic 2 partners will implement a pilot action focused on the improvement of the existing ICT system to ease the access to the terminal area with the main target to reduce the inefficiencies affecting the intermodal chain. The use of IT solutions will permit a significative decrease of idle times, allowing faster connections to the companies settled in the rural and peripheral areas. In this way, the nodes will attract more traffic from these zones as well as increasing the use of the rail transport. Therefore, the development of these pilot actions will produce several benefits like the decrease of the congestions on the road network, the reduction of physical documents and of manual checks at the gates and a significant drop of the pollution.

Based on the Strategy for improving the last mile accessibility of rural/peripheral areas to TEN-Ts through ICT (deliverable D.1.1.2), all project partners have jointly designed the Action Plan.



PP2-ZAILOG

In Interterminal (one of the Verona freight village terminals) was implemented the TOS (Terminal Operative System) that permits to optimize the management of the daily operations. However, after a few months of use, the terminal manager noticed some inefficiencies in the system that must be upgraded. Therefore, through the “Strategy for improving last mile accessibility of rural and peripheral areas to TEN-Ts through ICT”, defined in the D.1.1.2, there was the identification of the following goals:

Medium term (5 years):

1. Goal #1 - Implementation of an app to put in communication the different operators of the intermodal chain
2. Goal #2 - Definition of a set of rules to guarantee the security of data exchanged

Long term (10 years):

1. Goal #3 - Activation of a Freight Village Community System (FVCS) similar to the PCS used in the ports

PP2 wants to improve the efficiency of the existing terminal IT platform through the development of a pre-booking app, the drafting of a set of rules to regulate the access process at the terminal and the activation of a Freight Village Community System. The main scopes of these upgrades are the creation of:

- a paperless system to reduce both the physical documents and manual checks;
- a data sharing platform to exchange information in real time among the intermodal chain players to avoid further congestions in the terminal area;
- a detection tool for the automatic identification of the loading unit’s information (e.g. license plate, number of the intermodal loading unit, possible damages, etc.).

All these activities will be made through the upgrade of the existing TOS. These improvements will permit to speed up the access of heavy vehicles to the gates, reducing the congestions and the inefficiencies at the terminal. In fact, the digitalization of several operative activities allows relevant time savings as well as a reduction of the costs.

PP2 plans to link the existing FEDerATED project - A European Federation of platforms to exchange information, co-funded by the Connecting Europe Facility Programme - with ACCESSMILE. In the ACCESSMILE project, PP2 will realize the fast lane, the pre-booking platform and other ICT tools necessary to reduce the inefficiencies.

PP3-Port of La Spezia

The Port of La Spezia has recently activated a module of the Port Community System (named Trucking Federative Platform), which has the aim of implementing a first set of services for the trucks travelling to the port and equipped with a HGV flow detection system. Therefore, through the “Strategy for improving last mile accessibility of rural and peripheral areas to TEN-Ts through ICT”, defined in the D.1.1.2, there was the identification of the following goals:

Medium term (5 years):

1. topic no. 1 (VBS)
 - a. Goal no. 1 - Heavy Goods Vehicle flow detection system
2. topic no. 2 (gates)



- a. Goal no. 2 - Advance notice of arrival at the port gate
- b. Goal no. 3 - PCS integration with gates

Long term (10 years):

1. topic no. 1 (VBS)
 - a. Goal no. 4 - Digital twin for road infrastructure

The strategy will be a supportive tool to achieve a better port management compliant with the EU strategies, such as the Smart & Sustainable Mobility Strategy, the European Green Deal, the NextGenerationEU plan and the Piano Nazionale di Ripresa e Resilienza (Next Generation Italy). The completion of the different tasks involves practically the entire community of the port of La Spezia, namely Port Operators, Logistics Multimodal Transport Operators, private companies under the rural and peripheral areas, especially the Simplified Logistics Zone domain. The port operators and all the local stakeholders will be involved by the Port Authority during the ACCESSMILE implementation, and the results will be shared with them. The implementation of IT systems will combine digital transition and energy transition to support a better and effective port-peripheral regions integration.

In particular, the pilot action forecasted in ACCESSMILE will implement systems useful to detect data provided by the road haulage companies at the port gate through innovative system already installed at the port gates (i.e. OCR cameras, intelligent parking detection system).

PP4-Luka Koper

The activities in Luka Koper are implementing the results already obtained through the project COMODALCE, which was co-financed by Interreg CE and made a first step towards the digitization of processes in the port of Koper, for what regards the railway transport of container from/to the port. The implementations that are going to be brought by ACCESSMILE are offering the possibility to complete the digitization process by including the road transport (by trucks) of containers from/to the port. The pilot action foreseen in the project will significantly contribute to the digitization of data transfer between the port and stakeholders, favoring the unification of data transfer not only in port's area but also in port's hinterland and rural areas.

Luka Koper highlighted some crucial goals in its strategy, for both medium- and long-term development:

Medium term (5 years):

1. topic no. 2 (gates) - Goal no. 1: to equip all port's gates with OCR systems.

Long term (10 years):

2. topic no. 2 (gates) - Goal no. 2: automation of processes at container terminal and port's gates.

PP4 wants to optimize the operative efficiency while transporting containers from/to the port of Koper, and the upgrade proposed with ACCESSMILE's pilot activity will contribute to start this process at one of the gates to the port (for testing purposes and know-how increase), with the installation of an OCR system for the detection of containers and trucks. The solution will be integrated with the booking system and will recognize the characters on containers and trucks at the gate, in order to simplify entry/exit procedures for drivers, as well as for the definition of the final location where the handling of containers must be done. All the data provided by the OCR system will be immediately available for the stakeholders involved.



PP8-RSOE

In Hungary there are crucial competitiveness and human resource problems in the ports. ICT services cannot solve these issues but can contribute to better effectiveness and competitiveness of ports with better communication and more efficient processes.

RSOE develops a software to manage the entry/exit process in the inland ports of Hungary, to be integrated in the KIR APP. RSOE will implement its pilot action jointly with the PPs involved in topic 2. More specifically, RSOE will enhance the existing IT platform called “KIR” (National port management system of Hungarian Danube ports) developing new functions to manage the complete entering and exiting process of the trucks and provide guidance for the driver to reach the loading/unloading points. Special interfaces will be specified and developed to connect to terminal information system and sensors and displays. The truck guidance and communication development will use and further develop the KIR mobile application also. The specific IT solution will be chosen based on the most suitable technology at the moment of the pilot action implementation, and on the advice of the other PPs belonging to topic 2 in the co-design phase.

Medium term (5 years) plans:

- topic no. 2 (gates) - Goal no. 2: Improvement of port entry/exit efficiency in some Hungarian ports by using IT tool.

PP9-BCT

Rural and peripheral stakeholders miss weight verification for full load trucks. BCT will install the scale system at the exit gate and will share the weight data to all stakeholders in an easy and simple way preventing overweighted trucks to enter the public roads. This will prevent the environmental harm, deterioration of road infrastructure and fines charged to chain participants. Therefore, through the “Strategy for improving last mile accessibility of rural and peripheral areas to TEN-Ts through ICT”, defined in the D.1.1.2, there was the identification of the following goals:

Medium term (5 years):

- Goal no. 1. Reduce to zero the danger of the overweight trucks leaving terminal by protecting the interest of all stakeholders, community and the environment especially at peripheral and rural areas who usually miss the relevant weight verification tools and services.

Long term (10 years):

- Goal no. 2 - Secure the best and the most innovating gate operations to eliminate all obstacles and inefficiencies affecting local environment negatively and facilitating the growth for the port community and levelling the range of services available for stakeholders from both core and peripheral areas.

PP9 wants to improve the efficiency of the gate procedure by instalment automatic axle weighting scale system at the exit gate. The system will verify the real axle weight in efficient fast way by application:

- The newest Weight In Motion (WIM) technology. The trucks do not need to stop or slow down to be weighted facilitating fast exit gate operations.
- Innovation - typical WIM scale will be adjusted to special port terminal condition (measurement accuracy and reliability, resistance to weather conditions and shocks, great number of measurements every day - up to 1500)
- Easy communication to stakeholders using mobile application and SMS as information tool.



2. Identification of the actions

2.1. Mapping the actions

This chapter outlines the actions for all involved project partners

PP2-ZAILOG

ACTION/MEASURE	ESTIMATED COST	TIME HORIZON
Implementation of an app to put in communication the different operators of the intermodal chain	80.000 euros	2025
Definition of a set of rules to guarantee the security of data exchanged	60.000 euros	2027
Development of the Freight Village Community System	2.000.000 euros	2028

PP3-Port La Spezia

ACTION/MEASURE	ESTIMATED COST	TIME HORIZON
Improvement of the heavy Goods Vehicle flow detection system	250.000euros	2024
Definition of the advance notice of arrival at the port gate	300.000 euros	2024
PCS integration with gates	250.000 euros	2025
Implementation of the Digital twin for road infrastructure	200.000 euros	2028

PP4-Luka Koper

ACTION/MEASURE	ESTIMATED COST	TIME HORIZON
Integration of the software from the OCR provider with port's TOS	70.000 euros	2025
Purchase of the OCR system for trucks at one gate	150.000 euros	2026
Development of an OCR system for all the gates in the port and integration of the whole system in a common database	1.500.000 euros	2028



PP8-RSOE

ACTION/MEASURE	ESTIMATED COST	TIME HORIZON
Software development to manage the entry/exit process in the inland ports of Hungary integrated in the KIR APP	40.000 EUR	2025

PP9-BCT

ACTION/MEASURE	ESTIMATED COST	TIME HORIZON
Installation of the axle scale system	184.000 euros	2025
BCT Truck appointment system	6.000 euros	2027
Development of Road Module by Gdynia Port Community System (Polski PCS)	2.000.000 euros	2030

2.2. Setting the actions

This chapter details the actions for all involved project partners.

PP2- ZAILOG

Action no. 1: Implementation of an app to put in communication the different operators of the intermodal chain

Description of action/measure	<p>The action will start with a deep analysis of the main constraints affecting the existing Terminal Operative System (TOS). The terminal manager will prepare a work plan with the aim to assign a priority to the IT implementations necessary. Then, each IT functionality will be developed in close cooperation with the IT provider and final users of the software (e.g. road operators, shunting company, railway undertakings, etc.). In this way, the additional features of the TOS will satisfy the actual needs of the intermodal chain operators, enhancing the cooperation and the coordination in the node. The expected results can be resumed in the steady exchange of information among the players involved in the intermodal chain with a consequent increase of the overall efficiency. In addition, a prompt communication of the delays gives the opportunity to carry out accurate forecasts about the transit time so also the companies settled in the rural and peripheral areas can reach the Verona freight village when the terminal is less congested. In conclusion, this app will permit to share data in real time so to the terminal manager can plan and optimize the use of the resources (e.g. personnel, reach</p>
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	stackers, gantry cranes, etc.). Then, the automation of the checks at the gates will reduce the waiting time and the human errors. The results will be a significant improvement of the accessibility at the gate, the reduction of the queues and of CO2 emissions as well as an increase of the overall efficiency.
Description of the main steps for its implementation	Non-disclosure agreement Platform design in close cooperation with the intermodal players Definition of the technical requirements Tender Equipment purchase Testing Running phase
Stakeholders involved	Verona freight village authority Shippers Road operators Warehousing companies Railway undertakings Shunting company Terminal managers
Timeline	By 2025
Investment cost	80.000 €
Sources of financing	Verona Freight Village Authority own funds and EU funds.
Impact of the initiative - environment	The app to put in communication the different operators of the intermodal chain will reduce the queues at the terminal gates as well as the internal congestions. Then, this IT tool will permit to reduce the use of the physical documents and the consequent waste of paper. In addition, the implementation of all the additional features on the existing Terminal Operative System will allow a decrease of the environmental impact.
Impact of the initiative - accessibility of peripheral regions	The reduction of congestions at the terminal gates permits a considerable decrease of idle times. Therefore, the companies located in the rural and peripheral areas can reach the intermodal nodes to ship their goods by train. In this way, they will avoid relevant waste of time as well as to use the road transport and its side effects (traffic jams, pollution, ect.).
KPIs	Average dwell time, number of new shippers accessing the terminal settled in the rural and peripheral areas, amount of daily loading units handled.

Action no. 2: Definition of a set of rules to guarantee the security of data exchanged	
Description of action/measure	The action will start with the elaboration of the first draft of the regulation framework in close cooperation with the Municipality of Verona, the other public authorities involved in the intermodal sector and terminal players. Then, there will be the definition of the approved rules that will regulate the daily activities of the terminal operators and the way to share the data among the partners involved in the intermodal chain. These regulations will prevent bad practices (e.g. parking of heavy vehicles in forbidden areas, loading units leaved on the buffer area during the weekend, data shared with other players without a specific authorization) with a relevant decrease of the congestions of trucks both internally and in the



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	surrounding road circulation of the terminal. Therefore, the reduction of bottlenecks in the terminal area thanks to the application of these rules is essential to make smoother the flow of vehicles accessing the terminal. In this way, the gates will be less congested, and the terminal employees can manage better the access of trucks with a consequent relevant increase of the efficiency.
Description of the main steps for its implementation	Non-disclosure agreement Regulation framework definition Issuing of the final set of rules Running phase
Stakeholders involved	Verona freight village authority Municipality of Verona National authorities Shippers Road operators Warehousing companies Railway undertakings Shunting company Terminal managers
Timeline	By 2027
Investment cost	60.000 €
Sources of financing	Verona Freight Village Authority own funds and EU funds.
Impact of the initiative - environment	The definition of a set of rules to guarantee the security of data exchanged will foster the communication among the players involved in the agreement with a consequent increase of the coordination. Therefore, with this type of coordination among the operators of the intermodal chain, there will be a decrease of congestions and consequently of CO2 emissions.
Impact of the initiative - accessibility of peripheral regions	The reduction of congestions at the terminal gates permits a considerable decrease of idle times. Therefore, the companies located in the rural and peripheral areas can reach the intermodal nodes to ship their goods by train. In this way, they will avoid relevant waste of time as well as to use the road transport and its side effects (traffic jams, pollution, etc.).
KPIs <i>Please identify the KPI to be used for measuring the action's impact</i>	Number of fines to the heavy vehicle parked in forbidden zones (e.g. the surrounding roads of the Verona freight village), average dwell time, number of loading units leaved on the buffer area during the weekend, number of monthly data leakages.

Action no. 3: Development of the Freight Village Community System	
Description of action/measure	The action will start with the connection of the IT systems of the players operating in the multimodal chain. Then, a shared platform will be created with the aim to align the different systems of the operators. This platform is the Freight Village Community System (FVCS) that will provide an overview of the daily operations occurring in the node. The benefits produced by this implementation will be a reduction queues at the terminal gates, a significant decrease of the pollution and an overall enhancement of the coordination of the terminal operations. In conclusion, this action will enhance the cooperation and the coordination of the players operating in the Verona freight village (e.g. Verona freight village authority,



	<p>railway undertakings, shipping companies, forwarders, terminal employees, shunting company, etc.) with significant benefits for the daily activities of the node. Therefore, the synchronization of all these players will permit to reduce the congestions and the inefficiencies, speeding up the gate-in and gate-out procedures.</p>
Description of the main steps for its implementation	<p>Non-disclosure agreement Platform design Tender Equipment purchase Testing Running phase</p>
Stakeholders involved	<p>Verona freight village authority Shippers Road operators Warehousing companies Railway undertakings Shunting company Terminal managers</p>
Timeline	By 2028
Investment cost	2.000.000 €
Sources of financing	Verona Freight Village Authority own funds and EU funds.
Impact of the initiative - environment	<p>The Freight Village Community System will permit to speed up of the terminal operations through the increase of the amount of information exchanged as well as to increase the relationships among the intermodal operators and an overall optimization of the last mile connection. With this type of coordination among the operators of the intermodal chain, there will be a decrease of congestions and consequently of CO2 emissions.</p>
Impact of the initiative - accessibility of peripheral regions	<p>The reduction of congestions at the terminal gates permits a considerable decrease of idle times. Therefore, the companies located in the rural and peripheral areas can reach the intermodal nodes to ship their goods by train. In this way, they will avoid relevant waste of time as well as to use the road transport and its side effects (traffic jams, pollution, etc.).</p>
KPIs	<p>Average dwell time, number of annual traffic jams in the surrounding viability of the Verona RRT.</p>



PP3-Port of La Spezia

Action no. 1: <i>Improvement of the heavy Goods Vehicle flow detection system</i>	
Description of action/measure	The port access and roads are currently monitored by a set of cameras installed along the main points of the port area. There is a need of improving the monitoring system with intelligent cameras able to detect data about vehicles.
Description of the main steps for its implementation	Planning phase, tender procedure and award, design of the IT systems, pilot phase, running phase
Stakeholders involved	Terminal operators, Road hauliers' companies
Timeline	2024
Investment cost	200.000 euros
Sources of financing	Port Authority funds, European Funds, Private funds (transport operators)
Impact of the initiative - environment	Speed up the data flows between the supply chain operators
Impact of the initiative - accessibility of peripheral regions	The reduction of congestions within the port area permits a considerable decrease of idle time at the port gate and along the overall road junctions
KPIs	Number of digitalized documents

Action no. 2: <i>Definition of the advance notice of arrival at the port gate</i>	
Description of action/measure	Digitization of gate-in/out operations in order to simplify the access to the port of La Spezia and the and avoid congestion at peak time
Description of the main steps for its implementation	Planning phase, tender procedure and award, design of the IT systems, pilot phase, running phase
Stakeholders involved	Customs Agency, Trucks drivers' associations, Transport operators, Shipping Companies, Freight Forwarders
Timeline	2024
Investment cost	350.000 euros
Sources of financing	Port Authority funds, European Funds
Impact of the initiative - environment	Speed up the Customs Clearance procedures and the data exchange, increase the relationships between the transport operators
Impact of the initiative - accessibility of peripheral regions	The reduction of congestions within the port area permits a considerable decrease of idle time at the port gate and along the overall road junctions
KPIs	Average turnaround time, number of digitalized documents

Action no. 3: <i>PCS integration with gates</i>	
Description of action/measure	Integration of the tools provided to the trucks' drivers and developed in Ursa Major Neo and Meridian with some information services on the status of the containers and on the documentation connected to them through the implementation of a special truck module on the APNet PCS, interfaced with the information systems of the port terminals



Description of the main steps for its implementation	Planning phase, tender procedure and award, design of the IT systems, pilot phase, running phase
Stakeholders involved	Customs Agency, Trucks drivers' associations, Terminal operators, Freight Forwarders
Timeline	2026
Investment cost	250.000 euros
Sources of financing	Port Authority funds, European Funds, Private funds (freight forwarders and terminal operators)
Impact of the initiative - environment	Avoid congestion at peak time
Impact of the initiative - accessibility of peripheral regions	The reduction of congestions within the port area permits a considerable decrease of idle time at the port gate and along the overall road junctions
KPIs	Number of users, average dwell time at the gate, number of digitalized documents

Action no. 4: Implementation of the Digital twin for road infrastructure	
Description of action/measure	Extend the application of the Digital Twin to the port road infrastructure in order to collect data, perform predictive analyses and simulations on future development projects of the entire port system.
Description of the main steps for its implementation	Planning phase, tender procedure and award, design of the Digital Twin application, tool for the end users
Stakeholders involved	Terminal operators, Road hauliers' companies
Timeline	2028
Investment cost	200.000 euros
Sources of financing	Port Authority funds, European Funds
Impact of the initiative - environment	To provide a real DSS (decision support tool) that can help the Port Authority to manage the peaks of road traffic flow
Impact of the initiative - accessibility of peripheral regions	A right planning for avoiding reduction of congestions within the port area permits a considerable decrease of idle time at the port gate and along the overall road junctions
KPIs	Number of data analysis and simulations forecasted



PP4-Luka Koper

Action no. 1: Integration of the software from the OCR provider with port's TOS	
Description of action/measure	The action will start with the definition of the characteristics of the system that Luka Koper would like to integrate with. Then, a location for the new OCR for trucks will have to be defined. The main benefit produced by this implementation will be an integration of the existing system with a new implementation available, for the automatization of the logistic process linked with the road transport of containers from/to the port to the hinterland and rural areas.
Description of the main steps for its implementation	Identification of new OCR's characteristics for the pilot action (only one road check) Preparation of documentation Contact IT provider for characteristics of software integration Equipment (software) definition Installation and Testing Running phase (to be done after hardware is installed)
Stakeholders involved	<ul style="list-style-type: none"> • Terminal operators • OCR provider's team • IT provider's team • Internal engineers
Timeline	By 2025
Investment cost	70.000 euros
Sources of financing	Luka Koper own funds and EU funds.
Impact of the initiative - environment	The solution will allow to speed up of the terminal operations through the increase of the amount of information exchanged as well as to increase the relationships among the intermodal operators and an overall optimization of the last mile connection. It will consequently optimize the entry/exit procedures for trucks and pollution level at waiting or parking areas.
Impact of the initiative - accessibility of peripheral regions	The optimization and automation of procedures at the terminal gates permits a considerable decrease of idle times. Therefore, the companies located in the rural and peripheral areas can better plan their logistics to reach the intermodal nodes to ship their goods by train. In this way, they will avoid relevant waste of time as well as to use the road transport and its side effects (traffic jams, pollution, etc..).
KPIs	Number of weekly trucks successfully handled number of waiting minutes at gates and parking areas while completing the administrative part of logistics. Number of automated processes before/after the installation of the new equipment.



Action no. 2: Purchase of the OCR system for trucks at one gate	
Description of action/measure	The action will start with the purchase of the equipment. After the completion of tender documentation, the contractor will be chosen, and the order will start. The new equipment will be installed in the port and the IT port's provider will focus on the integration of the new components. It will allow to digitalize the processes at port's gate with the automatic detection of trucks and containers, bringing all the information about forwarder, destination, content of the container etc. These data will be shared with all the stakeholders involved on the logistic chain, which will speed up procedures and will reduce waiting times at gates or along the trip, bringing benefits not only for the operators in the port, but also to those in the hinterland and rural areas, which will have the possibility to better plan delivery and distribution of freights.
Description of the main steps for its implementation	Preparation of the tender Publication of the tender Award of the tender and signing of the contract Equipment purchase Installation and testing Running phase
Stakeholders involved	<ul style="list-style-type: none"> • Terminal operators • Freight forwarders • Customs • Internal engineers • Provider of IT in the port of Koper • Provider of the equipment (winner of the tender)
Timeline	By 2026
Investment cost	150.000 euros
Sources of financing	Luka Koper's own funds and EU funds.
Impact of the initiative - environment	The OCR solution for trucks will integrate the existing OCR system for railways which allows to speed up administrative container terminal's operations through the reduction of waiting times and the increase of the volumes of data exchanged. The reduction of waiting times will in parallel lead to a reduction of CO ₂ emissions, considering that the truck drivers will obtain immediately from the forwarders the information about the status of their documents, avoiding waiting in rows with their truck engines running.
Impact of the initiative - accessibility of peripheral regions	The initiative will be just the first step of an investment at larger scale. At this stage only one access to the port will be equipped with the OCR system for trucks, in order to analyse and check the characteristics and the performances of the installed solution. It will be co-financed by ACCESSMILE as a pilot action and will concretely contribute to understand the potential further development of the digitalization processes in the port of Koper. Therefore, it will help also to align the communication system and data transfer between port operators and stakeholders working out of the port, which will allow to extend the digitization process also to operators in the hinterland and rural areas.
KPIs	Number of weekly trucks successfully handled number of waiting minutes at gates and parking areas while completing the administrative part of logistics. Number of automated processes before/after the installation of the new equipment.



Action no. 3: Development of an OCR system for all the gates in the port and integration of the whole system in a common database	
Description of action/measure	The action will continue the digitalization process started with the pilot action of the ACCESSMILE project. After testing the equipment on one of the gates, the weaknesses and strengths will be taken in consideration and the rest of the equipment will be installed to all the other accesses and exits of the gate dedicated to the container terminal. The installation will be part of the investment dedicated to the extension of the Container Terminal to 2mio TEUs by the end of 2028. This extension foresees the upgrade and reconstruction of terminal's gate and will include also an integrated OCR system for trucks. This upgrade will be linked with the integration of the OCR's software with port's TOS. The equipment will be also integrated with existing video and data recording equipment, already existing in the port, like cameras on cranes and servers for data transfer, to be shared with stakeholders.
Description of the main steps for its implementation	Preparation of the tender Publication of the tender Award of the tender and signing of contract Equipment purchase and installation Testing of the whole equipment for all the road lanes at gate Running phase and integration with the TOS Integration of the new equipment with that already existing
Stakeholders involved	<ul style="list-style-type: none"> • Terminal operators • Freight forwarders • Customs • Internal engineers • Provider of IT in the port of Koper • Provider of the equipment (winner of the tender)
Timeline	By 2028
Investment cost	1.500.000 euros
Sources of financing	Luka Koper's own funds and EU funds.
Impact of the initiative - environment	The OCR solution for trucks will integrate the existing OCR system for railways which allows to speed up administrative container terminal's operations by reducing the waiting times and increasing the volumes of data exchanged. The reduction of waiting times will in parallel lead to a reduction of CO ₂ emissions, considering that the truck drivers will obtain immediately from the forwarders the information about the status of their documents, avoiding waiting in rows with their truck engines running.
Impact of the initiative - accessibility of peripheral regions	The initiative will be just the first step of an investment at larger scale. At this stage only one access to the port will be equipped with the OCR system for trucks, in order to analyse and check the characteristics and the performances of the installed solution. It will be co-financed by ACCESSMILE as a pilot action and will concretely contribute to understand the potential further development of the digitalization processes in the port of Koper. Therefore, it will help also to align the communication system and data transfer between port operators and stakeholders working out of the port, which will allow to extend the digitization process also to operators in the hinterland and rural areas.



KPIs	Number of weekly trucks successfully handled number of waiting minutes at gates and parking areas while completing the administrative part of logistics. Number of automated processes before/after the installation of the new equipment.
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PP8-RSOE

Action no. 1: Software development to manage the entry/exit process in the inland ports of Hungary integrated in the KIR APP	
Description of action/measure	RSOE will enhance the existing IT platform called “KIR” (National port management system of Hungarian Danube ports) developing new functions to manage the complete entering and exiting process of the trucks and provide guidance for the driver to reach the loading/unloading points. Special interfaces will be specified and developed to connect to terminal information system and sensors and displays. The truck guidance and communication (port-truck) development will use and further develop the KIR mobile application.
Description of the main steps for its implementation	Procurement of IT development expert Business analysis Design and specification Programming Testing and validation Awareness, publication of results
Stakeholders involved	Port and Terminal Operators Truck companies Ministry of Transport Hungarian Federation of Danube Ports
Timeline	By 2025
Investment cost	40.000 euros
Sources of financing	ACCESSMILE project
Impact of the initiative - environment	The Action will conclude at the port entrances more efficient truck traffic management, less waiting times, less traffic and reduced risk of accidents. The redundantly waiting truck traffic will be reduced because they can get direct information by using their smart mobile phones. The reduction of redundant truck traffic will mean direct reduction of GHG emissions in the port region.
Impact of the initiative - accessibility of peripheral regions	As the Action contributes to the better and more efficient management of truck traffic at entry and exit gates this will enable rural and peripheric regions to be better connected to ports as key multimodal hubs.
KPIs	Reduction of redundant truck traffic at entry and exit gates.



PP9-BCT

Action no. 1: Improvement of an app to put in communication the different operators of the intermodal chain	
Description of action/measure	The action will start with evaluation and identification of overweight truck problem leaving BCT and entering the public roads. In result of analysis the best solution will be implemented. BCT will conduct extensive research of weighting technologies available now in the world and define the conditions of local instalment (be best location, infrastructure requirements and limitations). BCT will conduct wide consultation with stakeholders. After the best technology will be chosen and the provider in tendering process. The provider chosen will be obliged to involve the scientific study and research to offer the product adjusted to port requirements and our infrastructure and operational conditions. The axle scale system has to highly reliable, precise and efficient and resistant to high traffic and harsh weather conditions. Giving the possibility of sharing the weighting results to stakeholders in an easy and available for all way.
Description of the main steps for its implementation	Identification of overweighed trucks problem and possible solution Definition of the technical requirements Market research for the best technology to apply Consolation with stakeholders Tendering Equipment purchase Engineering works Scale installment Testing Running phase
Stakeholders involved	Trucking companies Logistic operators Traders (importers & exporters) Customs Port Authorities Shipping Lines
Timeline	By 2025
Investment cost	184.000 euros
Sources of financing	BCT own funds and EU funds.
Impact of the initiative - environment	Axle scale system to be installed at BCT exit gate will prevent of circulation of overweighed trucks. It will reduce the will excessive exhaust and CO2 emissions by heavy load road traffic redirecting it to rail mode or changing to lees harmless regular weight tuck transport. It will prevent the road infrastructure excessive deterioration, and excessive noise emissions.
Impact of the initiative - accessibility of peripheral regions	Instalment of axle scales will provide to the peripheral and rural stakeholders the service which is unavailable now levelling their competitive conditions
KPIs	The number of overweighed trucks detected before leaving terminal gates.



Action no. 2: Development of BCT Truck appointment system	
Description of action/measure	The action will start with investigation and identification BCT road traffic patterns. Then all investigation regarding the legal framework suitable system availability on the market or possible own development option will be investigated. The project has to be widely consulted with the stakeholders taking into consideration their experiences with these systems and at other locations identifying the best practices to apply. Then the development or purchase has to be performed. Testing and running phase. The key elements will be the integration with BCT TOS system.
Description of the main steps for its implementation	Investigation of traffic patterns Regulation framework definition Searching for the best systems and solutions available on the market Stakeholders' consultations Definition of integration with BCT TOS Application development or purchase (tender) Testing Running phase
Stakeholders involved	Trucking companies Logistic operators Traders (importers & exporters) Customs Port Authorities Shipping Lines
Timeline	By 2027
Investment cost	700.000 euros
Sources of financing	Own BCT funds with EU cofunding
Impact of the initiative - environment	BCT serves from 800 up to 1200 trucks per day which mainly concentrate in the wave from 14:00 up to 22:00 causing often congestions of the port area which has got the direct very negative impact on Gdynia City traffic and exhaust and CO2 emissions. Heavy road traffic blocks often the city roads, causes excessive noise, traffic jams and accidents. TAS will help to flatten the cycle and distribute the road traffic evenly during the day and night. Making it less harmful to the port and whole city area.
Impact of the initiative - accessibility of peripheral regions	BCT TAS will provide the simple and easy way to book the truck slots which will be used by rural and peripheral stakeholders (who in 90% uses only truck deliveries). This will help them to compete with core infrastructure stakeholders and provide the more efficient, cheaper service with conditions for their trucks.
KPIs	Truck dwell time monitoring and monitoring of distribution of number of trucks during the whole day and night (even distribution and congestion elimination).



Action no. 3: Development of Road Module by Gdynia Port Community System (Polski PCS)	
Description of action/measure	The action will start investigation of whole road traffic volume and pattern for Gdynia Port Area in and out. Then there should be designed the road module together and with consultation Gdynia Port Terminals, Gdynia Port Community and other stakeholders. Then development phase. After that the integration works has to be conducted for gathering all the truck flow information from local Truck Appointment Systems of each terminal (including BCT). Then testing and running phase.
Description of the main steps for its implementation	Searching and investigation phase Stakeholders' consultation PCS Road Module Design (in close cooperation with all port terminals) Development Testing Running phase
Stakeholders involved	Terminals Gdynia Porth Authority Other PCS having already such a module Gdynia City Hall Customs Road Inspection Truckers Logistics Operators Shipping Lines Traders Road Infrastructure Owners
Timeline	By 2030
Investment cost	2.000.000 euros
Sources of financing	PCS funds combined with national budget and EU cofounding
Impact of the initiative - environment	Regulation and management of road traffic within the whole port area will have favourable impact for City and surrounding environment. Less contamination and heavy road traffic pollution. Less CO2 emission on regional level. Less traffic jam. Less noise and accidents.
Impact of the initiative - accessibility of peripheral regions	Delivery the truck management tool on national level levelling the services for all stakeholders. Peripheral and rural stakeholders will get the same quality level of services and conditions as core ones.
KPIs	Monitoring the number of congestions and congestions volumes.



3. Contribution to environmental sustainability and accessibility of peripheral regions in the hinterland, topic 2 - gates and entry/exit tools and procedures.

This chapter explores how the identified actions support the project's main objectives. i.e. the improvement of the accessibility of rural and peripheral regions to the TEN-T nodes and networks while at the same time enhancing the environmental sustainability of last mile road transport.

As far as **PP2-ZAILOG** is concerned, the Verona freight village has developed an IT platform inside Interterminal (one of its terminals) that is called TOS (Terminal Operative System). The daily use of the system made aware the terminal manager about its lacks. Therefore, it is now necessary to upgrade the platform with additional functionalities.

For instance, it is mandatory to create an app to put in communication in real time the terminal manager with the road operators with the aim to avoid queues at the terminal gates when a relevant delay occurs on the railway line. At the same time, the road operator can warn if there are traffic jams on the road network, preventing the arrival in time at the terminal. Moreover, the truck drivers will have the opportunity to provide their data in advance through the pre-booking process that allow a faster access to the terminal area.

In addition, it is important to digitalize the shipping documents (e.g. bill of lading, license plate number, ID card of the truck driver, etc.) to reduce the manual checks at the terminal gates.

Another functionality that will be developed and added to the TOS platform permits to pair the loading units with the proper train automatically, reducing the number useless operation (e.g. reach stacker lifts in case the trailer loaded on the train must be unloaded because there was a mistake of the operator).

A further feature of the TOS that will be implemented regards the visibility both of goods and hauliers. In fact, the terminal manager is currently not able to have a full visibility of the terminal area, especially of the status of goods and truckers. Therefore, the additional Terminal Operative System functionality will provide a full visibility about the status of the loading unit (e.g. loaded on the train or stocked in the buffer area) and of the truck driver (for instance, if he is still inside the terminal area or not), allowing a perfect tracing.

All these new functions can run better if they will be supported by a set of dedicated rules. In fact, the cooperation with the Municipality of Verona and other public authorities can be beneficial for the Verona freight village because a tailored regulation can reduce the inefficiencies. For example, the stops of truckers along the roads surrounding the Verona node will be forbidden so the hauliers will be incentivized to use the upcoming pre-booking system to access directly to the terminal area skipping the control at the gates. Therefore, this will be a sort of fast lane to permit a quick access to the terminal. Another rule will focus on a non-disclosure agreement to prevent the leakage of data. In fact, the actors involved in the intermodal chain are usually not willing to share the sensitive information of their business activity so this type of agreement can foster the sharing of data.

The last implementation regards the activation of a Freight Village Community System. This platform will permit to put in communication the different IT system of the players operating in the intermodal chain, reducing the lack of communication. In addition, the system will allow a synchronization of the different phases of the intermodal process, decreasing costs, waste of time and pollution.

In conclusion, these implementations will raise the overall efficiency of the Verona node as well as strengthen the connection between the Verona freight village and the rural and peripheral areas. In addition, there will be a considerable reduction of the traffic jams on the road circulation surrounding the terminal area as well as a decrease of the greenhouse gas emissions.



As far as PP3 is concerned, the **Port of La Spezia** has its Port Community System called APnet. The system needs to be upgraded to fit the needs of the port's users located in its hinterland, and the truck module of the PCS called Truck Federative Platform.

This strategy entails several medium and long-term goals, in all the two topics:

- share in advance and in an automated way with the Port Authority IT systems some information related to the truck missions in order to anticipate the checks in terms of security and authorizations;
- to receive the outcome of the authorizing controls carried out from the Port Authority IT systems

Therefore, in order to detect in a unique way the trucks travelling through the port gate, the Port Authority has the aim of detecting the information data about trucks through an intelligent system which will send them to the Truck Federative Platform, which has the aim of implementing a first set of services for the trucks travelling to the port and equipped with a HGV flow detection system. This system will be also connected to the port gate permit system.

Therefore, the goals of digitalization identified by the Port Authority - PP3 for improving the entry and exit of trucks in the ports will benefit mostly those shippers, logistic operators, road haulers located in the peripheral areas around the region of the main nodes, since they have no alternative for accessing the port of La Spezia other than the inefficient last mile road transport.

As far as PP4 is concerned, one of the main goals to be achieved by **Luka Koper** in the next five years is a high level of digitization of processes at the container terminal. It requires many efforts to start, especially if considering that the administrative procedures are taking more time than purchasing and positioning the expected equipment.

One step towards the above-mentioned digitization has been made with the introduction of the OCR detection system at the railway track linking the Container Terminal with the rest of the port. The new step towards this digitization is represented by the installation of an OCR system for the automatic detection of trucks and containers' numbers, near port's gates.

To do this, it's necessary to align the Container Terminal's requirements and potential solutions that are technologically acceptable for the purposes foreseen by Luka Koper's plans for digitization. The characteristics of the equipment which needs to be purchased, will be in line with the hardware and software already existing in the port, for the data storage and for data acquisition.

The images and data provided by the OCR for trucks transporting containers will be available for further analysis and will be fully compatible with the existing Terminal Operations System (TOS). The idea is to reduce waiting times at gates and consequently to reduce emissions produced by trucks waiting for papers and documentation/permissions. This improvement would have positive effects not only in port's area but also in the hinterland and rural areas, where trucks continue their trip to the planned destination.

As far as **PP8-RSOE** is concerned, beside modernising River Information Services in Hungary, it is also a priority to further develop the KIR national pilot port information system. In the next 5 years strategy further digitalisation of ports are planned based on their needs. The digitalisation will conclude on increased efficiency, reduced administration, less waiting times and reduction of redundant truck traffic.

Thus, digitalisation will greatly contribute to a greener, more sustainable transport by having less redundant truck traffic and by shifting more goods from road to inland waterways. This complies with principles of the Green Deal also.



In addition, more efficient management of truck traffic will provide opportunity for less developed, rural and peripheral areas to connect their cargo by improved last mile access. At the Danube many agricultural areas could be better connected by improved truck entry/exit management.

As far as **PP9-BCT** is concerned, the surrounding of Gdynia Port (Northern Poland) which are mainly served by trucks are not much industrialized areas. These rural and peripheral areas often miss services and facilities. One of such service is weight verification for full load trucks. This is the main reason of circulation of overweighted truck on public roads. The only available verification is the shipping document data verification which very often contains wrong or not precise data. Thus, BCT will install the scale system at the exit gate and will share the weight data to all stakeholders (including the rural/peripheral ones) in an easy and simple way available for everyone to receive (by mobile phone application and SMS). In result all customers will get the service usually unavailable in their locations.

In medium term BCT needs to start control and manage the truck traffic in and out to prevent the port area congestion, queues and heavy road traffic which Maily is concentrated in afternoon rush hours. Now the trucks arrive to BCT without any control in waves which are difficult to serve and very harmful for the environment. BCT and all Gdynia Port is surrounded by city so all road traffic going in and out mix with city traffic causing, traffic jams, noise, pollutions city area and accidents. Implementation of truck appointment system will help to distribute evenly this traffic and become less harmful to environment.

In long terms this road traffic has to be controlled and managed by all terminals in whole porta area. Thus, Gdynia Port Community (Polski PCS) has to develop the IT tool (truck control module) coordinating this issue on port or even national level.



Conclusion

The participants of the topic no. 2 - “Port/terminal gates and interoperability among public/private IT systems” developed their action plan based on their respective strategy and vision, summarised here below:

- Vision of PP2, ZALOG Scarl is to define the main steps to follow to improve the existent TOS (Terminal Operating System). The platform has been developed between 2022 and the beginning of 2023. After a few months of daily use of the TOS system, Quadrante Servizi has identified the constraints of the platform and the additional functionalities that must be implemented to enhance the accessibility to the terminal gate as well as to improve the management of the heavy vehicles flow inside the terminal. According to this preliminary analysis, the additional features will permit to get significant time savings that can be exploited to strengthen the connection between terminal gates and the rural and peripheral areas. Consequently, these additional functionalities will decrease the pressure at the terminal gates so the terminal workers can receive more trucks and at the same time decrease the queues, optimizing the functioning of the entire terminal. In addition, the reduction of the physical document and checks on the loading units will diminish the number of human errors with a consequent increase of the profits.
- Vision of PP3, Eastern Ligurian Sea Port Authority. In the last years the Port Authority of the Eastern Ligurian Sea has invested in the digitalization of logistics processes, exploiting the opportunities of European projects. Now the Port Authority has to combine together digitalization and sustainability in order to build a resilient port and logistics hub able to face the new challenges in this sector. For this reason, the Port Authority of the Eastern Ligurian Sea needs to improve the digital collaboration with all the port and logistics actors, strengthening the interoperability between the own IT systems and those of the others public and private administrations.
The projects are therefore placed in this context of changing global scenarios which, as recent events also demonstrate, should be ready to face new challenges with resilience, dynamism and the ability to know how to transform needs into growth opportunities and development for the port community.
- Vision of PP4, Luka Koper, port and logistic system, public limited company. The solution proposed and tested by Luka Koper will allow to continue the digitalization process started with the pilot action of the already successfully concluded COMODALCE project, when an OCR system for railways was installed. With the new ACCESSMILE initiative, the OCR technology will be installed and tested also for road transport, with the detection of containers and trucks' numbers at one of the gates linking the Container Terminal with the hinterland and rural areas. The installation will represent part of the investment dedicated to the extension of the Container Terminal to a capacity of 2mio TEUs by the end of 2028. This extension foresees the upgrade and reconstruction of terminal's gate and will include also an integrated OCR system for trucks. This development will be linked with the integration of the OCR's software with port's TOS.

The last stage of the development will allow the integration of the OCR cameras with the existing video and data recording equipment, already working in the port, like cameras on cranes and servers for data transfer, which will allow to have a complete view of containers' movement through the port and to save data for later usage and checks. The data obtained will have the possibility to be shared also with stakeholders, in case any request from their side should be provided.

As said, the OCR solution for trucks will integrate the existing OCR system for railways, and both will allow to speed up administrative container terminal's operations by reducing the waiting times and increasing the volumes of data exchanged. The reduction of waiting times will in parallel lead to a significant reduction of CO₂ emissions, considering that the truck drivers will obtain immediately from the forwarders the information about the status of their documents, avoiding waiting in rows with their truck engines running.



The OCR solution will also encourage the paperless solution for stakeholders which will have all their information online, avoiding printing documents for the access to port's gates.

- Vision of PP8, National Association of Radio Distress-Signalling and Infocommunications (RSOE). In Hungary road transport has a dominant role (70%), railway and inland waterway freight transport has less than 20% only. The redundantly waiting trucks and trucks without proper information on entry/exit procedure cause congestion and increased GHG emissions.

Hence, it is important also for inland port hubs to optimise their road transport traffic. Digitalisation of port's truck traffic will lead to less congestion and less redundant trucks waiting for entry. More efficient pre-registration and truck entry and exit process at ports contributes to more environmental-friendlier and sustainable freight transport.

In Hungarian ports it is important to provide flexible and efficient process to shift between inland navigation and road transport and to reach rural and peripheric areas as well. The Hungarian Danube is almost 400 km long and there are many ports, mostly agriculture ones that can have easy access to rural and peripheric agriculture economic hinterland. Therefore, it is important to modernise the truck entry/exit process for port hubs. This provides economic growth potential for these rural/peripheric areas.

- Vision of PP9, BCT - Baltic Container Terminal, Ltd. Baltic Container Terminal, Ltd, starts the whole long run process of improving the road gate operations and road traffic management using innovative IT systems and tools.

The first step is installation of the axle scale system preventing circulation of the overweighted trucks. The system will apply the newest available technology with innovative solutions adjusted to port terminal requirements and traffic conditions. Then, it will be followed by Truck Appointment System to control and management of truck traffic which should become the part of Road Traffic Module of PCS later on. This large system will cover whole port traffic managing it in a smart providing better efficiency, lower costs for stakeholders and decreasing the environmental negative impact.

By sharing the respective actions foreseen for the mid-term period, involved PPs have identified the following synergies

After a deep analysis of the actions that will be implemented in the next months by the topic 2 partners, it is possible to make a comparison of them to evaluate if there is the opportunity of transnational cooperation among the partners.

The analysis has been divided in two parts: objective and subjective. The first part regards the similarity among the actions that will be implemented. Therefore, below there are some tables on which it is possible to display which partners will develop similar actions.



Topic 2 - All actions

PP2-ZAILOG	PP3-Port La Spezia	PP4-Luka Koper	PP8-RSOE	PP9-BCT
ACTION/MEASURE	ACTION/MEASURE	ACTION/MEASURE	ACTION/MEASURE	ACTION/MEASURE
Implementation of an app to put in communication the different operators of the intermodal chain	Improvement of the heavy Goods Vehicle flow detection system	Integration of the software from the OCR provider with port's TOS	Software development to manage the entry/exit process in the inland ports of Hungary integrated in the KIR APP	Installation of the axle scale system
Definition of a set of rules to guarantee the security of data exchanged	Definition of the advance notice of arrival at the port gate	Purchase of the OCR system for trucks at one gate		BCT Truck appointment system
Development of the Freight Village Community System	PCS integration with gates	Development of an OCR system for all the gates in the port and integration of the whole system in a common database		Development of Road Module by Gdynia Port Community System (Polski PCS)
	Implementation of the Digital twin for road infrastructure			

In this first table, there are all the actions that will be implemented to give an overview of all the activities that will be developed by the Topic 2 partners within ACCESSMILE project.

ICT device to put in communication the road operators with the terminal manager

PP2-ZAILOG	PP3-Port La Spezia	PP8-RSOE	PP9-BCT
ACTION/MEASURE	ACTION/MEASURE	ACTION/MEASURE	ACTION/MEASURE
Implementation of an app to put in communication the different operators of the intermodal chain	Definition of the advance notice of arrival at the port gate	Software development to manage the entry/exit process in the inland ports of Hungary integrated in the KIR APP	BCT Truck appointment system

In the second table, there is the comparison between PPs that will implement an ICT communication system between the road and the terminal operators. In this case, all the partners involved (except PP4 Luka Koper) will implement this type of device.



Development of a terminal community system

PP2-ZAILOG	PP3-Port La Spezia	PP4-Luka Koper	PP9-BCT
ACTION/MEASURE	ACTION/MEASURE	ACTION/MEASURE	ACTION/MEASURE
Development of the Freight Village Community System	PCS integration with gates	Development of an OCR system for all the gates in the port and integration of the whole system in a common database	Development of Road Module by Gdynia Port Community System (Polski PCS)

In the third table, there are the partners that will develop a Terminal Community System in their node. In this case, all the partners will implement this platform (except RSOE).

Implementation of an automatic scale system for trucks

PP3-Port La Spezia	PP9-BCT
ACTION/MEASURE	ACTION/MEASURE
Improvement of the heavy Goods Vehicle flow detection system	Installation of the axle scale system

In the last table, only two partners need to implement a system to measure the weight of the goods carried by the trucks that are PP3 and PP9.

The second part of the analysis was concentrated on the subjective point of view of the partners. In this way, each PP has analyzed the actions of the other partners, identifying what can be useful for his node.

PP2 - ZAILOG Scarl

After a detailed investigation of the actions that will be implemented by the other Topic 2 partners, Zailog has selected two of them that could be interesting for the Verona freight village.

The first one is the installation of an OCR portal at the terminal gate (like in the Luka Koper node). With this IT infrastructure, all the checks on the loading units to detect potential damages will be performed without the risk of human errors. This implementation will be useful during the handling of the loading units



to prepare the wagons of the departing freight train. In fact, currently some loading units are unloaded from the train if the railway undertaking supervisor finds some damages on the unit that cause dangers for the train when it is travelling on the railway line. Less unloading operations during the handling phase mean a reduction of the time to perform the entire process with a relevant increase of the departures on time.

Then, Zailog is interested to install a truck scale system (like in Port of La Spezia and BCT nodes) for the same reason of the OCR. In fact, currently some loading units exceed the limit of weight to be carried by train so the railway undertaking supervisor decides to unload them. These useless operations cause a waste of time, increasing the delayed departures of trains and the congestion on the buffer area as well as reducing the efficiency of the terminal.

PP3 - Port of La Spezia

After a detailed investigation of the actions that will be implemented by the other Topic 2 partners, AdSPMLOr has selected two of them that could be interesting for the port of La Spezia.

The first one is the installation of an OCR portal at the terminal gate (like in the Luka Koper node). This kind of IT infrastructure is already present in the port of La Spezia, but along the internal roads and at the terminal gates. The installation of OCR at the port gate entrance can allow a double data check between the Port Authority and the private terminals thanks to the same technology. This IT technology will be useful also to railway checks and can be installed along tracks for wagons' inspection.

Then, AdSPMLOr is interested to install an axle scale system (like in BCT terminal). The control of the weight of a truck and its load is mandatory for the gate-in procedures, but not for the gate-out. An extra check of trucks exiting the port can be useful for the road infrastructure managers. Indeed, the highway infrastructure around La Spezia sometimes are affected by restrictions. This can be a useful tool to be shared with them in order to evaluate the maximum load allowed on highways.

PP4 - Luka Koper

By sharing its best practices and experiences with other project partners in the ACCESSMILE project, Luka Koper will be able to upgrade its knowledge about automation processes and IT solutions for the transport of containers on roads. The introduction of the OCR system also on road (after the installation of the OCR system on railways, through the COMODALCE project), will allow Luka Koper to integrate its IT system with new solutions, which will speed up operative processes and at the same time will increase productivity at the terminal. The needs highlighted by other project partners in their terminals opens new potential scenarios also for development in parallel of additional solutions to be integrated with the OCR system on roads.

After a detailed explanation about other pilot actions to be developed in ACCESSMILE by other project partners included in Topic 2, it seemed very useful to follow the results that are going to be provided by BCT with its truck scale system, which can help detecting the overloaded trucks, which can damage the asphalt and roads because of exceeds in their weights. The action that will be implemented by BCT in Poland will provide useful information for further upgrades of the detection system of trucks at container terminal in the Port of Koper.

The second pilot action which is considered interesting by Luka Koper for further potential implementations also in its port is the upgrade of the TOS system foreseen in Verona, which will make offer further information about IT solutions adopted at inland terminals. It will help the port of Koper to find proper solutions related to the ICT upgrade and will provide the requested knowledge for the development of IT solutions that will be suitable also for stakeholders operating in its hinterland and rural areas.



PP8 - RSOE

The conclusion of the analysis of the Topic 2 synergetic actions for RSOE is described below.

PP2- ZAILLOG's Action no. 1: 'Implementation of an app to put in communication the different operators of the intermodal chain' is interesting for RSOE how an app can enhance terminal communication and increase effectivity at gate enter/exit procedures in Verona.

The other action by PP3-Port of La Spezia No.3: 'PCS integration with gates' is also analysed by RSOE in detail. The investigation focus is on how IT integration can work at gate procedures and how different stakeholders, PCS actors can be involved in La Spezia and how this can contribute to the decrease of congestion.

PP9 - BCT

BCT Gdynia medium term goal is the application of truck appointment system for control and management of truck flow in and out of the terminal. This subject is the scope of topic 1 ACCESSMILE project (pilot of PP1, PP5 and PP7). BCT Gdynia will consult and take the "lesson learned" from them to take over the best practices and solutions to be applied in the near future when choosing and developing own TAS. Thanks to participation at ACCESSMILE project BCT will be able to learn the experiences of other partners from topic 1.

On the other hand, the scale system to be installed at BCT will be very innovative solution. WIM technology is the latest achievement at this field used mainly for motorway traffic in USA. BCT application will be the first such application for port/container terminal in Europe. Moreover, this will be not just application of the standard WIM product, but the system will be adjusted to special port conditions which made it a very unique solution. BCT's pilot will involve the scientific evaluation and analysis to be performed by Gdańsk University of Technology. BCT will be very happy to share this innovation and experience among the ACCESSMILE partners as majority of them represents ports and terminals.

All the partners involved in the topic 2 group agreed that thanks to the ACCESSMILE action plan development there will be an optimization of the daily terminal operations thus improving the last mile accessibility of rural and peripheral areas. In fact, the implementation of new ICT platforms will allow a significative reduction of congestions (both inside and outside the terminal area). Fewer heavy vehicles mean less consumption of fossil fuel, so a reduced amount of CO2 emissions released on the atmosphere. In addition, the simplification of the gate procedures permits a smoother flow of vehicles, avoiding peaks during rush hours. In this way, it is possible to diminish the waiting time and the use of physical documents as well as the environmental impact.

Moreover, as mentioned before, the action plan will strengthen the connections to the rural and peripheral areas. In fact, truck drivers can respect the driving timing rules since it will be possible to reach the nodes and access the terminals faster. The current situation prevents long connections to these areas because the truckers should sleep close to the terminals to rest the number of hours foreseen by the law. Moreover, the risk is to spend almost a day and a half to reach the terminal, to carry out the checks, to access the terminal, perform the loading/unloading procedures and come back to their warehouse. It is clear that the shipping companies settled in these areas prefer to use only the road transport for its daily routes because they are able to reach faster the customers. In fact, the waste of time to access the terminal can be spent for additional routes.

In conclusion, the completion of this action plan will allow a reduction of the waiting times at the gates with a consequent decrease of the environmental impact. At the same time, there will be an overall increase of the terminal efficiency that permits an increase of the connections to the rural and peripheral areas.