



Action Plan

ICT solutions for optimization of the Port Varna and reduction of CO₂ emissions.



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ABBREVIATIONS

IRE	Interreg Europe
TEN-T	Trans-European Transport Network
MTITC	Ministry of Transport, Information Technology and Communications
HDV	Heavy - duty vehicles
JSC	JSC Joint-stock company
CO ₂	Carbon Dioxide
TEU	Used to describe the capacity of container ships and container terminals
ICT	Information and communication technologies
TOS	Terminal operating system
OPTTI 2014-2020	Bulgarian Operational Program "Transport and Transport Infrastructure 2014 - 2020"
PCS	Port Community System



1 PART I – GENERAL INFORMATION

Project	SMOOTH PORTS
Partner Organisation	Regional administration Varna
Other Partner Organisations involved:	Port Varna, Bulgarian ports infrastructure company, Customs, Phyto sanitary, veterinary control institutions Ministry of Transport, Information technology and Communications
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2 PART II – Policy Context

The Action Plan aims to impact:

- Investment for Growth and Jobs programme
- European Territorial Cooperation programme
- Other regional development policy instrument

Name of Policy Instrument addressed:

„Operational program on Transport and Transport Infrastructure 2014 – 2020“



3 PART III – DETAILS OF THE ACTIONS ENVISAGED

The Smooth ports project started in August 2019 and will end in January 2023. The overall goal of the project, which is to improve regional policy to reduce CO₂ emissions caused by heavy-duty vehicles, brought together 6 partners from 4 countries. Free and Hanseatic City of Hamburg, Ministry of Economy, Transport and Innovation, Port of Hamburg Marketing, Port Authority Network Northern Tyrrhenian Sea, Port of Nantes Saint-Nazaire Authority, Municipality of Monfalcone and Regional Administration Varna exchanged experiences and ideas to achieve the purpose of the project. The total budget is 1 139 601.00 EUR, of which the Regional Administration Varna has 124 456.00 EUR.

Regional Administration Varna as an institution that implements policies of the Ministry of Transport, Information Technology and Communications (MTITC) at the regional level is actively working to improve the local situation with heavy-duty vehicles and CO₂ emissions caused by them in port areas. In this role and fulfilling the ambitions of the Smooth ports project, the project management team organized and held numerous meetings with stakeholders, where they shared experiences and knowledge between the various participants, focusing on the international experience gained in the training process.

Stakeholders are aware of the problems due to which they fail to develop their full potential and work capacity by focusing on underdeveloped port infrastructure and customs formalities that lead to the generation of higher CO₂ emissions. The identification of these problems, based on the knowledge and experience gained by international partners, has given impetus to proposals to improve the policy instrument. Stakeholders Port Varna, Bulgarian ports infrastructure company, Customs, Phyto sanitary, veterinary control institutions, who have the necessary knowledge and are best aware of the need for change, participated in the analysis and preparation of proposals for improving the policy instrument.

The improvement of the policy instrument is necessary as Thematic Objective - 07 - Promoting sustainable transport and eliminating areas with insufficient capacity in key network infrastructures, through Investment Priority - 7c - Developing and improving environmentally friendly, including low noise, and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal connections and airport infrastructure in order to



promote sustainable regional and local mobility, identifies a Specific Objective - Improving transport management through the introduction of innovative systems. is focused on the structural problems of ports related to depreciated infrastructure, outdated management models and too much bureaucracy. In this regard, a legal change is needed to facilitate these processes and to stimulate the use of environmentally friendly low-carbon technologies by creating different pricing models for port dues.

As a direct result of the improvement of the political instrument, intelligent systems for simplification of administrative procedures will be introduced in Port Varna, Customs, Phyto sanitary, veterinary control institutions. This will be done by financing environmental technologies based on sustainable solutions with a clear vision for improving the environment, while not endangering the natural habitats and quality of life in the region.

Financial implementation under priority axes of "Operational program on Transport and Transport Infrastructure 2014 - 2020" according to data as of 31.01.2022:

- Priority Axis 1 - Development of railway infrastructure along the "core" TEN-T has a total budget of 1 394 398 675.63 BGN (712 955 658 EUR), as the percentage of implementation of contracted amounts is 86.34%;

- Priority Axis 2 - Development of road infrastructure along the "core" and "comprehensive" TEN-T has a total budget of 1 095 587 678.19 BGN (560 173 667 EUR), as the percentage of implementation of contracted amounts is 78.15% ;

- Priority Axis 3 - Improvement of intermodal transport services for passengers and freights and development of sustainable urban transport has a total budget of 828 527 961.38 BGN (423 626 118 EUR), as the percentage of contracted amounts is 100%;

- Priority Axis 4 - Innovations in management and services - establishment of modern infrastructure for traffic management and transport safety improvement has a total budget of 87 477 980.09 BGN (44 726 781 EUR), as the percentage of contracted amounts is 84.21%;

- Priority Axis 5 - Technical assistance has a total budget of 93 229 391.57 BGN (47 667 431 EUR), as the percentage of contracted amounts is 85.40%.

This Action Plan aims to use the achievements and skills of the other partners of the Smooth ports project in connection with the reduction of CO₂ emissions caused by heavy - duty vehicles in port areas and to help reduce and limit the terminals of the Port Varna.

Pursuant to a contract with the Ministry of Transport and Information Technology and Communications, the „Port Varna“ JSC is a port operator of port terminals for public transport



of national importance Varna - East and Varna - West. The location of the terminals is both on the Black Sea coast near Varna (Terminal "Varna East") and in the interior of Beloslav Lake in its westernmost part near Devnya (Terminal "Varna West"). Two terminals are located about 30 km from each other. The company "Port Varna" is a joint stock company with 100% state participation, handling all types of cargo, including containers, bulk, general and bulk. Serves merchant, passenger, cruise, research ships and yachts.

On an annual basis, according to data for 2020, the cargo that has passed and processed by "Port Varna" JSC is about 7.2 million tons and more than 139 thousand containers (TEU) have been processed. The load on the port terminals is lower compared to the data from 2019, but this is due to the Covid - 19 pandemic, and not to the tendency to reduce the processed volumes of cargo. For 2021 the processed volumes of cargo have increased, which is a prerequisite for restoring the activity and generating more harmful emissions. All these facts are a prerequisite for taking urgent measures and finding solutions to limit CO₂ emissions caused by heavy - duty vehicles. Also, all of the above corresponds to the issue under consideration by the Smooth ports project, namely the optimization of heavy traffic in port areas and finding strategies for optimal and efficient transport to reduce CO₂ emissions.

The overall objective of the Smooth ports project is to improve and promote policies related to port activities, in particular with regard to CO₂ emissions caused by heavy traffic in port areas. To achieve this, over the last two and a half years, partners from Germany, France, Italy and Bulgaria have collaborated, actively exchanging experience and knowledge, focusing on issues related to developing and improving the efficiency of procedures and approaches for customs formalities of goods in ports, ICT solutions for different port activities and alternative fuels for heavy goods traffic. Some of these issues are underlying and are the basis for the development of this Action Plan for the project by the Regional Administration Varna.



3.1 ACTION 1 - Implementation of an Integrated information processing system in the port terminals Varna - East and Varna - West.

3.1.1 BACKGROUND

This is a summary overview of the status of activities performed by land on the territory of the port area of the terminals Varna - East and Varna - West, covering all processes related to the management of goods on land, using different vehicles for transportation of cargo from / to the respective ship. Operations within port terminals are covered by a terminal operating system (TOS), which does not have the ability to exchange information with other systems. In both terminals, operations related to the exchange of information related to cargo arriving / departing with heavy - duty vehicles and rail transport are crucial. This type of exchange is currently very limited and relies on e-mail communications. The time frames are free, which means that the information usually comes too late.

Freight forwarders exchange information on the arrival / departure of freight by train with different railway operators. This is done in a predefined file in Excel format by email. The information received is used by the freight forwarder when creating orders, but this is done on paper. Also, there are no strict deadlines for notifications sent to the terminal operator, so often the information is received later or entered after the operations have been completed. It turns out that the terminal operator receives a notification message for the goods coming by rail, but there is no notification for the train itself. This means that there is no information received electronically from the railway operator that contains the sequence of wagons and containers of each wagon. This requires the terminal operator to make a "trainwalk" instead of recording all incoming wagons when the train arrives at the port. Information on freight arriving by train is currently received from paper shippers.

Upon receipt of heavy - duty vehicles notifications, there is very limited information, mainly concerning the registration numbers of the truck that will arrive at the port to deliver or pick up cargo. The freight forwarder receives information about the registration numbers of the truck by phone from the carrier or driver and subsequently enters this information in the orders, all done on paper. The lack of functionality in the management of truck arrival notifications



currently creates many problems related to road congestion around port terminals due to the lack of specialized car parks. There are no established priorities for trucks entering the port in connection with the need for their fast handling. As a result, large queues are formed in the port of Varna at the entrance of the port terminals, creating major traffic problems.

Analyzing all the shortcomings described above, the need for the creation and commissioning of a software system inspired by the Smooth ports project and the best practices used by the Port Hamburg to reduce CO₂ emissions caused by heavy duty vehicles and optimization of his work.

Transport companies inform the Port Hamburg of the need to use their services through the slot management system. In order to be processed as a priority, truck drivers must have made an online reservation in advance of the time interval during which they expect to arrive at the Port, which allows them to avoid waiting times and helps reduce traffic in the area.

We were also impressed by Hamburg's system for directing truck drivers in the port, which minimizes the possibility of chaotic movement of heavy-duty vehicles, which is also a prerequisite for reducing CO₂ emissions.

Inspired by the described good practices, the Regional Administration Varna together with the stakeholders undertook an action on the preparation and creation of a software system that will allow the work in the Port Varna to be optimized to the maximum extent. The benefits of the system are described in this Action.

3.1.2 ACTION

The purpose of this action is to create a software product that allows easy and seamless data exchange with other stakeholder information systems. To meet the needs of all users, the software product will have to meet the following requirements:

- The system should provide an opportunity for each port customer to have access to information on the movement of its cargo, to submit online applications for loading or unloading, to submit online the necessary customs documents;
- The system to optimize the connections between the departments in the port, enabling each department to receive the necessary information;
- The system to increase the efficiency and accuracy of the work of employees by reducing the time for preparation and processing of documents;



- The system should reduce the use of paper and facilitate the mode of passage, reduce the stay of trucks in the terminals. This will be achieved by entering data about the driver, truck and cargo at the entrance, the information is shared with all users along the route in the terminal: incoming electronic scales, shopkeeper's warehouse, ship taliman, electronic scales outgoing, "Exit";
- The system should facilitate the access of the clients to the services of the Port Varna by online submission of requests for loading of already submitted orders;
- The system must provide an opportunity for online submission of applications for weighing cargo and trucks on a port electronic scale;
- The system must provide an opportunity for the Port Varna to exchange data electronically with the Customs Agency;
- The system should facilitate the access of clients to the services of the Port Varna through the possibility for online submission of orders, declaration for temporary storage in a format approved by the customs authorities.

The expected benefits for the Port Varna and the users after the introduction of the software product are the following:

- Synchronization of the operational work between the participating units in the process of receiving, processing and sending goods: portal - scales - storage area / ship taliman, organizer, shopkeeper's warehouse / by introducing a route of vehicles with specific steps.
- The introduction of a route for trucks, in addition to reducing their stay in the terminal, will also minimize the likelihood of an omission or wrong step in the sequence of the route: when weighing, unloading / loading, etc .;
- Improving the access regime will reduce congestion and waiting trucks at the entrance of the terminals of the Port Varna;
- The creation of a database will facilitate the clients and employees of the Port Varna and will allow faster entry and exchange of the necessary information for the processing of trucks and cargo transported by them;
- Carry out electronic data exchange with the Customs Agency by creating an appropriate reporting form for customs purposes, approved by the customs authorities.

As mentioned above, the activities in the Action are inspired by the participation of the Regional Administration Varna and the stakeholders in the Smooth ports project and the



experience and good practices gained by the partners from Hamburg. This action contributes to the implementation and achievement of the overall objective of the political instrument of the Bulgarian Operational Program "Transport and Transport Infrastructure" (OPTTI 2014-2020) which is "Development of a sustainable transport system". By achieving the overall objective of the program, this Action will contribute to the realization of the concept of a competitive and sustainable transport system, as well as to achieving the desired sustainable mobility of goods, promoting the development of the internal market and overall competitiveness, safety and security, taking into account the environmental aspects, incl. climate change and air pollution. The investment objectives are aimed at the implementation of thematic objective № 4 "Support for the transition to a low-carbon economy in all sectors" and thematic objective № 7 "Promoting sustainable transport and eliminating areas with insufficient capacity in all key network infrastructures" and more precisely related to a specific objective № 5 "Improving transport management through the implementation of innovative systems".

3.1.3 PLAYERS INVOLVED

- Port Varna - Organization financing the Action and the main user of the software product to be created;
- Customs Agency - The organization participates with its specialists in the process of identifying the functions of the software and the ability to export data between the two systems;
- Freight forwarders and users - A certain range of them will be included in the testing of the software product before its launch into mass operation;
- Regional Administration Varna - partner in the Smooth ports project, responsible for monitoring the implementation of the described processes and compliance with the agreed deadlines, providing assistance in the development and implementation of the Action. It is planned to organize and hold a meeting of stakeholders in June - July 2022 and December 2022 with the announcement of the development and results of the implementation of the Action.



3.1.4 TIMEFRAME

The final actions under the procedure for selection of a contractor to develop and implement in the port terminals Varna - East and Varna - West "Integrated information processing system" are currently being implemented. The contract between the Port Varna and the selected contractor will be concluded in February and its maximum duration is until the end of 2022. It will describe the deadlines for the implementation of the individual stages:

- Development of a project of the System - May 2022;
- Implementation and testing of the System - October 2022;
- Commissioning of the System - December 2022.

3.1.5 COSTS

The total budget for this action is 28 000 BGN (14 316, 40 EUR).

3.1.6 FUNDING SOURCES

The financing is provided with funds from the budget of the Port Varna.

3.2 ACTION 2 - Development and implementation of a system for electronic exchange of information "Port Community System".

3.2.1 BACKGROUND

In the terminals of the Port Varna are implemented several IT applications that support different port processes - administrative and commercial, which are not interconnected. As mentioned in the above Action, most port operations and administrative processes rely mainly on paper documents, e-mail and other forms of scattered communications. At present, the need for digital transformation of processes in the port community into a unified platform for electronic exchange of information through interconnection of all stakeholders. By increasing



the efficiency of the processes and accelerating the processing of freight flows through the terminals, the attractiveness of the Port Varna will improve.

The Port Varna uses the following national information arrays: The system National Center for Electronic Document Circulation in Maritime Transport is fully integrated with the System for Information Provision of the Planning of Maneuvers in Sea Ports; The activity management system - acceptance and treatment of waste, resulting from shipping activity in the ports of the Republic of Bulgaria, receives data from the System National Center for Electronic Document Management in Maritime Transport.

In the process of preparation for Development and implementation of a system for electronic exchange of information "Port Community System" a feasibility study was conducted, identifying shortcomings and missing functionalities in the current situation of cargo handling from the Port Varna, as follows:

- Mostly manual processes;
- Excessive submission of documents transmitted from one person to another;
- Long processing time within the import and export cycle;
- Partial use of electronic messages that are not exchanged with a unique platform;
- Procedures cannot be predictable/anticipated;
- There is no standardization in electronic exchange;
- Differences in the processes between the different locations of the loads and the stakeholders for these loads;
- Lack of interconnection of IT applications of individual stakeholders;
- Lack of shared visibility and follow-up of information by stakeholders;
- There is no electronic data exchange from the terminals with stakeholders;
- The systems National Center for Electronic Document Circulation in Maritime Transport / Information provision of the planning of the maneuvers in the seaports and Customs procedures for import / export are independent, the data are not exchanged electronically with the systems of the forwarders;
 - Lack of functionality in terms of messages and notifications of freight by road and rail;
 - There is a limited exchange of data by e-mail between freight forwarders and railway operators (freight forwarders work mainly on paper in their communication with other stakeholders);
 - Some electronic documents are still required as paper copies.



All the problems listed above will be solved after the development and implementation of the electronic information exchange system "Port Community System".

The idea for the implementation of the Port community system in the Port of Varna was realized thanks to the exchange of experience on the project with other partners and lessons learned mainly from the Port Authority Network Northern Tyrrhenian Sea using Tuscan Port Community System. The system is a free platform that is able to process data related to cargo flows and reduces and minimizes the use of paper documents, bringing together in one place the necessary information used by port operators, freight forwarders, control authorities, carriers, shipping agents, control authorities for both import and export of goods. After the introduction of the system, a visit to the Port is not required in order to submit customs and port declarations. The digitalization of the cargo flow management processes optimizes the work of the Port Authority Network Northern Tyrrhenian Sea, which contributes to the reduction of traffic and the beneficial impact on the environment.

3.2.2 ACTION

An electronic information exchange system "Port Community System" is a platform that connects multiple systems managed by different organizations that make up the port community. The main goal of the System is the optimization, management and automation of port and logistics processes through one-time data processing by connecting transport and logistics chains. In this way, the electronic flow of information between the trading partners involved in the maritime transport chain will be realized and integrated through a common interface. The „Port Community System" will improve the efficiency of all stages related to the processes of unloading and / or loading of the ship, customs clearance, port veterinary and phytosanitary formalities, as well as coordinating the arrival of road and rail transport. An electronic platform will act as the one-stop-shop in port areas, supporting logistics chains with a single data transmission shared between all stakeholders involved in port operations.



The Port Community System is expected to:

- To be a neutral and open electronic platform that allows intelligent and secure exchange of information between public and private sector stakeholders in order to improve the competitive position of seaport communities;
- To support the optimization, management and automation of port and logistics processes through a single transmission of data connecting transport and logistics chains;
- To be an electronic platform that connects multiple systems managed by many and different organizations that make up the port community. The System will be used to standardize the exchange of messages between members of the port community and to centralize all port information as much as possible;
- To ensure fast, easy and efficient exchange of information, which allows it to be continuously available to all stakeholders with a single submission;
- Ensure full transparency in the movement of dangerous and polluting goods and other notifiable goods;
- Status information, control and tracking throughout the logistics chain.

Expected results in the Port Varna after the introduction of the "Port Community System":

- Improving the planning of visits and subsequent treatment of ships, which will lead to a shorter stay of the same in the port, and in addition to all the resulting benefits for stakeholders, will also lead to the release of less harmful emissions from ships;
- The optimization of the processes of the entrance and exit portals of the respective terminals of the ports will lead to less waiting time and idling of the heavy trucks, which will help to separate less harmful emissions into the environment from their movement;
- Management of the reception of trucks in the port through a system for advance reservation of heavy goods transport will regulate the flow of traffic to and from the port, which will lead to a reduction in traffic during peak periods. This will help reduce road congestion and harmful emissions from heavy vehicles for transport in and around the port;



- With the introduction of the "Port Community System" the use of paper documentation will be limited by facilitating the complex exchange of information in the port, which will reduce the processing time of the documentation and will optimize the overall activity.

The activities that will be implemented for the development and implementation of the "Port Community System" are the following:

- Development of a system project;
- Delivery and installation of hardware;
- Implementation of specialized software;
- Testing for acceptance of the system by the users and training of the users of the developed "Port Community System";
- Commissioning of the Port Community System.

3.2.3 PLAYERS INVOLVED

- Bulgarian ports infrastructure company - Bulgarian ports infrastructure company - Beneficiary on priority axis 4 "Innovations in management and services - establishment of modern infrastructure for traffic management and transport safety improvement". Contracting authority for the development and implementation of the "Port Community System". In the coming months, the active communication with the Managing Authority of the Operational Program "Transport and Transport Infrastructure" 2014 - 2020 will continue in order to secure funding in the current programming period;

- Port Varna - Stakeholder under the Smooth ports project and directly involved in the launch and implementation of the Development and implementation of the "Port Community System" project;

- Customs Agency - Stakeholder under the Smooth ports project and directly involved in the launch and implementation of the Development and implementation of the "Port Community System" project;

- Freight forwarders and users - Stakeholder under the Smooth ports project and directly involved in the launch and implementation of the Development and implementation of the "Port Community System" project;

- Regional Administration Varna - Through its participation in the Smooth ports project actively lobbies before the Managing Authority of the Operational Program "Transport and



"Transport Infrastructure" 2014 - 2020 to provide funding for the implementation of the project Development and implementation of the "Port Community System" these are targeted this have happened by the end of 2022 and fall into the implementation of phase 2 of the project Smooth ports.

3.2.4 TIMEFRAME

The term of the contract is 24 months from the moment of securing the financing under the project. As funding has not yet been provided under the Operational Program "Transport and Transport Infrastructure" 2014 - 2020, the deadlines described below for the implementation of the activities under the contract are indicative and may be subject to adjustments in the process of their implementation.

- Development of a system project - term of implementation 3 months;
- Delivery and installation of hardware - term of implementation 1 month;
- Implementation of specialized software - term of implementation 15 months;
- Testing for acceptance of the system by the users and training of the users of the developed "Port Community System" - term of implementation 1 month;
- Commissioning of the Port Community System - term of implementation 4 months.

3.2.5 COSTS

The necessary funds for the implementation of the project amount to 8 920 911.00 BGN (4 561 259.33 EUR) and the funding that is expected to be provided by the Operational Program "Transport and Transport Infrastructure" 2014 - 2020 amounts to 85% of the value of the contract.



3.2.6 FUNDING SOURCES

In 2020, 193 million BGN (98.68 million EUR) were transferred from the Operational Program "Transport and Transport Infrastructure" 2014 - 2020 to the Operational Program "Innovation and Competitiveness" 2014 – 2020 in connection with the measures taken to overcome the negative consequences of the spread of COVID-19 with the approval of the European Commission. The transfer of funds is from the budget of priority axis 2 "Development of road infrastructure along the" core "and" comprehensive "TEN-T" and priority axis 4 "Innovations in management and services - establishment of modern infrastructure for traffic management and transport safety improvement ". Bulgarian ports infrastructure company which is a stakeholder in the Smooth ports project and is engaged in the implementation and development activities of the "Port Community System" is a beneficiary of the affected priority axis 4. At present, this is the main reason why it is not yet provided final funding under the Operational Program of the described action.

At the meetings of the Monitoring Committee of the Operational Program "Transport and Transport Infrastructure" 2014 - 2020 held in 2021, the Chairman of the Committee has repeatedly informed about problems with projects of beneficiaries who received funding under Priority Axis 4, and there are those who have not yet started , and in others, when conducting public procurement procedures, the candidates do not meet the requirements of the beneficiaries, which leads to termination of the procedures and risk of non-utilization of the allocated financial resources.

The above facts are the prerequisite that Regional Administration Varna and Bulgarian ports infrastructure company use and actively lobby for obtaining funding for the development and implementation of the "Port Community System". In this regard, Bulgarian ports infrastructure company conducted a procedure for selection of a contractor and concluded a contract with him. As described above in the Action, the implementation of the contract is divided into 5 activities, each of which describes the price offered by the contractor for its implementation.

Bulgarian ports infrastructure company supported by Regional Administration Varna through participation in the Smooth ports project, has repeatedly stated before the Managing Authority of the Operational Program "Transport and Transport Infrastructure" 2014 - 2020 that it is ready to implement the project Development and implementation "Port Community



System" within the current programming period. In case this does not happen, the actions and efforts will be focused on the Program „Transport Connectivity“ 2021-2027, which falls outside the scope and time frame of the Smooth ports project.

Date: _____

Signature: _____

Stamp of the organisation (if available): _____