ROADMAP "NEW RAIL INFRASTRUCTURE/SERVICES 2030" – D.T3.2.7

SLOVENIA

Work paper

Version 1.0
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1. Introduction

This document represents the "Final Roadmap for the launch of new rail infrastructures and services" (D.T3.2.7) drawn up by PIL (PP4) and Port of Koper (PP9). The roadmap constitutes the operation plan which illustrates the main actions needed for the future development of the regional intermodal transport system in Slovenia. The preparation phase of the roadmap starts from the main findings of WP.1 and WP.2, where various aspects of regional intermodal system were analysed. Almost all the activities carried out within the WP.T1 and WP.T2.

As stated in the Application Form, roadmap is an operation plan that describe how to realise the interventions included in the priority list (D.T1.4.2) and to implement the potential policy measures (D.T1.4.3) that have been identified in the studies of WP.T1. The time horizon for the implementation of the actions is 2030. Structure for Roadmap development

The first chapters of the roadmap concern the introduction of road map's aims and content (chapter 1), the lessons learned from WP.T1's studies and researches and WP.T2's pilot activities (chapter 2) and the main challenges in order to launch new infrastructures and services (chapter 3). In the chapter 4 interventions of the road map are listed, identifying for each of them the priority area, the time horizon and the expected cost. Then, a description of those actions considered as a priority is provided (chapter 5).

2. Structure for Roadmap development

1) Introduction

The following roadmap describes how to realise the interventions that have been identified in the studies of WP.T1 and included in the priority list of actions (D.T1.4.2). According to the priority list the following measures to improve the railway infrastructure and services in Slovenia are essential:

- Construction of railway hub Ljubljana
- Rolling stock replacement of the national rail carrier in Slovenia
- Stopping (dwell) times at border crossings
- Rail industrial sidings
- Modernization of IT connections / interface between stakeholders in railway transport

By implementation of actions the quality of freight transport will be improved. The benefits will be also better connectivity and integration of rail and road transport, less congestion on roads and in nearby towns and villages and environmental benefits due to lower external costs of rail transport comparing to road (e.g. less air pollution, less accidents, etc).

2) Lessons learned from WP.T1 and WP.T2

The findings highlighted from the previous researches and analyses carried out in the WP.T1 and from the pilot action of the WP.T2 activities are deeply affecting the elaboration of the roadmap.

The bottleneck analysis of rail infrastructure (D.T1.3.3) and the compilation of the priority list of actions(D.T1.4.2) have led to the following main findings:

- Intermodal points need improvements for ensuring further demand of rail transport (e.g. Ljubljana railway hub)
- Bad connectivity /intermodality on regional lines with rail transport (the fright transport declined on regional lines in last years)
- Bottlenecks on borders due to different power supplies, information system and border procedures in freight transport
- Bad data exchange in IT connectivity between key rail stakeholder (e.g. Port of Koper and Slovenian Railways).
- Low quality of rolling stock (freight transport is less competitive towards rail transport)

The analysis of regional market potential for rail freight services(D.T1.2.3) has shown bad connectivity of local economy with regional rail infrastructure.

The REIF pilot project in Central Slovenia that includes planning of industrial rail siding is a good solution for future improving intramodality in connectivity in regional lines. The acceptance of all stakeholders was also very positive.

3) Main challenges for the implementation of roadmap

Main challenges related to the implementation of actions included in the roadmap are improvement in rail infrastructure and services which quality declined in last decades in our country due to low investments.

The results of the proposed actions will be better quality of rail transport, such as more smooth and faster rail transport, better intermodality of transport, shifting goods from road to rail, and other (environmental) benefits.

4) Identification of the actions

The roadmap's relevant actions below were identified within the priority area of transport infrastructure and refer to the deliverable D.1.4.2. - Priority list of actions & cost estimations and the deliverable D.T1.4.3 - Definition of potential policy measures.

ACTION/MEASURE	ESTIMATED COSTS	TIME HORIZON
A. TRANSPORT INFRASTRUCTURE		
A.1 Construction of Railway hub Ljubljana	200.000.000 €	2023-2030
A.2 Rail industrial sidings	5.000.000 €	2024-2027
B. ROLLING STOCK / MACHINERY		
B.1 Rolling stock replacement of the national rail carrier in Slovenia	180.000.000 €	2025
C. LEGISLATION/ADMINISTRATION		
C.1 /	/	/
D. SERVICE/OPERATION		
D.1 Modernization of IT connections / interface between stakeholders in railway transport (port of Koper and Koper railway station)	160.000 €	2023
D.2 Stopping (dwell) times at border crossings	3.000.000 €	2024-2025

5) Detail description of priority actions/measures

Number and name of intervention: A.1 Construction of Railway hub Ljubljana	
Priority area *Indicate the priority area of the intervention*	Transport infrastructure
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	Ljubljana is lying on the crossroads of 2 TEN-T corridors: Baltic-Adriatic and Mediterranean. Further Ljubljana is also a crossroad of RFC Corridors: 5, 6, 10 and 11. The infrastructure is not sufficient for the increased freight transport in last years and is one of the biggest bottlenecks in the country. The action will include increasing capacities in TEN-T hub Ljubljana which will include upgrade of existing infrastructure and also construction of new infrastructure facilities. The results will be better quality of rail transport: more smooth and faster rail transport, better intermodality of transport, shifting goods from road to rail, and other.
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	- Planning phase – documentation, design - Preparatory actions (acquiring landscape, consents, construction licences and permits) - Construction phase - Transfer into operation
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	- Ministry of infrastructure - Ministry of spatial planning - City of Ljubljana - potential investors
Timeline *Indicate the time horizon for the implementation of the action*	2023-2030
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	200.000.000 € (rough estimation)
Sources of financing[1] *What are the sources of financing? Private capital, public capital, CEF, etc...* *How much is the share covered by each of them?*	Combination of public and private funds (public private partnership - PPP, with majority of public funds). Possible public funds: national, local, European funds (sources could also be the taxes from other "less sustainable" transport modes, e.g. road, air)
Impact of the initiative *Describe the expected future economic, social, environmental impacts of this initiative*	Better quality of rail transport: more smooth and faster rail transport, better intermodality of transport, shifting goods from road to rail, and other.
Compliance with the overall objectives of REIF project *Describe the expected contribution of the action/measure to the achievement of REIF project (e.g. connection to TEN-T corridor, ...)*	- Optimization of rail traffic flows - Fostering cooperation among key stakeholders in rail sector - Better intermodality - Better connection of corridors

1 This information, if already available, could be assumed in the draft version and it has to be confirmed in the final one

Compliance with guidelines of national and regional planning instruments *Describe the compliance with the aim of national and regional planning instruments*	Improvement of rail infrastructure and services and improvement of intermodality are top priorities national and regional planning instruments

Number and name of intervention: A.2 Rail industrial sidings	
Priority area *Indicate the priority area of the intervention*	**Transport infrastructure**
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	Planning and construction of rail sidings to connect local economy with rail infrastructure, including preparation of strategies for certain areas (e.g. regions) for new rail sidings. The results will be better intermodality and connectivity resulting in shifting goods from road to rail, including all accompanying environmental impacts due to lower external costs of rail transport.
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	- Prepare national strategy of industrial areas where sidings are necessary - Preparation of the documentation for construction - Investment (construction) and transfer into operation
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	Ministry of infrastructure, Ministry of spatial planning, Municipalities, private investors/local industry
Timeline *Indicate the time horizon for the implementation of the action*	2024-2027
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	5.000.000 € (rough estimation)
Sources of financing[2] *What are the sources of financing? Private capital, public capital, CEF, etc...* *How much is the share covered by each of them?*	Combination of private and public funds (public fund are limited to public part of rail infrastructure, in case of public interest financial incentives proposed also in private part of infrastructure)
Impact of the initiative *Describe the expected future economic, social, environmental impacts of this initiative*	- lower external costs of rail transport comparing to road (less air pollution, less accidents,) - less congestion on roads and in nearby towns and villages - improved economic activity in area (bigger capacities, better employment) - better connectivity and integration of rail and road transport
Compliance with the overall	- Optimization of rail traffic flows

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objectives of REIF project *Describe the expected contribution of the action/measure to the achievement of REIF project (e.g. connection to TEN-T corridor, ...)*	- Fostering cooperation among key stakeholders in rail sector - Better intermodality - Better connection of corridors
Compliance with guidelines of national and regional planning instruments *Describe the compliance with the aim of national and regional planning instruments*	Improvement of rail infrastructure and services and improvement of intermodality are top priorities national and regional planning instruments

Number and name of intervention: B.1 Rolling stock replacement of the national rail carrier in Slovenia	
Priority area *Indicate the priority area of the intervention*	**Rolling stock/machinery**
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	Rolling stock of the main rail freight carrier with the majority of market share is old and need to be modernized in order to achieve capacity increase, lower maintenance costs and reduction of operational costs and become more competitive towards road transport
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	- Study of future needs - Prepare technical specifications - Tendering procedures and procurement process - Testing and transfer into operation
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	Ministry of infrastructure, European Commission (state aid approval), Slovenian national rail freight carrier SŽ-Tovorni promet
Timeline *Indicate the time horizon for the implementation of the action*	2024 (study of future needs, technical specifications, tendering procedures) – 2025 (procurement process, testing and transfer into operation)
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	180.000.000 € (rough estimation)
Sources of financing[3] *What are the sources of financing? Private capital, public capital, CEF, etc...* *How much is the share covered by each of them?*	Combination of private and public (EU/national) funds, funds could be limited to prevent distortion of competition
Impact of the initiative *Describe the expected future economic, social, environmental impacts of this initiative*	Improve timetable stability, capacity and interoperability, reduce operational costs and noise. The results of better quality of rail transport are also more smooth and faster rail transport, shifting goods from road to rail, and other.
Compliance with the overall objectives of REIF project *Describe the expected contribution of the*	- Optimization of rail traffic flows - Better connectivity (multi power supply rolling stock)

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action/measure to the achievement of REIF project (e.g. connection to TEN-T corridor, ...)	
Compliance with guidelines of national and regional planning instruments *Describe the compliance with the aim of national and regional planning instruments*	Improvement of services and smoother and increased rail transport are main priorities national and regional planning instruments

Number and name of intervention: D.1 Modernization of IT connections / interface between stakeholders in railway transport (port of Koper and Koper railway station)	
Priority area *Indicate the priority area of the intervention*	Service/operation
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	Establishing a common IT system for the Port of Koper and Slovenian Railways for real data exchange, automatization of process, traceability, reliability of data etc.
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	- Integration module for railways upgrade (Use of modern and commonly used standard, flexibility, Improved data quality) - Implementation of the new Railways system (Additional functionalities to simplify rail process, real time overview of the operations, usability, identification of problems and bottlenecks) - Mobile APP (Paper digitalisation, real time information, better data quality) - Visualization (Better overview of the operations, real time view)
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	Port of Koper (Luka Koper) and its Internal logistics department, Slovenian Railways and other rail operators are involved.
Timeline *Indicate the time horizon for the implementation of the action*	1-2 years
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	160.000 EUR
Sources of financing[4] *What are the sources of financing? Private capital, public capital, CEF, etc...* *How much is the share covered by each of them?*	Private (Luka Koper, SŽ)
Impact of the initiative *Describe the expected future economic, social, environmental impacts of this initiative*	- Wagon fleet management with real-time data, - One central platform that integrates all relevant processes and partners with one solution without

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	separate manual communication, - High level of process automation, - One central planning and scheduling tool - Management of all transport requirements and operational processes of all participants with one solution, - Proactive process control, automated alerts, - Real-time monitoring of equipment.
Compliance with the overall objectives of REIF project *Describe the expected contribution of the action/measure to the achievement of REIF project (e.g. connection to TEN-T corridor, ...)*	- Digitalization in rail transport; - Optimization of rail traffic flows; - Fostering cooperation among key stakeholders in rail sector
Compliance with guidelines of national and regional planning instruments *Describe the compliance with the aim of national and regional planning instruments*	It should be emphasized that electronic messaging within rail transport faces technical, organizational, and legal issues. Therefore, it is necessary for the state institutions to guarantee the formal validity of all documents in electronic form, which would accelerate the computerization of the railway transport process. It is also necessary to provide national and international financial resources that enable such development.

Number and name of intervention: D.2 Stopping (dwell) times at border crossings	
Priority area *Indicate the priority area of the intervention*	**Service/operation**
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	The action includes improvement of border procedures that will improve timetable stability, capacity and interoperability, reduce operational costs
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	- Studies and definition of new information system, improvement procedures - Implementation of new/adapted information system on border crossings - International (bilateral, multilateral) agreements and start of operations
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	Ministries, rail carriers, infrastructure managers
Timeline *Indicate the time horizon for the implementation of the action*	2024 (studies and definition of new information system, improvement procedures) – 2025 (implementation of new/adapted information system, agreements and start of operations)
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	3.000.000 € (rough estimation)

Sources of financing[5] *What are the sources of financing? Private capital, public capital, CEF, etc...* *How much is the share covered by each of them?*	Mostly public funds (national or EU) are expected (the action is based on agreement between different countries), with a possible share of freight transport service providers
Impact of the initiative *Describe the expected future economic, social, environmental impacts of this initiative*	Improvement of timetable stability, capacity and interoperability, reduction of operational costs, more smooth and faster cross-border rail transport, better competitiveness towards road transport, positive environmental impact due to lower external costs of rail transport
Compliance with the overall objectives of REIF project *Describe the expected contribution of the action/measure to the achievement of REIF project (e.g. connection to TEN-T corridor, ...)*	- Optimization of rail traffic flows - Fostering cooperation among key stakeholders in rail sector - Better connection of corridors
Compliance with guidelines of national and regional planning instruments *Describe the compliance with the aim of national and regional planning instruments*	Improvement of services and smoother and increased rail transport are main priorities national and regional planning instruments

6) Conclusion

Rail transport is one of the important opportunities in the future to slow down the climate changes and increase sustainability of transport system. Improvement of rail infrastructure and services are top priorities national and regional planning instruments. The proposed actions in this roadmap can contribute towards these goals.

To reach these goals, the railway transport system should be heavily modernised from the railway infrastructure perspective on one side, to the rolling stock renewal and improvement of transport organization and services on the other side.

Heavy investments to the railway infrastructure need many financial sources, which could be collected by also by taxes from other less sustainable transport modes (roads, air). On the other hand, "non-infrastructure" actions, such as cooperation between rail carriers and corridor states regarding border crossings; rolling stock renewal, and other, can also improve rail transport quality and make entire transport system more sustainable.

The proposed actions will greatly support the modal shift from road to rail of the freight transport, optimize rail traffic flows, foster cooperation among key stakeholders in rail sector, improve intermodality, and connectivity and will due to lower external costs of rail transport comparing to road significant have positive environmental impacts.

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