Deliverable T2. 2.1
Case examination plan

29/06/2018

Inter-Connect project Doc. TYPE/No/Title	**Deliverable T2. 2.1**
WP	WP T2 Cases examination plan
Date/Version	June 2018/v.1.0
Authors	HZ PP
Contribution	All

Contents

1. Introduction

Based on the current profile of the examined cases and on users' needs and stakeholders' plans, act. 2.2 focuses on the definition of priorities in each involved area. The priorities will be the basis for the detailed implementation plan development (one per case), being the zero point to start cases examination.

The priorities will be tuned according to:

- Specific soft solutions;
- ICT,
- Governance issues,
- Harmonization policies,
- Integrated services provision,
- Facilities upgrade and
- Citizens' engagement.

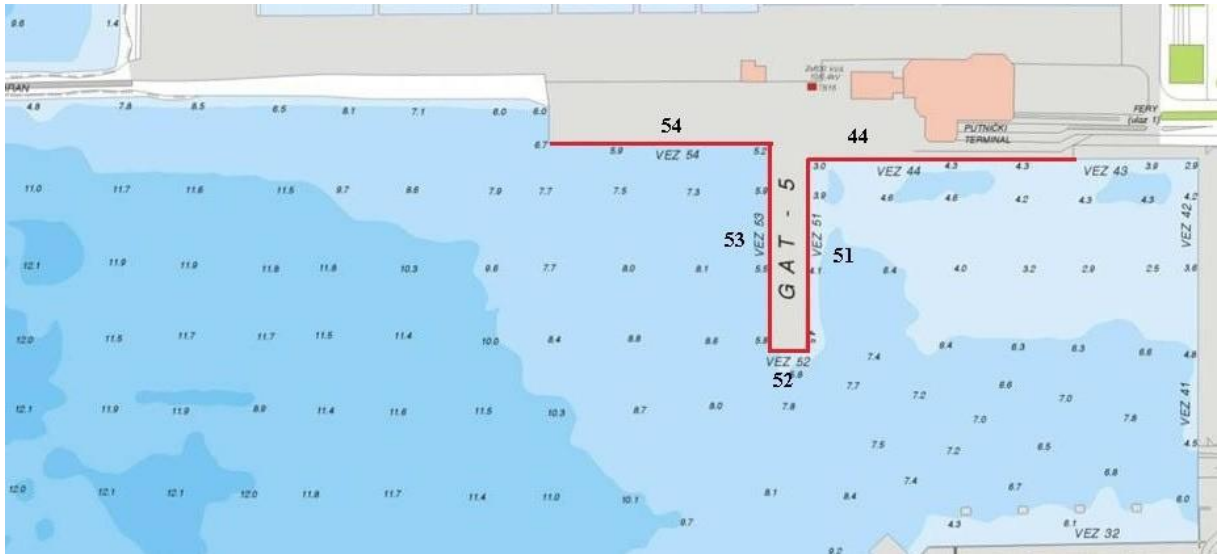
Cases to be examined will finally be selected having as a central axis their efficiency to leverage policy effects and stimulate growth (consultation procedure). The detailed implementation plans will be living documents updated at a regular basis according to new elements resulting during cases' examination (necessity to involve additional actors, emerging needs and risks etc).

2. Inter-Connect cases

2.1 Passenger intermodal connection (sea-bus-rail) in Bar (Montenegro)

2.1.1 Area – case study

Port of Bar is the main port in Montenegro. As of 1965, when the Passenger terminal became operational, a formerly state-owned company then called "Prekookeanska plovidba" from Bar inaugurated the first ferry line from Bar to the Italian Port of Bari on the western side of the Adriatic Sea. The same company, now called "Barska plovidba", has been successfully operating the same ferry line up to 2016. Last two years, in cooperation with company Jadrolinija (Croatia), ferry line Bar-Bari is only seasonal (from May to November).
The Passenger terminal in the Port of Bar is located in the most northern part of the port. Although it is officially classified as a passenger terminal, it is in fact a ferry terminal or a Ro-Pax terminal. The Passenger terminal disposes of a total berth length of 430 m, distributed into five berths, all enabling port or starboard (alongside) berthing of vessels.



Picture 1: Layout of the Passenger terminal in Port of Bar

The depth at berths varies from 4,0 to 5,9 m, enabling medium size vessels to berth at the passenger terminal. In following table are given data about berths at Passenger terminal.

Berth	**44**	**51**	**52**	**53**	**54**
Length (m)	97.5	97.5	20	107.5	107.5

Depth (m)	4.5	4	5.8	5.5	5.9

Table 1: Bert passenger terminal

The Passenger terminal is equipped with a four-lane road (2 entry and 2 exit lanes) connected it to the major roads through the town of Bar and further on. There are no railway connections from the Passenger terminal.

The Port of Bar is the final station of the Belgrade-Bar railway, completed in 1975 as one of the major engineering and construction achievements in former Yugoslavia. The railway Belgrade–Bar is a standard gauge railway, 476 km long. Of this length, 301 km of the railway goes through Serbia, and 175 km through Montenegro. It passes through 254 tunnels of total length of 114 km and over 435 bridges of total length of 14 km.

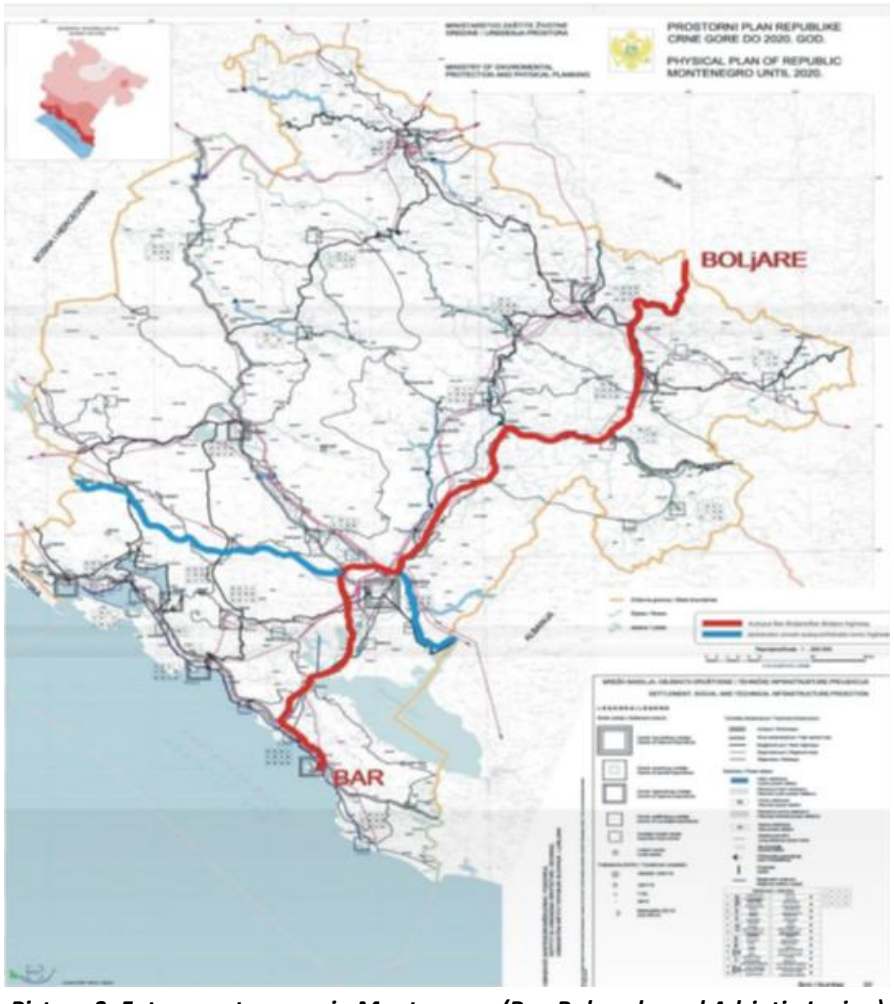
When it was built, a train took approximately 7 hours to go from Belgrade and Bar, while now it takes 11 hours, due to speed restrictions, as the railway cannot safely sustain the projected speeds prior to thorough reconstruction. Bar – Vrbnica (the latter at the Montenegro – Serbia border) is the most important section of the Montenegrin rail network, carrying about 20% of all passengers and about 60% of cargo. As a whole,rail is an important part of the Montenegrin economy, accounting for almost 60% of all freight and 10% of passenger travel(source: WBIF - Orient/East-Med Corridor (R4): Montenegro – Serbia Rail Interconnection).

Picture 2: Railway network in Montenegro

At present, Bar-Belgrade railway does not meet modern rail transport requirements with regard to railway transport, speed, service level and reliability. This situation has led to efforts to start rehabilitation of the railway infrastructure (the main priority regarding transport in Montenegro is reconstruction and upgrade of railway infrastructure).

The road infrastructure is mainly 2-laned roads, passing straight through towns and villages, struggling with the mountainous relief of the country. In summertime, the situation along the coast is aggravated by tourist traffic and severe congestion can be a problem in some areas (Budva, Herceg-Novi, ferry Kamenari - Lepetane).

Typical transit times for the busses from Bar to the Montenegrin border would be 3,5 hours to Croatia (Debeli Brijeg, app. 120 km via Kotor), 4 – 5 hours to Serbia (via Bijelo Polje, app. 180 km, or via Rožaje, app. 225 km) and 45min. to Albania (app. 35km). Road safety is also a problem, although some critical points have been improved in the last years. Last but not least, the average state of road maintenance and signalization also requires improvements.



Picture 3: Future motorways in Montenegro (Bar-Balgrade and Adriatic-Ionian)

Looking at the broad picture of hinterland connections, the road network of Montenegro is generally outdated and inadequate for quick and efficient road transport. The two main transport axes are East-West (Ulcinj – Herceg-Novi – Croatia, along the Adriatic coast) and North-South, (Bar – Bijelo Polje – Serbia).

As far as the road connections, the main infrastructural project is a new motorway Bar-Boljare. The project is a key infrastructure motorway project led by the Ministry of Transportation and Maritime Affairs. After its construction, the motorway shall become incorporated into international road network, connecting several countries in Central Europe. According to the plan of the Government of Montenegro, the most difficult section Smokovac-Matesevo will

be constructed first. The length of the route of the motorway is 40.871 km, and national road standards of Montenegro are adopted, with reference to the European specifications as well. With that kind of road connection, Port of Bar will be more accessible.
Hinterland connections are of great importance to every port, but in the case of the Port of Bar this is even more true. Being in a scarcely populated region, the port's throughput depends highly on its hinterland connections. In fact, the present low quality of the Port of Bar's hinterland connections is one of the main reasons for the under-utilisation of the port's infrastructure and facilities. This means that improvements of rail and road connections to the hinterland will have high impact for the future development of the port.
Port of Bar case in Inter-Connect project will deal with:

- general role of the seaport in the process of transport of people, from roads to sea and railways, and vice versa, with special attention to the role of the Port of Bar;
- analysis of passenger flows within the area;
- identification of passenger demands;
- examination of intermodal passenger transport, sea-bus-rail connection in Bar;
- improvement of a sea port role in transport system and general promotion of the alternatives to road transport

2.1.2 Description of current status in the area as regards passengers' multimodal transportation, needs identification

Currently, Bar have only seasonal line Bar-Barifrom May to November, due the problems in the local ferry company and small depth at the Passenger terminal. In the development plan of the Port of Bar are defined investments referred to extension of the existing quayat the Passenger Terminal and dredging terminal water area in order to enable berthing of bigger ships. Reaching the rail station (near 2km) is possible by foot, by taxi (the taxi station is in front of the terminal building) and by local bus (local bus station is situated in the center of the city, about 400m from the Passenger terminal). Furthermore, public transport in Bar is extremely rare, buses are rather old and obsolete. During the summer months, due to traffic jams, problems regarding punctuality usually arise, thus making it unreliable transport mode.
In addition, railway passenger transport needs urgent renewal, where conditions for its maintenance have to be provided. As when it comes to public transport, public utilization of railway services is low due to regular train breakdowns, inaccurate estimates given, poor rail infrastructure which has decayed over time.
In general, passenger transport needs integrated services, with the aim of harmonizing the timetable of arrivals and departures, ticketing and real-time provision of trustworthy information.

Picture 4: Location of the main Bus and Railway station in Bar (source: google map)

2.1.3 Technical documentation in Inter-Connect project for the case of Port of Bar

The project shall examine the intermodal passenger transport in Bar, in particular sea-bus-rail connection. In addition, examination of the seaport role in the process of transport of people, from roads by bus and railway to sea, and vice versa will be done.
The main steps of the examination will be:

- Examination of the current status of all transport modes in Bar and Montenegro referred to the passenger transport;
- Methodology and the best practices;
- SWOT Analysis – detection of strengths, weaknesses, opportunities and threats for Port of Bar concerning sea-bus-rail intermodal passenger transport;
- Formulation of the road map towards intermodal passenger transport and rail promotion;

2.1.4 Involved public and private bodies and their role.

Table 2: Stakeholders' involvement.

Actor	Type of actor	Link with …	Why we need them

Ministry of Transport and Maritime Affairs	Public Authority	National level	Any proposal should be in line with Maritime Transport Strategy of Montenegro. In addition, the Ministry can provide transport data/statistic.
Municipality Bar	Public Authority	Local level	Responsible for public transportation at urban areas in Bar.
Railway Transport of Montenegro JSC	Railway operator	Local and transnational level	The State company which is responsible for railway transport of passengers in Montenegro (domestic lines and international lines).
Barska Plovidba AD	Ferry company	Transnational level	Provides maritime passenger transport from Bar to Bari (ferry company)

2.2 Improvement of railway and intermodal connections of City of Belgrade with focus on transnational railway lines and connectivity of central rail and bus stations and Belgrade airport

2.2.1 Area and territorial context

City of Belgrade is capitol of Serbia and biggest city in the country. Beside it's a central administrative and business point in Serbia, Belgrade is also touristic destination, recording strong increase of travels to/from or through the city from year to year.

On the other hand, in wider urban and sub-urban area, Belgrade attracts numerous daily travels reaching huge daily migration of population, which together with permanent migration from country side create increasing trend of transport demands and consequently more dense traffic flows.

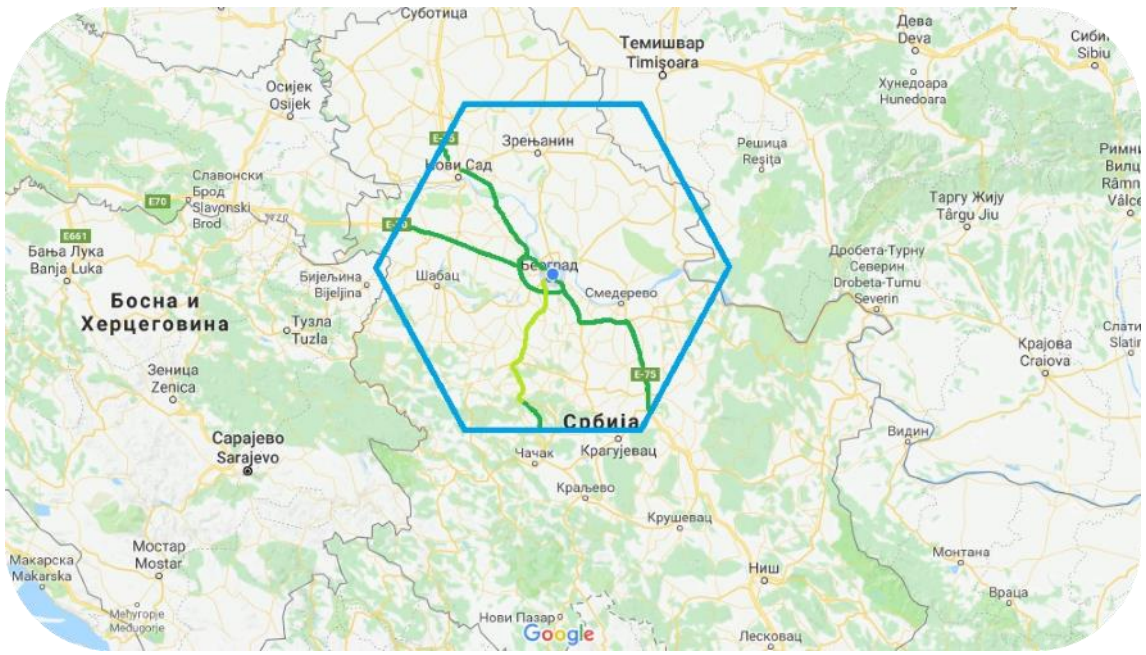
City administrative area includes several municipalities from high density population in the city centre to even rural areas at the edges of administrative territory.

Following map showing the catchment area of city in terms of daily migration – administrative territory of the city with marked highest density areas:

Picture 5: Administrative territory of Citi of Belgrade - Municipalities

Moreover, highest daily migrations are present from/to city of Novi Sad distant 80 km on the north from Belgrade and industrial area along the highway connecting those two cities. Additionally, on this route is located Belgrade airport, generating additional traffic flows.

Following picture showing wider catchment area of Belgrade, approximately less than 2 hours of driving by bus or car.



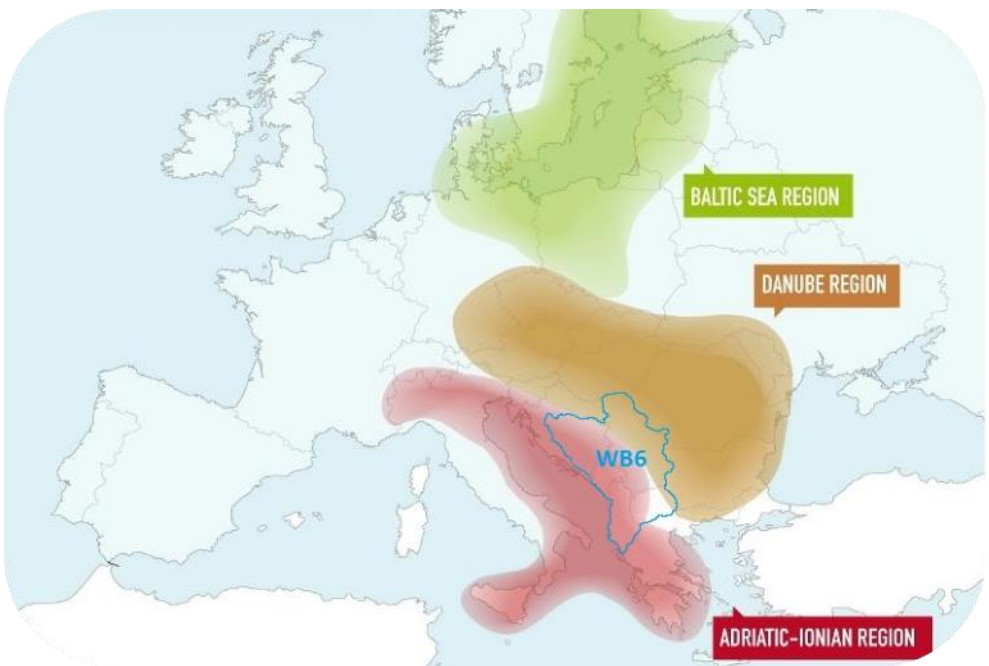
Picture 6 Daily migration catchment area

The vast majority of all passenger movements is being realized by road transport with small share of railway transport.
In transnational context, Belgrade is located at the Pan-European Corridor 10, on the right bank of Danube River (Corridor 7).
Considering TEN-T indicative network extensions to Western Balkan 6, mentioned Pan-European Corridor 10 is now actually divided into two branches of Mediterranean and Orient/East-Med Corridors which together with Rhine-Danube IWT corridor making the crossroad right in Belgrade. Following picture closely explaining the position of City of Belgrade in relation to mentioned corridors.

Picture 7 Indicative extension of TEN-T to WB6

In terms of transnational connectivity by road, through mentioned 3 corridors and their branches, Belgrade is well connected with Zagreb-Croatia on the west, Budapest-Hungary on the north, and Thessaloniki-Greece on south. Also, existing connections with improvement needs are to Port of Bar-Montenegro on south and connections to east, to Sofia-Bulgaria and north-east to Romania.
When it's about railway connections, the majority of tracks needs reconstruction. Most important are connections from Zagreb-Croatia and Budapest-Hungary to Belgrade and further from Belgrade to Thessaloniki-Greece and Bar-Montenegro.
In terms of transnational connectivity of Belgrade, it is important to mention that Belgrade airport "Nikola Tesla" is the most crowded airport in the WB6 region with over 5 million passengers annually, but without railway connection to the downtown area.
However, the main case which must be explored is potential of transnational, regional and domestic – local movement of passengers in terms of intermodal solutions and railway rehabilitation as well as changes in passenger's behaviour and habits in the light of latest construction projects in the city centre and movement of central and bus stations to new locations.

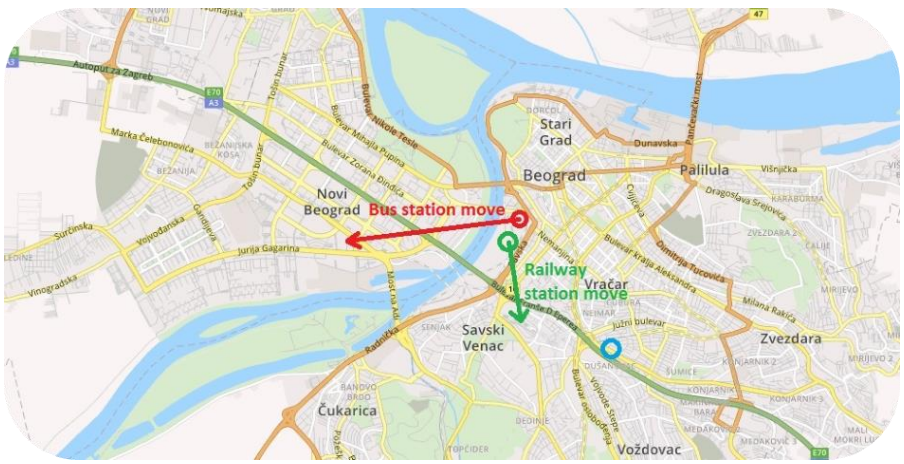
Regarding specific geographic position of Serbia and City of Belgrade, as well as political and historical movements and changes in last decades, together with EU social, economic and transport policies development, emphasizing creation of Macro-regional structure, Serbia belongs to two macro-regions (Adriatic-Ionian and Danube) as shown by following picture.



Picture 8 WB6 Countries and EU Macro-Regions

Following mentioned territorial context and geographic position and involvement in macro-regional structure, Serbia following goals of both EU Macro-Regional Strategies, Adriatic-Ionian (EUSAIR) and Danube (EUSDR) together with strong aim to become the full member of European Union.
In the light of “transport part” of strategies, connectivity and green transport initiatives, Serbia as one of Western Balkan 6 countries and most active within “Berlin process” aiming to better transport connectivity, especially of Belgrade as a capitol with great transport potential, will also try to examine not only local but transnational and wider influence on public transport system.

The area considered would be primarily Serbia, Belgrade catchment area and the Belgrade urban area with focus on railway and bus lines ending in the City of Belgrade at transnational and intercity level, following by focus on airport connectivity and transfer from private cars to public transit system at micro-location level.
More detailed explanation of area covered by case study is given by first chapter and territorial context as introduction part of this document.
As an example of one of three points of analysis, following picture is showing the case of movement of central bus and railway stations and points of intervene at micro-location level



Picture 9 Points of intervene by movement of central stations in Belgrade

2.2.2 Examination plan and outputs

Some of critical issues for Belgrade beside of public transport service level, quality and network development are intermodal connections and potential benefits of introducing intermodal passenger transport and transit.

Examination of influence of critical issues for Belgrade could be developed in three directions:

- Effects of movement of central bus and rail stations, potential benefits in terms of intermodality as well as possible issues (e.g. connections with south and east part of the city, changes of intercity bus regime and time tables, necessary new connections, railway connections etc.)
- Possibility of railway connection to Belgrade airport “Nikola Tesla”
- Examination of new and activation of existing locations for “Park and Ride” system in Belgrade

Examination plan in general should consist of:

- Current situation analysis
    - Analysis of transport demand/supply and flows
    - Understanding of opportunities for intermodality, railway operations as well as bus operators and public transport system of Belgrade
- Defining of expected results/effects/actions and
    - Identifying of overlapping points
    - Identifying potential gaps and necessary actions
    - Defining of common areas and actions
- Defining of guidelines incorporated with existing strategies and plans

All of examinations will be conducted through three levels of influences (affected by):

- Local travellers – at the level of City of Belgrade
- National travellers – intercity and Belgrade catchment area
- Transnational level – regional and wider

Detailed plan of examination and defining of priorities will be created through dialogue with stakeholders and public consultations.

Under the higher goal to contribute to city development and grow in general, case study will try to develop guidelines and proposals for further development of transport system of Belgrade within above mentioned three sub-cases of intervene, highlighting the new opportunities for intermodal and railway transport development, aiming in the same time to point on possible issues and prepare the recommendations for avoiding of possible negative effects of development.
In terms of limited resources, the Case study will not be at the level of feasibility study with detailed research of flows and projections of future transport supply-demand relations. Rather, one of the goals is to collect existing materials and sources of data, projects and plans to one place, to analyze them and create recommendations or to point on existing and future eventual weaknesses, aiming to facilitate the work on the realization of active and future infrastructure and organizational projects of the transport system of Belgrade.
Another goal is to give an overview of effects of future development, aiming to enable public and private sector to be prepared for forthcoming changes, especially railway and bus operators as well as city's public transport system.
Finally, as it was stated in project application phase, in 2015. Serbia adopted National strategy for reducing risk of climate changes. One of the goals of this strategy is reducing carbon emission to the level of 90,2% of level in year 1990. City Belgrade, as biggest city in Serbia, is one of the biggest Carbone emitter in country. Better connectivity between new railway station and public transportation system will have a positive impact to carbon emission in Belgrade.

2.2.3 Description of current status in the area as regards passengers' multimodal transportation, needs identification

Due to construction works on the right bank of river "Sava", in the city Centre, railway central station is already moved and bus station will be moved after completing of new central bus station in next 12 to 18 months.
Passengers who changes mode of transport are, and will be in situation to use city public transport in order to transfer from railway to intercity or international bus lines and vice versa.
After movement of central bus station situation will be better, where existing urban railway lines connecting two central stations, with recognized need of upgrading railway station next to future central bus station. Still, south and east part of the City will be far from central bus station and it could be expected strongest request of bus operators to use bus stop point at "Autokomanda" highway junction, causing higher congestion at this micro-location, already recognized.
Furthermore, actual new central railway station needs to be better connected with city public transport and probably needs some construction works on street network in order to enable better connectivity to various bus, tram and trolleybus sub-systems.
Moreover, actual options for transfer of passengers coming by airplane from/to Belgrade airport "Nikola Tesla" are limited to two bus lines and taxi service. Need of connecting the airport by urban railway is recognized years ago, but requires significant construction works (tracks and station).
Finally, in the light of forthcoming changes, the recognized need of activation of existing and introducing of new points of "Park and Ride" system must be explored. This is not only for daily commuters, where Park and Ride could be effective and greener solution, but also for travellers coming from/to other places on national or transnational level, especially those who intend to travel by airplane where option of safe parking solution could be explored.

Regarding the complexity of transport system of City of Belgrade and actual changes, prioritizing and more detailed analysis is still point of discussion with involved stakeholders, having in mind limited resources. However, recommendations for specific soft solutions, integrated service providing and governance issues guidelines together with highlighting of needs for upgrading of certain facilities of transport sub-systems of City of Belgrade will be in main focus. Moreover, existing ICT solutions and good practice from other cities will be discussed as possible priorities.
Regarding that urban and sub-urban railway system is already mostly integrated with city public transport system (ticketing), further integration of information systems, timetable harmonization, integrating with inter-city and transnational railway and bus lines as well as parking system integration will be points of discussion and prioritizing.

Starting point for the Belgrade Case will be Transport Master Plan for City of Belgrade presented in November 2017, as Belgrade Smart plan and The Regional Balkans Infrastructure Study (REBIS) Update as well as all other recently done projects and researches on Belgrade city network, public transport and similar.

Traffic demand/supply analysis will be conducted based on existing data which will be tested by survey. As main sources of data and technical information and documentation, Belgrade smart plan will be used as well as data and documents provided by involved stakeholders who already have significant data sources, active and completed projects etc.
As already mentioned in examination plan chapter, the scope of analysis will cover all of three aspects of intermodality improvement, by analysing existing and exploring new possibilities for better connectivity of main bus, railway stations and airport and activation of Park'n'Ride system in the City of Belgrade.
In terms of transnational flows of passengers and demand side analysis, the survey will be conducted in terms of validation or correction of existing data collected from different sources.

2.3 The study of improvement of rail transport in Slovenia

The area of intervention is the whole Slovenian territory. Case examination will focus on **possible improvements of the rail passenger's transport especially with regard to intermodality and international connections**.

Geographical position and historical circumstances mark Slovenia as a busy vibrant transit area and the crossroads of the two largest pan-European corridors. For the needs of the implementation of the core TEN-T network in the financial perspective 2014-2020, the European Commission has formed the core network corridors. Slovenia is included in so-called **Mediterranean and Baltic-Adriatic corridors**. Both cross the territory of Slovenia in direction South West – North East.

In Slovenia the volume of passenger transport and transport in generally has been increasing for last decade primarily due to the most unsustainable transport modes - automobile and air transport. In the past twenty years, motorisation in Slovenia has increased by 23%, and in 2015 amounted 523 to personal vehicles/1000 people. Therefore, Slovenia has almost caught up with European countries with **the highest motorisation rate**. Motorisation in Slovenia with regard to GDP and personal income is quite high. This is also affected by the dispersed settlements typical of Slovenia, which demand greater use of private vehicles, at the same time the use of private vehicles and modern highway network accelerates the construction of such settlements. Operational program of measures to reduce greenhouse gas emissions by 2020 in Slovenia adopted in December 2014 recognizes **transport** as the key sector for reaching national targets by 2020 since **the largest source of emissions** in sectors not included in the emission allowance scheme is caused by transport. In 2011, transport accounted for around 40% of final energy and about 50% of GHG emissions in neETS. In this sector, emissions are increasing rapidly, in Slovenia the fastest among all countries that signed to the Kyoto Protocol. Therefore, strengthening of activities and the consistent implementation of the measures is transport is planned, in particular the promotion and competitiveness of public passenger transport.

The state of the public railway infrastructure and, consequently, rail passenger transport are **worrying**:
- Under-investment in the reconstruction and development of public railway infrastructure has been known over the past 15 years;
- the network of main lines is more than 75% depreciated, while the regional routes are significantly more significant;
- The network of public railway infrastructure is less competitive than ever before in comparison with the north and west neighbouring countries;
- insufficient investment in rail vehicles (renewal and purchase of new vehicles);

• motorization of Slovenes has reached a level when, statistically, each person with a capable citizen owns a personal car (non-implementation of transport policy);
• The vignette system promotes personal and not public passenger transport (incorrect implementation of the transport policy);
• We are still far from efficient integrated public passenger transport (slow implementation of transport policy).

Therefore, **the examination plan** will define the bottlenecks of the railway network and design solutions for improvements of the rail passenger's transport and better connections between various forms of transport in Slovenia. It will focus on improvements of the international connections. With improved accessibility with the neighbouring countries it will enable seamless travel between the states of ADRION countries.
The examination plan will address the problem at two levels:

- Technical solutions for upgrading the rail network and
- Improvements in the institutional and management environment.

It will consider the planned interventions, make the critical assessment and propose urgent actions in order to make rail passenger transport competitive again.

2.3.1 Description of current status in the area as regards passengers' multimodal transportation, needs identification

Through Slovenia, two multimodal TEN-T corridors take place in the direction of JZ-SV, which require the modernization of the railway infrastructure by 2030. In the modernisation and development of the railway infrastructure, the programme from 1996 envisaged three fundamental and separated, yet functionally related sets, the implementation of which needs to be coordinated with the standards defined in the applicable European documents and UIC regulations3. These fundamental sets are:

- renovation of the existing lines,
- extension of the existing lines, and
- construction of higher and high-speed lines.

Until 2011, due to the construction of the motorway crossing, investments in the railways were completely negligible. Consequently, the railway infrastructure is severely damaged and as such does not allow the takeover of part of the road transport. In recent years, with the help of co-financing with European funds, several important railway projects have been completed, which will contribute to better transport services. On the basis of the envisaged volume of traffic, further measures are planned on the Slovenian rail network, which are necessary to ensure sufficient capacity of the railway lines. The question is whether the railway lines forming part of the core corridors will meet the requirements of the core TEN-T network after implementing these measures.

In order to achieve the objectives, taking into account the vision of transport policy, the Strategy for the Development of Transport in the RS defined 108 measures. Measures related to transport infrastructure, traffic safety, rolling stock, organization and traffic management (MZI, 2015b) are taken into account.

Table 3 Planned interventions in Slovenia

Intervention at the elements of the network	Interventions on the network	Organisational (horizontal) interventions	**Together**

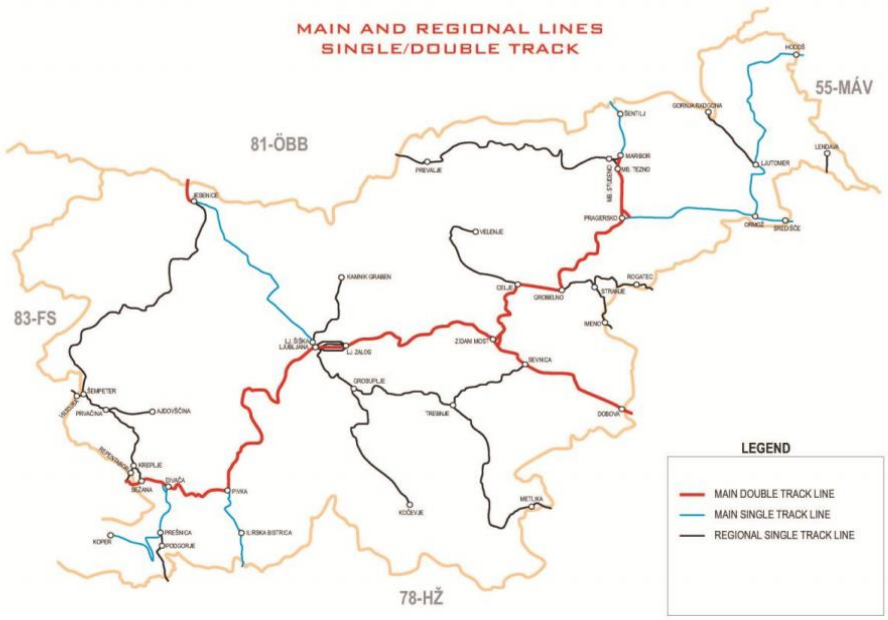
Rail transport	11	4	14	**29**
Road transport	22	7	8	**37**
City (urban) transport	4	7	11	**22**
Sea transport	6	3	5	**14**
Air transport	3	2	1	**6**
Together	**46**	**23**	**39**	**108**

Infrastructure

The railway infrastructure in Slovenia is state-owned, which is why it is considered public railway infrastructure. The public railway infrastructure is operated by Slovenske železnice – Infrastruktura, d.o.o, which has concluded an agreement on maintaining and managing the public railway infrastructure, and an agreement on managing the traffic on this infrastructure with the Republic of Slovenia. Public railway infrastructure in Slovenia comprises the entire railway tracks network, including facilities and devices, with the exception of railway infrastructure at terminals.

The public railway infrastructure network in the Republic of Slovenia comprises 615km of main and 612km of regional railway lines. The total length of lines in the public railway infrastructure of the RS is 1,227km, 897km of which have one track and 330km of which have two tracks.

single-track lines (trains run in both directions on the same track)	874,2 km
double-track lines (trains run in defined directions on each track)	333,5 km



Picture 10 The public railway infrastructure network in the Republic of Slovenia

The TEN-T Regulation stipulates the conditions for core railway lines, which must comply with the following standards on the TEN-T network by 2030:

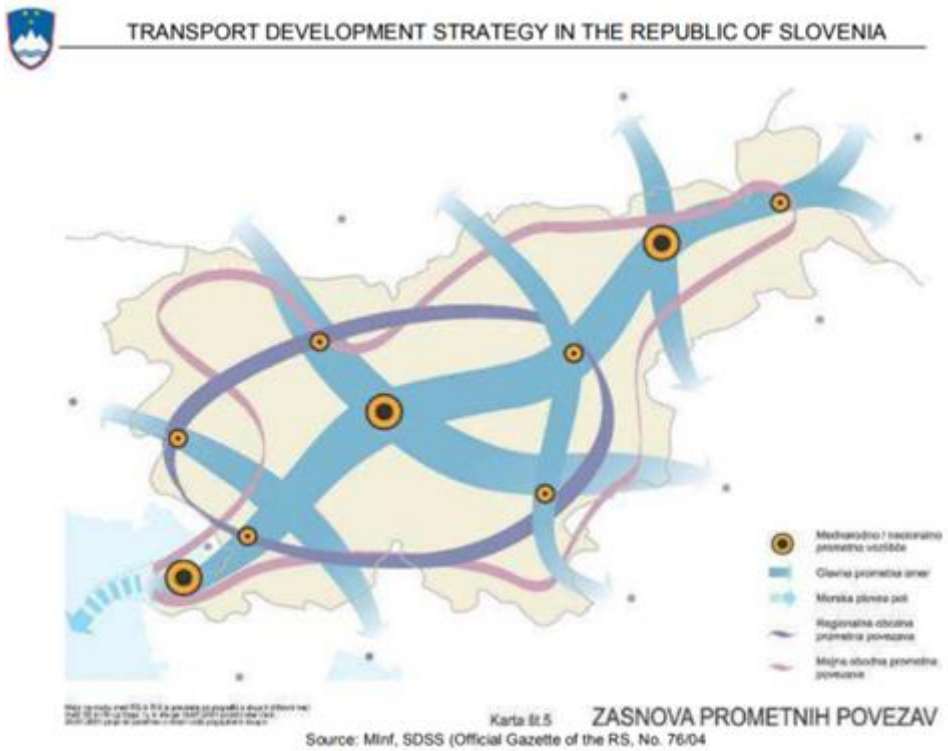
- electrification,
- nominal track gauge of 1,435 mm,
- at least 22.5 t axle load,
- 100 km/h line speed,
- the possibility of running trains with a length of 740 m, and
- ERTMS.

Lines of the core network in the Republic of Slovenia fully comply with the nominal track gauge, they are completely electrified (in 2015, the project of the Pragersko–Hodoš line was completed), the ERTMS system way largely implemented, except on sections Zidani Most–Dobova, Pragersko–Šentilj and Ljubljana–Jesenice. From Ljubljana Jože Pučnik Airport toward Jesenice and Austria, this is included in the comprehensive TEN-T network.

The greatest derogations in meeting the requirements of the TEN-T Regulations are related to the standards for speed and axle load. The analysis of the rail network shows that only 19.3% of the network, that is 95.7 kilometres of the core network lines already meet the standard, required by Regulation No. 1351/2013. For the remaining part of the network, activities are envisaged which include the preparation of documentation for proper line upgrades. In accordance with the provisions of the Regulation, the projects should be subject to cost-benefit analysis, and the Regulation itself allows exemptions.

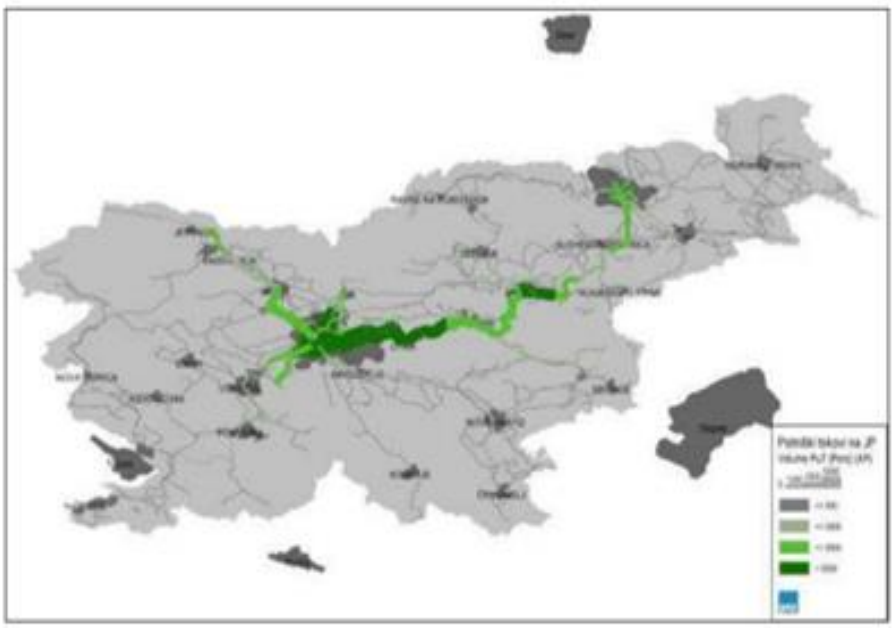
Along with compliance with the TEN-T standards and with justified exemptions, it is necessary to prepare those projects of upgrading main and regional lines in the railway system with which more appropriate capacities of individual lines will be achieved that will enable the railway to also accept the backbone role in the public passenger transport.

Intermodality



Picture 11 Transport network scheeme of the Spatial Development Strategy of SLovenia

Transport network scheme was designed in Spatial Development Strategy of Slovenia in 2008. It envisages three international intermodal nodes: Ljubljana, Maribor and Koper.



Picture 12 Public passenger transport flows (passengers/working day), year 2011

Special attention is also intended to faster development and the expansion of the Port of Koper as the most important source of cargo for the transport network of Slovenia and Central Europe. An equivalent level of concern for faster and better development should also be given to Slovenian airports, with emphasis being placed on the development of the Ljubljana Jože Pučnik Airport, and their actual development mostly depends on concession contracts or investments of their owners. The Republic of Slovenia will promote their development in accordance with its competences.

Travel behaviour

Modal split shows that 69% of all travels in 2011 were made by car, 18 % walking, 5% by bicycle and 8% by bus.

The number of passengers in international rail transport (including transit) in 2016 was 776,000, which is an increase of 1.4%. The highest number of passengers travelling to or from Slovenia in international rail transport was recorded in transport with Austria (almost 100,800), Croatia (also more than 100,200) and Germany (31,300). About 21,700 passengers travelled from or to Serbia, about 19,800 from or to Hungary and almost 12,300 from or to Switzerland. Slovenia conducted 68% of international passenger transport with the mentioned six countries.

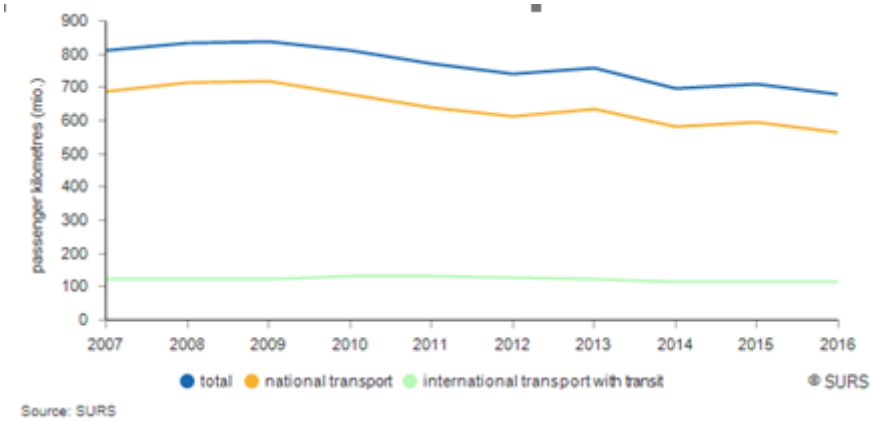


Chart 1 Passengers i ninternational railway transport (without transit), 2016

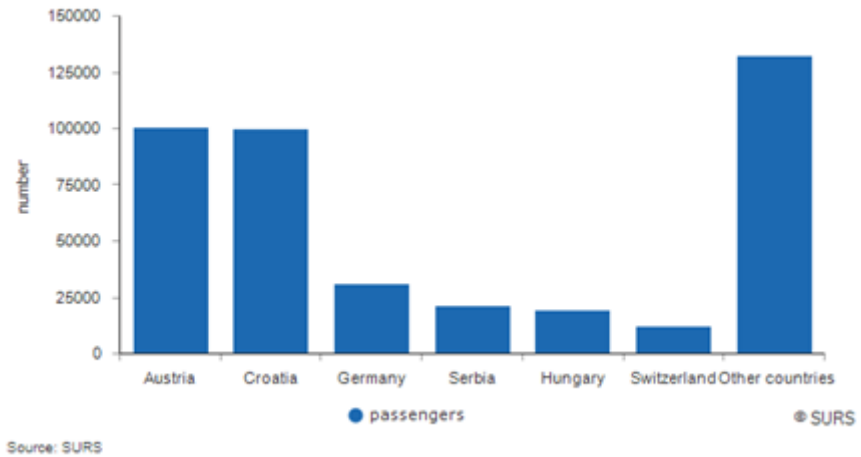


Chart 2 Railway passenger transport in Slovenia, 2016

The total number of passenger-kilometres performed in 2016 in national and international transport decreased by 4.1% compared to 2015 and reached 680 million, of which 565 million in national transport, which is a 5% decrease compared to 2015.

For comparison, in 2017, passenger traffic at three Slovenian international airports (Ljubljana Jože Pučnik Airport, Airport of Edvard Rusjan Maribor, Portorož Airport) increased by 20%, compared to 2016. In 2017 1.69 million passengers travelled through all three Slovenian international airports (Ljubljana Jože Pučnik Airport, Airport of Edvard Rusjan Maribor, Portorož Airport). The largest passenger traffic with scheduled flights was recorded, to or from the United Kingdom (16%) and Germany (15%).

2.3.2 The examination plan

The examination plan will define the bottlenecks of the railway network and design solutions for improvements of the rail passenger's transport and better connections between various forms of transport in Slovenia. It will focus on improvements of the international connections. With improved accessibility with the neighbouring countries it will enable seamless travel between the states of ADRION countries.
The examination plan will address the problem at two levels:

- Technical solutions for upgrading the rail network and
- Improvements in the institutional and management environment.

It will consider the planned interventions, make the critical assessment and propose urgent actions in order to make rail passenger transport competitive again.

Special attention in the implementation plan will probably be payed at the revitalization of **the cross-border railway line Ljubljana – Karlovac- Zagreb**. Nine Slovenian municipalities (3 of them are in Ljubljana urban region) and municipality of Karlovac have in May 2018 signed an agreement of cooperation at revitalizing this cross-border railway line. The railway Ljubljana - Novo mesto was built 124 years ago, and railway Novo mesto - Bela krajina is 20 years younger. It did not receive any major investments, so the speed of the trains is low, the journey time is too long, there are many unsecured passages and old trains do not allow modern services. The signing of the agreement on the cooperation of municipalities is the first step in this direction.

The goal is the basic modernization of the line for achieving higher speeds in the first phase, for greater load capacity, regulation of stations and stops and the elimination of level crossings. In the continuation of the project, the electrification of the line will be implemented and modern passenger trains will be purchased. The cross-border project, will be included in the Association of initiatives for the development of regional railway connections in south-eastern Europe. Co-operation agreement has been handed over to the representatives of the ministries, as the municipalities want to include the project among strategic development programs in the future financial perspective.

The other possible intervention area is **Ljubljana – Koper railway line**. The idea is to investigate the possibilities of offering the cruisers tourists the possibilities to visit the tourist sites by train.

Picture 13 Possible interventions areas

2.4 Study on developing and implementing a technological solution for intermodal transport in Albania

The case examination will be a Study on developing and implementing a technological solution for intermodal transport - Real time information of travellers through digital timetables harmonization for travellers using the ferry and rail transport and when needed air transport.
The objective of this case is to enhance intermodal transport between rail +maritime +air transport (and possibly other modes of transports) especially between Tirana and Durres region.

This technological solution will be developed to primarily reflect the travel information on ferries, trains and flights, with the option of expanding the range of travel and locations at a later point.
The Ministry of Infrastructure and Energy will promote the use of intermodal transport via various channels including the Ministry of Transport web- site, Albanian tourism fairs, Albanian tourism web-sites, at TIA, and so forth. This integrated digital timetable information will allow foreigners and/or Albanians returning from their travel to have the necessary information on real time so they can plan and coordinate their movements more effectively and efficiently.

2.4.1 Transportation, needs identification

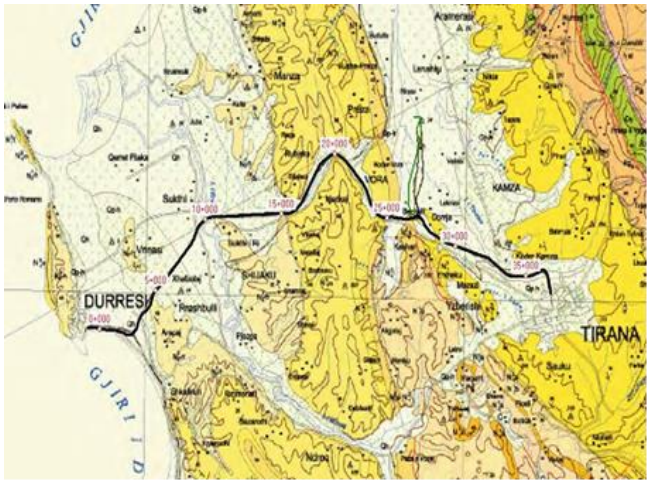
The Study on developing and implementing a technological solution for intermodal transport will be carried out as part of the pilot for the project on the local level based on National and EU strategies on transport sector.
The area is characterized by the dominance of road transport on land bound routes and many smaller and bigger ports at the coast line. The connections to the hinterland are poor with many bottlenecks on multimodal connections, while coordination is also inadequate. This is evident by the maritime traffic congestion at ports and the border waiting times, as the number of visitors and the volume of container transport are increasing in the area.
Previous studies showed that most residents and visitors of Albania choose cars as their principal means of transport, primarily due to the lack of alternative modes of transport, poor infrastructure of the current transportation system and lack of inform-ability. This has become an increasing problem for Albanian society due to the growing number of visitors and locals that move within the country.
Previous data gathered for travel over 15 km (which characterizes the movement of passengers' mobility) shows that 45.4% of travellers use automobiles, 26.2% choose minivans, 27% choose busses and only 1.4% of passengers use trains. Given this big gap between the use of automobiles and other modes of transport the pilot action for this project will focus on promoting the use of trains in combination with the other modes of transport available by improving info –mobility.

2.4.2 Technical documentation will serve as a base for Feasibility study.

I. Feasibility Study Albanian Railway Network: Infrastructure and Signalling Improvement Project
II. Financial/Economic Appraisal of the whole Albanian Railway Network
III. By traffic demand analysis, all stakeholders will be identified and current data from rail and maritime operators in this area will be analysed. With data acquired from this research, current traffic flow will be simulated and created possibilities for future traffic.
IV. Focus of study is on examining transport service and how to improve it, how to achieve quality and improve passenger mobility.
V. Survey of certain number of service users will be conducted.

2.4.3 Area – case study

The area considered would be the area from Durres to Tirana including the area of international airport Rinas. The study will be more focused on the area around Durres ferry terminal and Central train station of Durres. Actually Ferry terminal gate of Durres Port is very close (and achievably by walk) to the Central train station of Durres.



Picture 14 Map of area of Durres -Tirana-link to internal airport

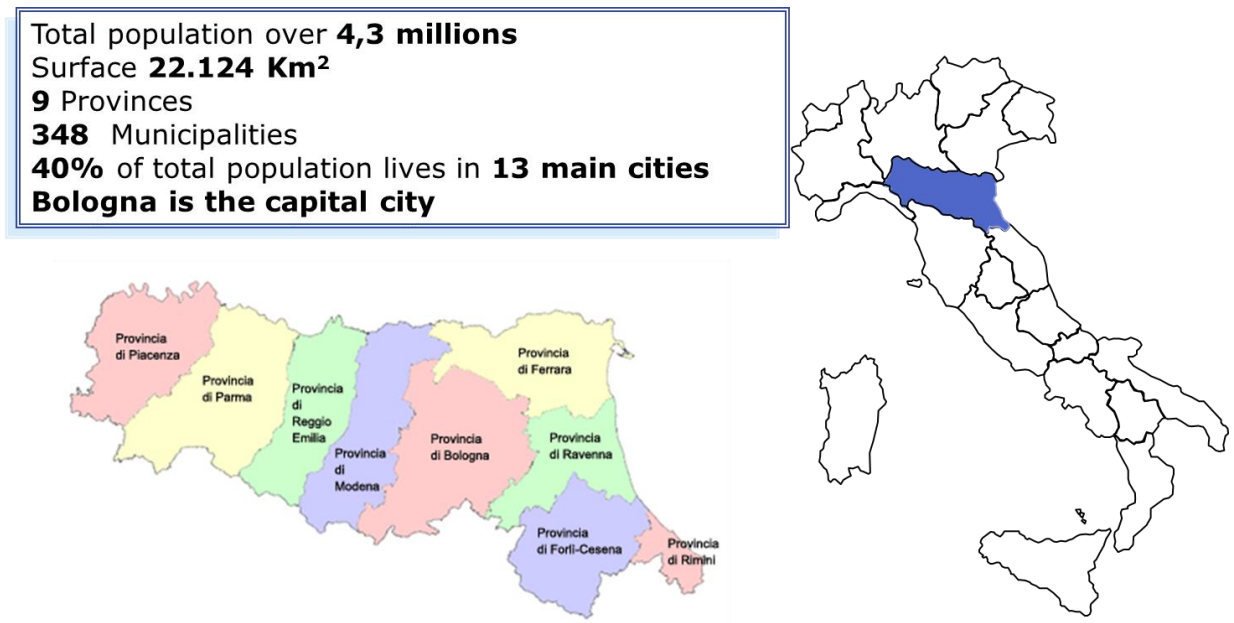
2.4.4 Involved public and private bodies and their role.

The pilot itself would be a Study on developing and implementing a technological solution for intermodal transport - Real time information of traveller's through digital timetables harmonization for traveller's using the ferry and rail transport and when needed air transport. It is considered that these institutions have insight in the issues that will be explored, as well as interest and knowledge needed for successful pilot implementation.

2.5 Emilia-Romagna Case study in Italy – "fast rail connection between Bologna and Ravenna" and "bus-train integrated and discounted ticketing for tourists in the Romagna area"

2.5.1 Description of the context and examination plan

Emilia Romagna Region with the support of ITL (Institute for Transport and Logistics) aims at improving passenger railway transport in the Bologna and Romagna Area so to enhance accessibility of coastal areas (Romagna – provinces of Ravenna, Forlì-Cesena and Rimini) with inland hubs (Bologna). Emilia-Romagna is one of the biggest and wealthiest region in Italy as seen in **Error! Reference source not found.**.



Picture 15 Emilia-Romagna overview (2016)

Emilia Romagna mobility and transport department has the following competences:

1. Planning of the infrastructural network and of the road, railway, port, water, air, inter-port, and bus communication systems
2. Planning of regional and local mobility systems
3. Awarding, financing and monitoring regional/urban passenger rail and bus public transport services
4. Freight and people mobility services
5. Improvement of the urban mobility

Within Inter-Connect, Emilia-Romagna region will use its knowledge given its role in monitoring regional/urban passenger rail and bus public transport services. By exploiting its deep relation with local transport stakeholders and its annual reports about regional transport efficiency, a gap analysis can be performed and some action can be evaluated and implemented so to improve the integrated passenger transport network in the region.
Some data about regional transport are given in 4.

Table 4 Bus and Railway network data in Emilia-Romagna (2016).

Main indicators	Buses	Railway
Railway Network Extension (in Km)		350 Regional 1050 State RFI 250 High Speed
Km travelled (annual)	111.164.744 bus*km	17.649.630 Train * km
Passengers (annual)	280 million	41 million
Trainsets, Buses and Trolley fleets	3.155 bus – 121 trollies	150 trainsets
Revenues (annual)	€ 142 million	€ 107 million
Regional funds for public transport services (annual)	€ 243 million	€ 135 million
Operating stations/bus stops	30.871 bus stops	260 stations
Regional funds for Regional railway maintenance (annual)		€ 15 million

Given the focus of Inter-Connect, Emilia-Romagna region case study consider the following aspects:

- Inter-Connect aim is to improve passenger railway transport, mainly with soft actions, and with a focus on coast to inland connections.
- Therefore, Emilia-Romagna focuses its case study on the coastal part ("Riviera Romagnola") and its connection with the main inland hub (Bologna).
- We must acknowledge that passenger transport is highly seasonal in Emilia-Romagna, especially in the coastal part.
- Emilia-Romagna, with the support of ITL and local stakeholders is willing to investigate both "summer" flows (tourists) and "winter" flows (commuters) and to try to achieve better railway transport for both users' types

Given above reasons, Emilia-Romagna case study is two-fold, as seen in 5.

Table 5 Emilia-Romagna case study overview

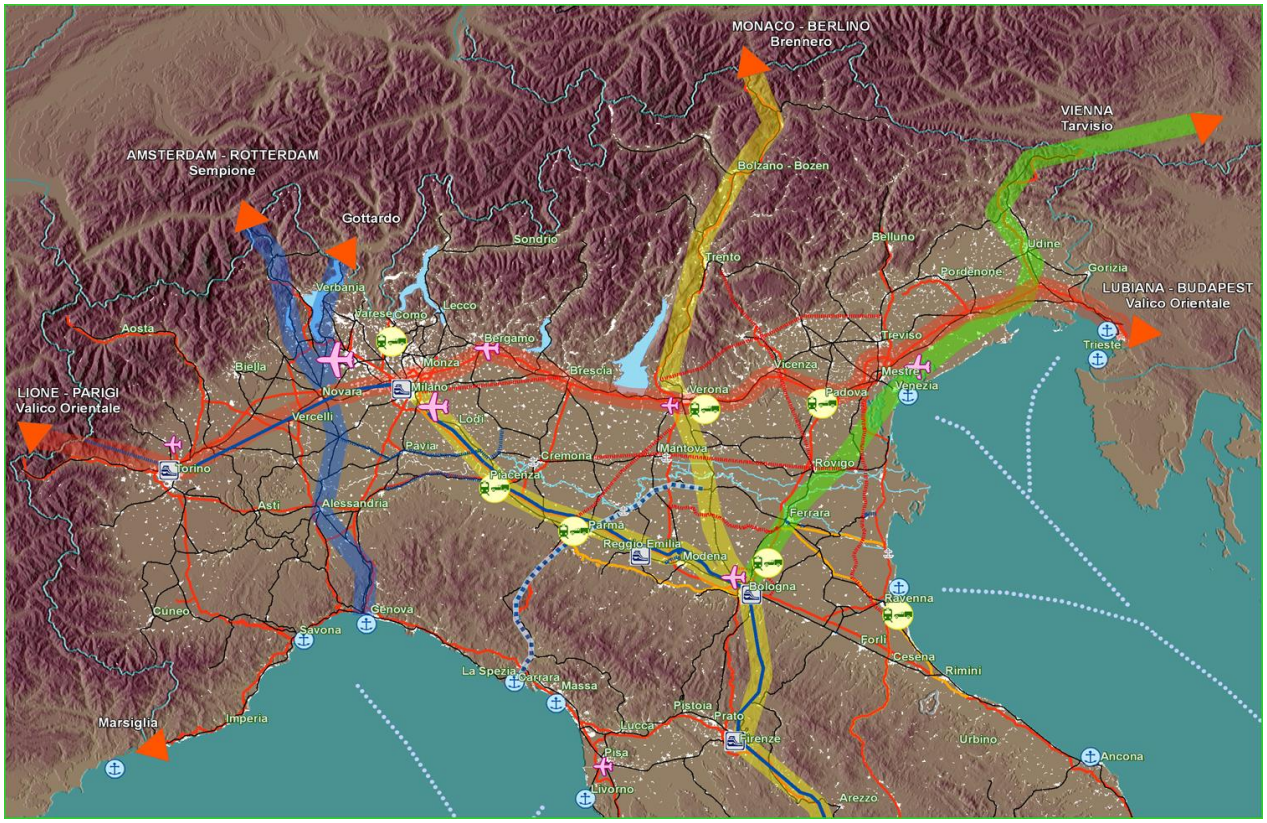
ID	CASE STUDY A	CASE STUDY B
Title	Fast rail connection between Bologna and Ravenna.	Bus-train integrated and discounted ticketing for tourists in the Romagna area.
Description	With the following case study Emilia-Romagna want to achieve: • make the Ravenna commuter's life better; • create a reliable rail connection between Ravenna coast and the Bologna Airport; • do not worsen any other customer's life.	With the following case study Emilia-Romagna want to achieve: • attract more car-less tourist; • give tourists affordable and reliable transport solution without own car use.

2.5.2 Description of current status in the area as regards passenger's multimodal transportation, needs identification

Emilia-Romagna monitors and plans the evolution of the regional transport network. In particular, the region's main transport planning tool is called "PRIT – Piano Regionale Integrato dei Trasporti", and its purpose is:

- To guarantee passenger and freight accessibility in the region
- To reduce transport-related energy consumption
- To reduce transport-related emission (pollutants and greenhouse gases)

With regards to passenger transport, PRIT aims to promote an integrated system which is build upon a core regional transit network (trains, trams, buses). Emilia Romagna transportation network and its connection with other Italian regions and foreign countries is illustrated in Picture .



Picture 16 Multimodal transport network - focus on Emilia-Romagna.

As for transport demand, Emilia-Romagna monitors the state of mobility using a selected set of indicators. In Chart 1, mode share is shown for all trips and intra-municipalities trips. It can be seen that intra-municipality trips (i.e. urban trips) are more sustainable with a 40% of people using public transport, bike or walking. If we look at all trips in the region, there is a10% decrease in such figure. However, public transport component increased (7,2% urban to 8,3% all trips), indicating that train transport (inter-city) is well-used.

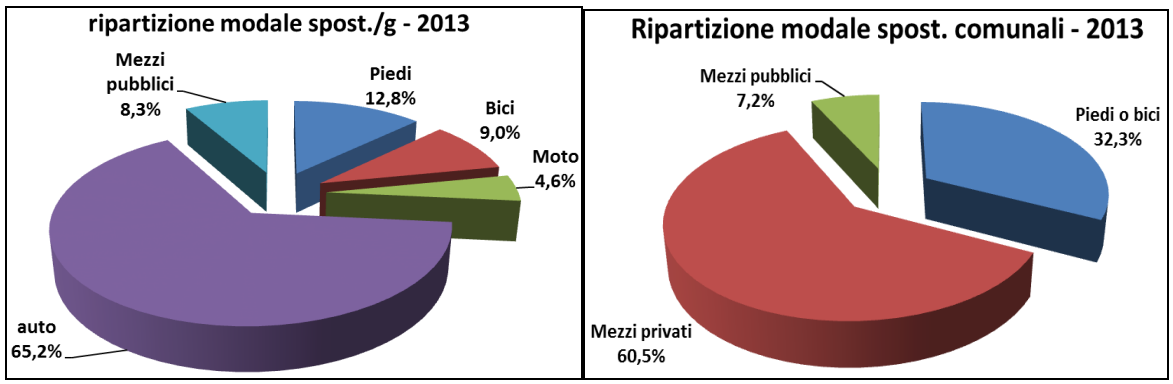
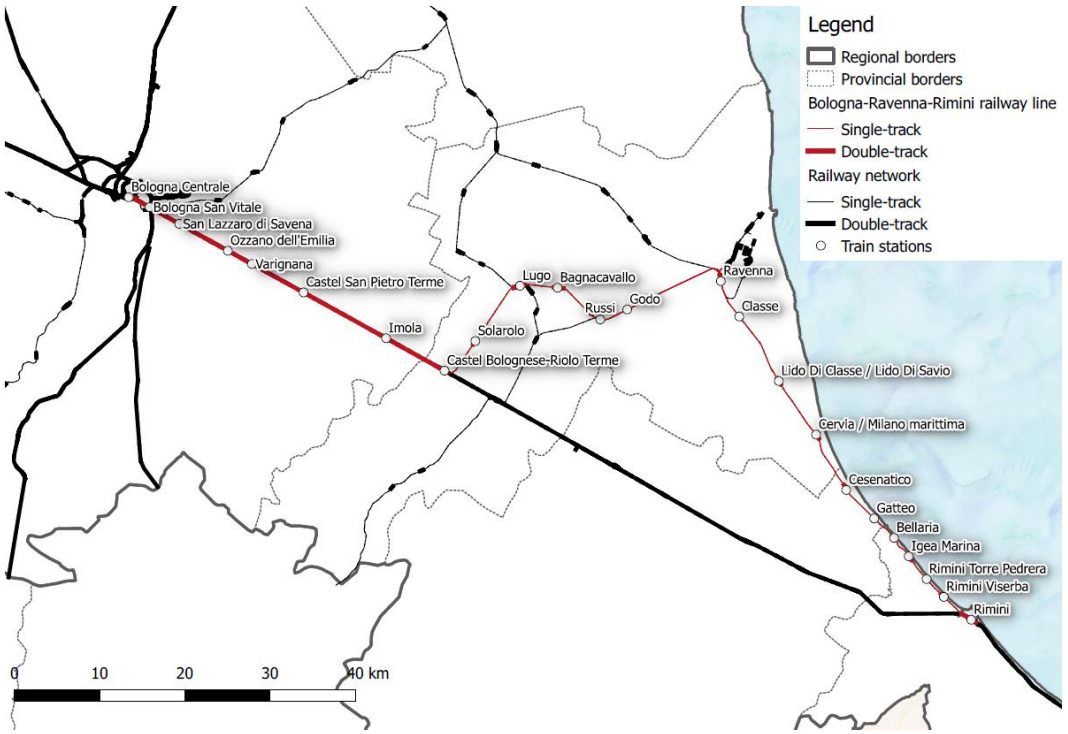


Chart 1 Emilia-Romagna mode share in 2013. On the left all trips, on the right only trips intra-municipalities.

According to Emilia-Romagna PRIT, transit shall be the backbone of regional trips, particularly train, where available. As seen, figures show that for longer trips there is a higher share of public transport which is mostly supplied by railway passenger transport. Emilia-Romagna is investing and fostering passenger rail transport, for example 96 new trainsets will be deployed between June and December 2019. Other relevant figures are shown in **Error! Reference source not found.**.

Passenger railway transport can be improved with a set of different actions in various regional areas. Inter-Connect will focus on a sub-set of Emilia-Romagna regional network (a map can be found at http://mobilita.regione.emilia-romagna.it/ferrovie/doc/contesto-di-riferimento/la-cartina-del-servizio-ferroviario-regionale/servizio_ferroviario_regionale.pdf). **Error! Reference source not found.** illustrates a sub-set of such network (highlighted in red), that is the Bologna-Rimini-Ravenna railway line. According to Table , case study A will investigate the Bologna-Ravenna (via Castel Bolognese) railways services, whereas case study B will focus on the Ravenna-Rimini Railway line (possibly extended to all railway network within the provinces of Ravenna, Forlì-Cesena and Rimini).



Picture 17 Bologna-Ravenna-Rimini railway line. (pdf version of the entire regional network at http://mobilita.regione.emilia-romagna.it/ferrovie/doc/contesto-di-riferimento/la-cartina-del-servizio-ferroviario-regionale/servizio_ferroviario_regionale.pdf)

2.5.3 CASE STUDY A

Case study A focus raises from a comparative rail improvement delay analysis among the main inter-city connection in Emilia Romagna, shown in Table . Connection from Bologna to Ravenna, in the past 10 years have not improved. Among the main destinations from Bologna, Ravenna is the closest in terms of travel distance, but the furthest in terms of travel time. Moreover, connection with other cities reduced travel time whereas Ravenna only partially did (4 services per days are faster then in 2008 and 16 are longer than 2008).

Table 6 2008 and 2018 comparison of train travel time and services between Bologna and other major destination

Rail connection from Bologna to…	Distance on the railway network (km)	2008	2018	
		Shortest Programmed travel time (minutes)	Daily services	Shortest Programmed travel time (minutes)
Milano	210	105’	More than 80 2 operators	65’
Firenze	100	60’	More than 100 2	35’

			operators	
Venezia	160	100’	30 2 operators	90’
Verona	110	90’	20 3 operators	55’
Rimini	110	55’	14	55’
Ravenna	84	78’	16 4	81’ 60’

The case study will look at how to improve travel time without major infrastructure investment (double track between Castel Bolognese and Ravenna). In particular it will focus origin-destination demand analysis and service stop re-design so to have an overall faster service, improving overall users’ satisfaction and service appeal.

2.5.4 CASE STUDY B

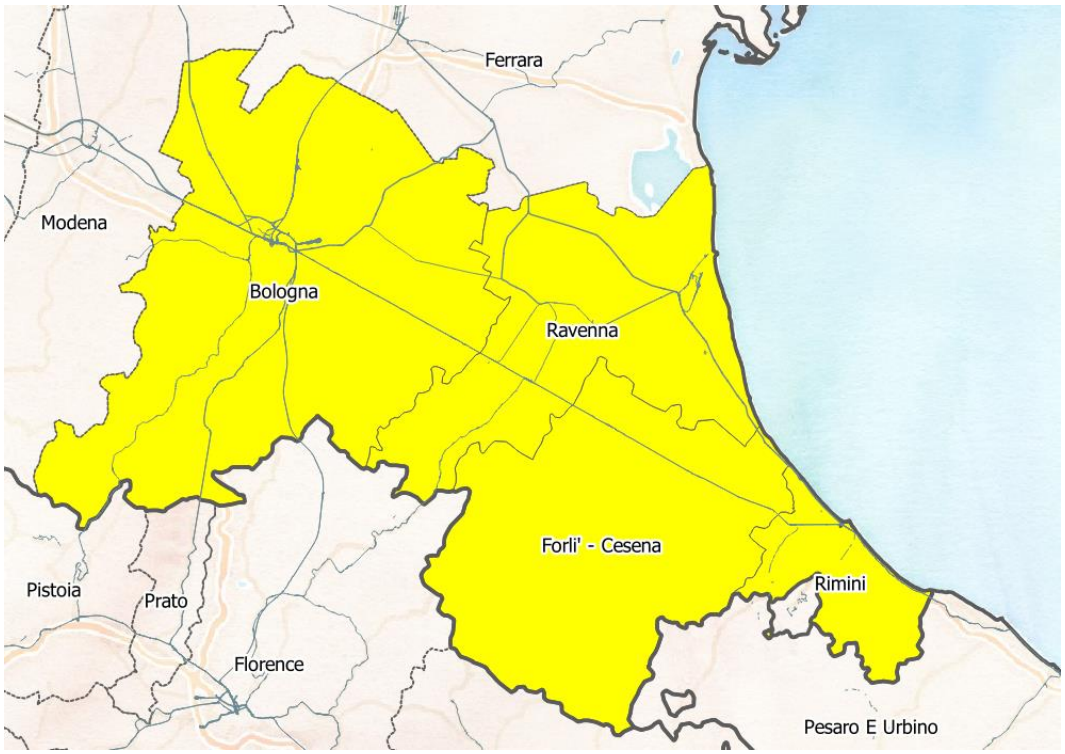
This case study focuses on the Ravenna-Rimini Railway line. Given the touristic vocation such area, in recent years local authorities (i.e. Rimini municipality) communicated the need to promote public transit for tourists as a measure to reduce negative externalities (e.g. congestion, environmental impact, road safety, etc.). Inter-Connect associated partner Start Romagna S.p.a. is the local transit agency in the Romagna region (eastern Emilia-Romagna) comprising provinces of Ravenna, Rimini, and Forlì-Cesena. Also, Trenitalia S.p.a., the passenger railway operator in the area, gave support to the project and is willing to participate in the cooperation platform.

Case study idea is to extend an existing tourist transit pass, called “Romagna Smart Pass” (https://www.startromagna.it/titoli-e-tariffe/romagnasmartpass/), to railway services system on the Ravenna-Rimini railway services or on all the railway services within the provinces of Ravenna, Rimini and Forlì-Cesena. Emilia-Romagna region and local stakeholders believe this could be a potentially successful measure as currently “Romagna Smart Pass” allows to travel in the bus network of Romagna region. Because of bus network’s shape, a “Romagna Smart Pass” holder can effectively travel within or in the surroundings of each main city in Romagna (Faenza, Forlì, Cesena, Ravenna, Rimini), but cannot (or hardly can) travel among such cities, because no (or very rare) such bus services exist, as train connections are in place. Therefore, users travel experience, is inhibited and limited in reachable destinations.

Before implementing the case study, a demand analysis is necessary. In summer 2018, according to Inter-Connect’s activities, surveys will be administered to tourists in the area so to assess their willingness to pay for the bus and train integrated ticket.

2.5.5 Detailed implementation plans of Emilia-Romagna developed by this activity - Area – case study

Emilia-Romagna sub-case A and B are both located within eastern Emilia-Romagna, particularly the provinces of Bologna, Ravenna, Forlì-Cesena e Rimini. Case study area is shown in **Error! Reference source not found.**.



Picture 18 Emilia-Romagna case study area.

2.5.6 Case study A – roadmap

Case study A (fast rail connection between Bologna and Ravenna) is planned to be developed according to the following steps:

1. First meeting with stakeholders
    a. Involvement of stakeholders
    b. Discussion of the proposed “fast rail connection between Bologna and Ravenna”
    c. Gathering of available data from stakeholders, particularly Trenitalia and RFI about origin-to-destination data and passenger flows/loads on the Bologna-Ravenna
2. First analysis and design of survey analysis
    a. According to available data, design of a survey to update available data or to focus on a specific issue. Survey may comprise passenger counts, qualitative service preferences, etc.
3. Survey administration
    a. Within the summer, late summer at most, the survey will be administered
4. Survey results and finalization of status quo
    a. Survey data gathered, analysed, merged with existing data and presented
5. Re-design of a novel fast rail service between Bologna and Ravenna
    a. According to results development of the solution
    b. Timetable revision to meet “long-haul” passenger needs (fewer stops – faster service) and redesign of suburban train service (train stopping at every station)
6. Sharing of the re-design with local bus transit agency (Tper) so to make an attempt to adjust bus feeder timetables.
7. After implementation monitoring

a. Once the solution is in place (revised and integrated timetables) some further analysis should be performed to assess users' satisfaction and passenger load changes.

2.5.7 Case study B – roadmap

Case study B (bus-train integrated and discounted ticketing for tourists in the Romagna area) is planned to be developed according to the following steps:

1. First meeting with stakeholders
    a. Involvement of stakeholders
    b. Discussion of the proposed "bus-train integrated and discounted ticketing for tourists in the Romagna area"
    c. Gathering of available data from stakeholders, particularly Start Romagna about tourists' usage of the "Romagna Smart Pass" (https://www.startromagna.it/titoli-e-tariffe/romagnasmartpass/)
2. First analysis and design of survey analysis
    a. According to available data, design of a survey to update available data or to focus on a specific issue. Survey will be designed so to assess the Willingness to Pay (WTP) for the integrated service bus-train (i.e. "Romagna Smart Pass" extension to Romagna services). A stated preferences (SP) survey will be developed in the form of a discrete choice experiment (proposal to users of different prices and tickets option for integrated bus-train service)
3. Survey administration
    a. Within the summer, the survey will be administered
4. Survey results and finalization of status quo
    a. Survey data gathered, analysed, merged with existing data and presented
5. Proposed integrated bus-train fare scheme for tourists
    a. Sharing of survey results with START (bus transit operator) and Trenitalia (passenger train operator)
    b. Discussion about feasibility – interest in implementation according to results
6. Discussion with Emilia-Romagna region, Trenitalia and Start Romagna about ticket technology
    a. Tourist pass with magnetic stipe (status quo)
    b. Tourist pass to be loaded on "UNICA EMILIA ROMAGNA CARD" (integrated bus transit card to be release in summer 2018, developed by Trenitalia) based on Calypso technology, also compatible with current "Mi muovo" Emilia-Romagna integrated system
    c. Choice of the ticket technology
7. After implementation monitoring
    a. Once the solution is in place (target is summer 2019) monitoring of tourist pass usage will be in place.

2.5.8 4. Involved public and private bodies and their role.

Table illustrates all the relevant stakeholders that have a role in either sub-case study A or B. In particular, most of them were involved at project proposal stage and gave support/participation to the Cooperation Platform (Comune di Rimini, Comune di Ravenna, Tper, Trenitalia) and Start Romagna, which is associated partner. More about the institutions in "Cooperation platform" document. Other relevant stakeholders comprise RFI (Rete Ferroviaria Italiana) and Città Metropolitana di Bologna (local autority in Bologna). Finally, private associations such as the railway commuters association RomBo – Romagna/Bologna (especially for sub-case A) will be involved and some tourists operator in the Romagna area (especially for sub-case B). They will be officially involved within "Round Table" Inter-Connect's project activity (DT3.2.1).

Table7. Case study stakeholders list

Stakeholders from which you can take LoS / name of organization		**Website**	**Profile / why we need them – in which way can they support the case we examine**
Start Romagna S.p.A.	Public transport company (provinces of Ravenna, Forlì and Cesena)	startromagna.it	Start Romagna is the bus transport operator for the Romagna coast area; responsible for urban and sub-urban bus services after a service contract with local competent authority and for fares integration with other public transport operators. The case study focuses on expanding local tourist transit pass to railway. Start Romagna is essential in providing existing data and in willingness to improve the service
Trenitalia RER	Italian Railway operator (RER Department)	trenitalia.it	Trenitalia ER is the responsible unit for regional rail passenger transport after a service contract with Emilia-Romagna. Responsible for rail services and for fares integration with other public transport operators. Since the case study will try to extend coverage of a bus transit pass to railway within the area, there is the need to have them on board so to support investigation and implementation
Comune di Rimini	Local authority	comune.rimini.it	Rimini is a local authority within the case study area. They expressed in the past support for the case study as they want to enhance liveability of their city by reducing private motor vehicle traffic by having a better integrated transit system. They support this study particularly with regards with touristic flows, being a go-to summer destination. Also, they can be involved in the case study regarding faster rail connection on the Bologna-Ravenna railway so to allow better integration of buses and trains (bus as feeder of railway, hence tweak timetables to allow comfortable transfer times)
Comune di Ravenna	Local authority	comune.ra.it	Ravenna is a local authority within the case study area. They expressed in the past support for the case study as they want to enhance liveability of their city by reducing private motor vehicle traffic by having a better integrated transit system. They support this study particularly with regards with touristic flows, being a go-to summer destination
Comitato pendolari RomBO	local commuters' association	n.d.	The local commuters' association (RomBo - Romagna and Bologna) is an association of people who regularly commutes on the railway lines in the Emilia-Romagna region. They represent commuters needs in the Romagna coast area. With regard to enhancing fast connection on the Bologna-Ravenna railway line, they will be considered a relevant stakeholder as they experience on a daily basis drawbacks of train commuting.
Operatori turistici della Romagna	Local tourist operator association	n.d.	Local tourists' operators are important stakeholders to consider as they know needs and preferences of tourists and may play a big role in promoting the integrated transit fare scheme
Tper	Bologa and Ferrara province transit agency	Tper.it	Tper is the local transit agency in the provinces of Bologna and Ferrara. They are involved in the case study regarding faster rail connection on the Bologna-Ravenna railway so to allow better integration of buses and trains (bus as feeder of railway, hence tweak timetables to allow comfortable transfer times).
RFI	Railway infrastructure owner	rfi.it	RFI is responsible for rail infrastructure allocation, rail circulation infrastructure management. They work closely with Trenitalia (train operator). Changes to train services are made with RFI and Trenitalia agreeing.
Città metropolitana di Bologna	Local authority	www.cittametropolitana.bo.it	Città metropolitana di Bologna is the local authority in the Bologna FUA. They will be involved as they are drafting the local SUMP

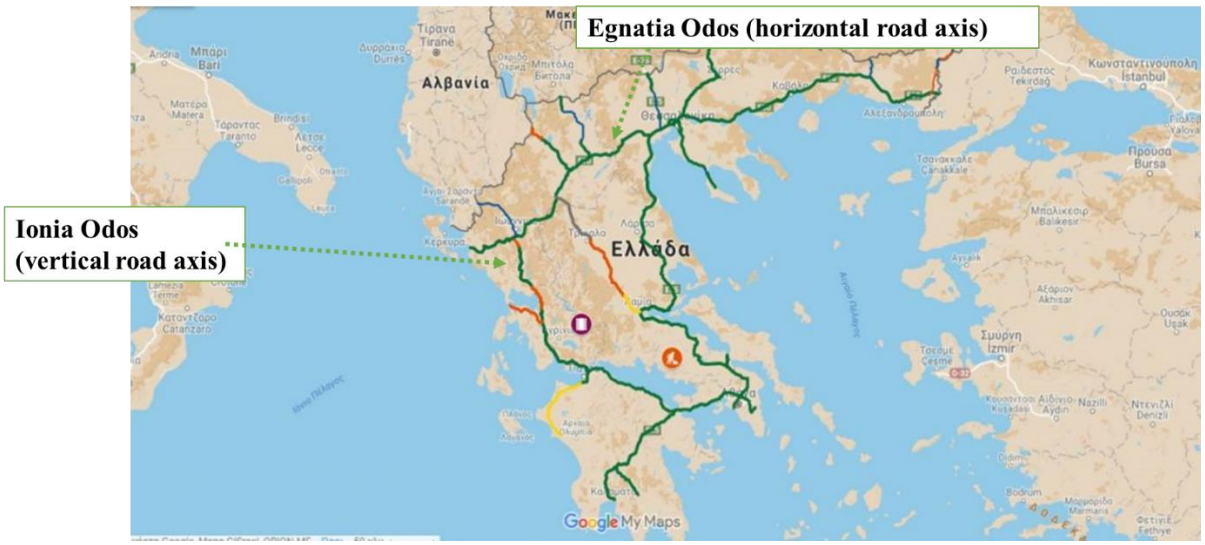
2.6 Supporting Igoumenitsa Port – City integration and Igoumenitsa's connectivity with its catchment area

The Greek intervention area focuses on Igoumenitsa's Municipality in Epirus Region, which thanks to the Port of Igoumenitsa is one of the two main western gates of Greece to Adriatic – Ionian Sea (the second is Patra in Western Greece Region).

Picture 29 The (Greek part of) catchment area of Igoumenitsa in Inter-Connect project

The catchment area of the city of Igoumenitsa to be considered so in Inter-Connect project (based on port's role) is depicted in Picture 2. It mainly refers to Epirus Region and could include also Northern Greece as a whole.

Igoumenitsa, one of the most important urban areas in the Region of Epirus, is a coastal city of approximately 26.000 inhabitants located in the north-western Greece. Its economy is dominated by the tertiary sector, which mainly relates to transport and touristic activities mainly generated from the port of Igoumenitsa and its connection with Egnatia Odos, the main horizontal road axis of Greece. Although being considered as a relatively isolated city inside Greece, the last years, Igoumenitsa acts as main gateway of Greece serving flows from/to ADRION Region thanks to the operational upgrade of its port (Igoumenitsa's Port) and to its connection to Egnatia Odos and to Ionia Odos (the latter, a very recent inaugurated road axis).



Picture 20 The main road connections of Igoumenitsa

The new Port of Igoumenitsa, inaugurated at 2003, is located in the southern side, outside the urban area. The port focuses on passenger traffic in ADRION, offering routes to Brindisi, Bari, Ancona, Trieste, Venice, and Ravenna (occasionally) as well as to the Greek destinations of Patras, Corfu and Paxos.

With the ongoing and planned investments of the port of Igoumenitsa and with the parallel sustainable development actions of the Municipality of Igoumenitsa, the city appears to be an emerging centre playing a crucial role both at regional and transnational level, in parallel and in complementary with Ioannina and the rest cities of the region.

Picture 21 Maritime services from Igoumenitsa to Eastern Italian Ports

Critical issues for Igoumenitsa, and therefore for the project, are:

- to act as a touristic attraction area and not only serve as transit point for international tourists (coming from the Italian ports) – attractive sites-points of interest-natural areas promotion and PuT service connecting them (accompanied with integrated touristic packages provision e.g. integrated ticket)

- to attract internal touristic flows – synergies with Municipality of Ioannina (Igoumenitsa's associated partner), as a major touristic attraction pole in Epirus, and the undertaking of joint actions for mutually supporting touristic growth in the area, better connection with the hub of Thessaloniki as the main Northern Greek railway gate of international and national rail connections

Based on the above, Igoumenitsa's case in Inter-Connect project will deal with:

- the analysis of flows inside the catchment area
- the understanding of opportunities for city's growth (both concerning city's daily performance and also for attracting tourists from and outside Greece)
- the identification of latent demand and
- the examination of cooperation schemes among intercity bus services provider – the city of Igoumenitsa – the port of Igoumenitsa – relative (to mobility and tourism) associations and companies of the city and it's catchment area

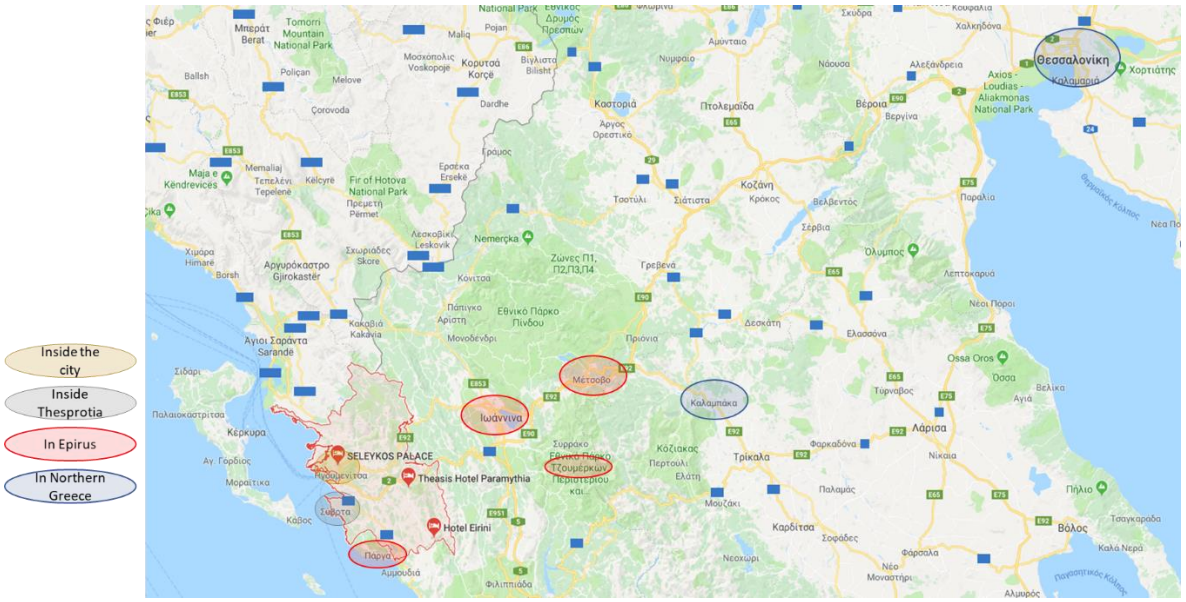
2.6.1 Description of current status in the area as regards passengers' multimodal transportation, needs identification

Currently, the city of Igoumenitsa mainly acts as a transit point of tourists arriving from the Italian Ports. The very few tourists staying in the city are not sufficiently served by Public Transport; reaching the port the options given to the tourists is either to reach the city centre by foot (almost 4km) or to use a taxi. Furthermore, public transportation inside the city presents poor characteristics and therefore the need to support bus line(s) operation is more than imperative. Active transportation is also a case for promotion. The city has entered a good path the last months during which the Sustainable Urban Mobility Plan is being developed, however, the measures have to be implemented, monitored and further enhanced during the operational phase so as to guarantee sustainable results.
At regional – national level, Igoumenitsa is currently not served by railway although plans for the development of the Egnatia railway axis exist for years now. Therefore, the only PuT mode that can serve - although with relative low performance – passengers' needs are interurban buses.
Besides the above, the low level of new technological advantages exploitation and the absence of integrated services provision (ticket, information, timetables harmonization) further impends area's growth and development.

2.6.2 Technical documentation in Inter-Connect project for the case of Igoumenitsa

Serving Igoumenitsa's vision of becoming a modern, operational, citizens' friendly hub in Greece, able to fruitfully cooperate with the rest ADRION cities so as to promote area's development and socioeconomic cohesion, as explicitly stated in its Operational Programme 2014-2020, the Municipality of Igoumenitsa joined Inter-Connect aiming to tackle relative identified challenges from the mobility perspective and under a transnational spectrum.

The Greek case will examine the connectivity of Igoumenitsa's catchment area with the city itself. The regional connectivity examination will consider the connectivity of Igoumenitsa with Thessaloniki (the second largest city in Greece), with touristic destinations inside Thesprotia (Regional Unit) e.g. Sivota (a growing tourist destination) and with neighbouring areas, namely Ioannina, Meteora, Metsovo, Giannena, and Parga.



Picture 22 Interesting Igoumenitsa's connections for Inter-Connect Project

The examination of the connectivity will continue at urban level referring to the connection of Igoumenitsa's city to the port of Igoumenitsa, a very crucial part, since the passengers disembarked in the Port are currently poorly served. The case will examine the sustainability of a potential municipal bus service connecting efficiently the port with the city and main Points of Interest in the city and in its close vicinity.
Through Inter-Connect project, Igoumenitsa's Municipality aims to bring in cooperation all the relevant stakeholders at regional and national level so as to develop a strong multimodal network able to serve citizens' daily needs and tourists' requirements. Consultation with the involved parties in the cooperation platform and citizens' engagement and involvement in Inter-Connect's local proposals will be respected and encouraged during project's lifecycle.
Finally, the Greek case will examine also the opportunities and challenges in the transnational connectivity of Igoumenitsa with ADRION coastal areas (not only Italian as in the current situation) but also with Croatian, Slovenian and Albanian destinations through maritime services.

The steps of the examination will be:

- Analysing catchment area's flows – supply and demand analysis (regional and transnational)
- Identifying opportunities – attraction poles and latent demand / surveys
- Seeking for cross- sectorial synergies – e.g. with other Municipalities, with touristic organizations, hotels, relevant associations, transport providers
- Proposing PPPs, renewal of business models, signing of agreements

2.6.3 Involved public and private bodies and their role.

Table 8 Involved public and private bodies and their role

	Type of actor	Link with …	Why we need them
Region of Epirus	The Region where Igoumenitsa belongs	Igoumenitsa	Any proposals should be in line with the Regional Operational Programme
Regional Unit of Thesprotia	Consisting of Municipalities of	Igoumenitsa	Common and seamless development actions for trhe whole Regional

	Igoumenitsa, Soulio, Filiata		Unit
ANEK LINES / Minoan / Superfast	Ferry companies	Transnational level – exit/entrance to/from ADRION	The ferry companies following demand trends (or respecting other drivers too – e.g. tourism development plans) offers maritime services
Greek Tourism Organisation	National Tourism organization	National level	They have the knowledge for driving forces as regards passenger flow
Ministry of Infrastructure, Transport and Networks	The national competent authority	National level	It is the competent authority for transport interventions
TRAINOSE, railway operator	PuT operator (regional, national)	National level	Offers services from Thessaloniki to national and transnational destinations (SEE – Sofia, Skopje - Belgrade)
KTEL Thesprotias	PuT provider (urban & interurban)	Thessaloniki / Igoumenitsa	Provides public transportation at urban areas in Thesprotia and connections with other Greek cities
Municipalities of high touristic interest in the neighbourhood of Egnatia Odos	Municipalities	Touristic destinations	To examine connectivity with Igoumenitsa's city
Taxi companies	Transport Providers	Urban and regional level	Serving citizens and tourists
Ioannina and Corfu Airports	Airports in close vicinity	National level	Serving national and transnational flows
Egnatia Odos S.A.	Concessionaire	Regional and national level	The main horizontal road axis connecting Igoumenitsa with Northern Greece and PATHE (Patra – Athens - Thessaloniki-Evzonoi road axis)
Nea Odos S.A.	Concessionaire	National level	The main vertical road axis connecting Igoumenitsa (indirectly via Ioannina) to Patras

2.7 Improving multimodal public transport connections in the Friuli Venezia Giulia region

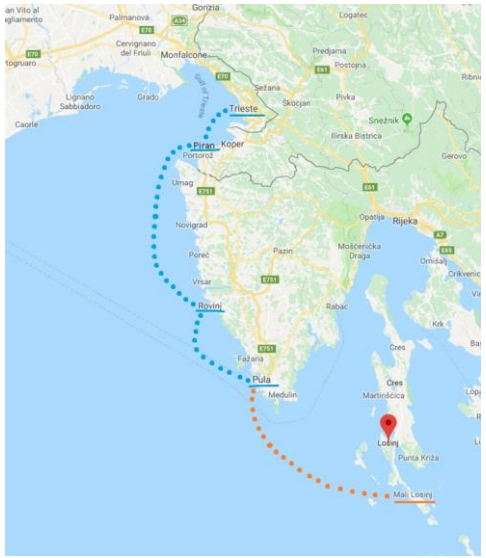
CEI case study will be developed in cooperation with Friuli Venezia Giulia Autonomous Region and Trieste Trasporti as Public Transport bus operator for the province of Trieste. The case study will focus on improving multimodal public transport connections in the region, with particular focus on rail/Trieste public transport/maritime services. In fact, the FVG region was Lead Partner of the EA SEA-WAY project, co-funded by the CBC IPA-Adriatic Programme, through which it implemented new maritime services between Trieste, Piran (Slovenia), Rovinj (Croatia) and Pula (Croatia).

The route between Trieste and Istria is of particular importance, as besides having a tourist value, it strengthens cross-border relations between Italy, Slovenia and Croatia. The maritime connection was considered as an important opportunity for territorial promotion. Friuli Venezia Giulia Region, through the central Infrastructure and Territory department, is particularly focused on it, having guaranteed its support for the summers of 2017 and 2018.

Indeed, after the experimental phase implemented within the IPA Adriatic Project, thanks to the positive feedbacks received in terms of passenger's flows, the Region FVG has decided to finance this service with regional funds, thus guaranteeing a stable (seasonal) service line. The existing seasonal maritime service/route is described in Figure n. 23.

Picture 23 Maritime transnational seasonal lines financed by RFVG

Thanks to a recently approved Italy Croatia CBC Project (MOSES, RFVG as Lead Partner), this maritime line will be experimentally extended to Loisnj Island (see figure n. 2).



Picture 24 Experimental extension of the Maritime line (red) within MOSES Project

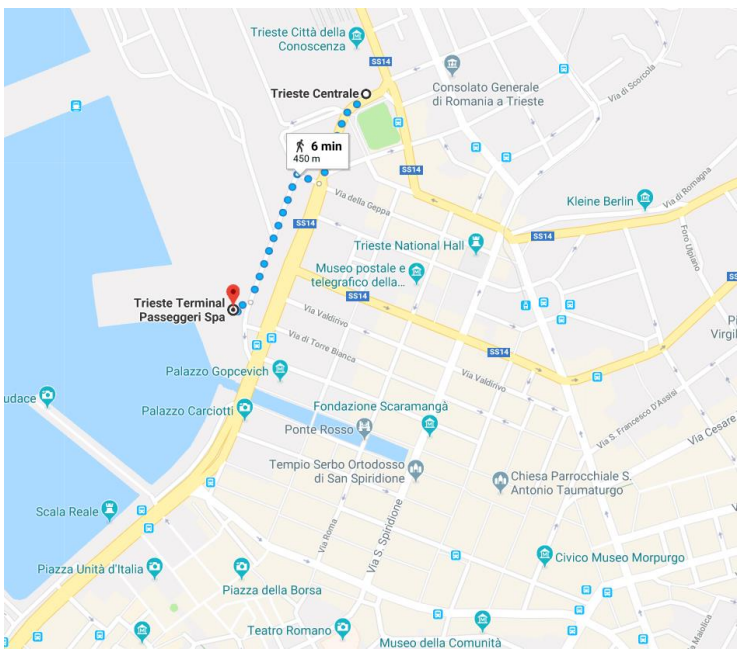
According to the expected increase in passenger's flows (18.000 pax/month from end of June to the beginning of September - detailed quantitative data to be collected soon), the focus of the **case study A** will be the improvement of the urban public transport connections with the maritime passenger's terminal, mainly regarding passengers coming to visit Trieste (thus allowing an improved accessibility to the main touristic places).
On the other hand, another priority of the Region FVG is to better understand the potential (and the existing demand) of a new maritime public transport connection from Trieste (Muggia) to Koper, also considering the existence of important flows of cross border workers and lack of efficient cross border public transport connections between these two cities.

Picture 25 Trieste catchement area

2.7.1 Description of current status in the area as regards passengers multimodal transportation, needs identification

Case Study A

Passengers' terminal is located in the centre of Trieste, close to the railway station (450 mt by feet) and already served by the bus service (a urban bus stop is available outside the passenger terminal)



Picture 26 Passenger terminal Trieste

"Trieste Terminal passeggeri" is located closed to the so called "Porto vecchio", the old and decommissioned port of Trieste. Part of this area is used as a car park (namely "molo IV park").

The Passenger terminal for maritime lines is located inside this car park area (figure 4).

Case Study B
Efficient public transport connections between Muggia and Koper are missing.

Picture 27 Passenger terminal Trieste_satelite image

2.7.2 Detailed implementation plans of each of the 8 involved areas developed by this activity.

CASE A:

- Passenger flows analysis, in cooperation with maritime lines operator and the FVG region
- Identification of maritime passengers' destinations in Trieste
- Enhancement of public transport according to this demand
- Surveys (qualitative data)

CASE B:

- surveys and (potential) demand analysis

- feasibility study for a new cross border maritime PT line to connect Muggia and Koper

2.7.3 Involved public and private bodies and their role.

According to the priorities summarized on chapter 3, relevant stakeholders for the implementation of the case study A will be:

- Region FVG (AP)
- Trieste Trasporti (LoS)
- Liberty Lines (stakeholder fundamental for providing quantitative data about existing maritime services)
- (Trenitalia) – to be confirmed if relevant

For the case study B the main stakeholder is the FVG region.

2.7.4 Analysis

Regarding case study A, FVG region (thanks to the maritime operator) owns only quantitative data about passenger's flows, while about case study B there are no available data.

2.8 The improvement of railway connections of Zagreb with focus on railway lines ending in ports Rijeka, Zadar, Split & Dubrovnik, Croatia

HŽ Passenger transport with his activities tries, as much as possible, to adapt passenger services to passenger needs. Service users expect fast, efficient, attractive and exact service.

Through this activity, plan for implementation pilot project in cooperation with other stakeholders will be formed, stakeholders will be included so that realization of nominated pilot would be successful and synergy achieved. Within this Action it will be described Feasibility study regarding all ADRION area, concentrating on the links in Croatian ports but involving transnational trains (Slovenia, Bosnia and Herzegovina) and transnational maritime lines Croatia-Greece. The intention is to explore the possibility of facilitating faster and cheaper travel for tourist by connecting ADRION countries by innovative services.

Further to previous explanation of current status, there is another possible option for passengers, which would save time and, hopefully, money, and still combine "green" transport modes – using railway to Croatian ports and then having a maritime transport service to Greece.

It is not to be expected for a Croatian liner shipping company to introduce new international service since now there are only three regular from Croatia to Italy (Zadar and Split to Ancona and Dubrovnik to Bar) but it is expected to explore the possibility for tourist arrangements using railway to Croatian ports and ships from there to Greece. This should shorten the travel by land, encourage using "greener" transport (such as railway opposite of bus) and shorten travel by sea as well. Consequently, travel time and expense should decrease and environmental impact as well.

The Croatian pilot would explore the possibility of this "railway + maritime route", including travelling potential from Croatia and other surrounding countries gravitating to Adriatic Sea. It would take into consideration passengers' travel preferences and requirements, as well as objective service aspects.

2.8.1 Transportation, needs identification

Most of tourist arrangements involving maritime transport to the southeast of Europe involve road transportation (buses) to Italian ports and then ships to Greece. This leads to the situation where individual passengers and / or group tourists from Croatia travel by bus for hours to the port of Venice, Trieste, Ancona or other to embark a cruiser/ship/ferry to Greece.

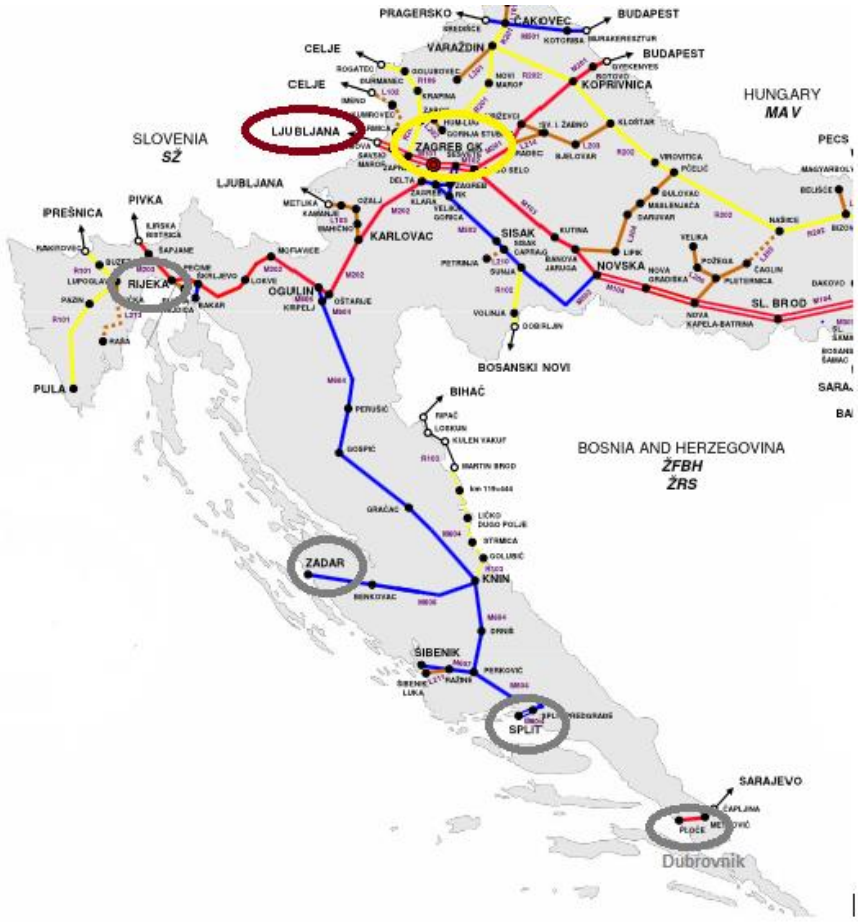
There are railway lines from Croatia and surrounding countries to Greece but due to long distance, travel time and expense (Zagreb or Ljubljana – Athens is app. 2-6 changes and 43 hours, Sarajevo – Athens is app. 3 changes and 65,5 hours) it can't be expected for travellers to use the railway. This particularly concerns tourist, who do not want to waste too much time on travel but on sightseeing.
Main purpose of this Action is to set up foundation for own, independent, reliable and automatic system for providing information regarding timetable, train punctuality and operative changes during journeys (delays, unexpected events and similar) in stations, on new trains and through other communication channels.

2.8.2 Technical documentation will serve as a base for Feasibility study.

By traffic demand analysis the need for Feasibility study will be examined, all stakeholders will be identified and current data from rail and maritime operators in this area will be analysed. With data acquired from this research, current traffic flow will be simulated and created possibilities for future traffic. Analysis will serve as a base for Feasibility study, which will provide current information on Croatian railways with all advantages and disadvantages.
Focus of study is on examining transport service and how to improve it, how to achieve quality and more frequent railway connections at transnational level. We will analyse existing and explore new possibilities for connecting Zagreb with seaports.
Survey of certain number of service users will be conducted. This Action should confirm that strategic priority of city transport policy is implementation of intermodal and integrated passenger transport system in urban transport.

2.8.3 Area – case study

The area considered would be primarily Croatia, with focus on railway lines ending in ports, and ports of Rijeka, Zadar, Split and Dubrovnik/Ploče themselves. Wider area would cover regional metropolitan areas with traveling potential (Ljubljana, Sarajevo etc.), again, connected with railway lines with afore-mentioned Croatian ports.



Picture 28 Strategic map of region Croatia

2.8.4 Involved public and private bodies and their role.

The pilot itself would be a Feasibility Study on Croatia-Greece railway-maritime tourist route and its drafting would involve key stakeholders such as Croatia Tourist Board with its subsidiaries in port towns of Rijeka, Zadar, Split and Dubrovnik, as well as local government and port authorities of these towns. It is considered that these institutions have insight in the issues that will be explored, as well as interest and knowledge needed for successful pilot implementation. More about the institutions in “Cooperation platform” document.

2.8.5 Analysis

Because there is no unique data about passenger flows, which includes all transport modes, but only partial data from certain operators regarding Zagreb hub, the need for gathering this kind of data remains. Collected data will have to be analysed so that guidelines for development and optimal traffic organization could be devised.

With high quality analysis of traffic flows, the whole Zagreb area (narrow and wider) could make profit – operators with optimal business results and possibility of attracting new users on public transport; users with cheaper, faster and more reliable transport; and local government with less congestion, increased mobility and better fund allocation.

By signing contracts or MoUs regarding participation within activities, risk from failure will be distributed among all stakeholders and involved parties. Basically, contracted external stakeholder will be paid to fulfil the tasks of particular activity (FS development) and by this bare the risks of negative impacts.

3. Risk management plan and monitoring steps.

Each case description holds partners risk management plan to create strategy and plan for future prevention steps. In order to be creative and in order to present the case in most valuable light, stakeholders need to be introduced to potential risks while process of implementation is not finished, as well as potential barriers which may occur during implementation phase.

Among risk potential we gather insufficient **stakeholder's engagement**, because engagement of stakeholders in projects was not always at the optimum level. One of the disadvantages is that for the involvement of the stakeholders in EU projects, possibility to choose from large group of stakeholders is not always possible. Moreover, contracted external stakeholder will be paid to complete the tasks of activity and by this bare the risks of negative impacts. The lack of stakeholder's interest can also be consequence of political will. If governments and national bodies does not see possibility in participation in EU project ideas, then all the engagement of project partners is not sufficient. Here is also needed to count on citizens' engagement. This can be done by promoting project ideas, with pre- work on promotion and visibility project itself as well as pilot actions by each partner.

The other risk is related to the quality of **collected data** about passenger transport. Collection of data is done particularly from the different institutions and companies as lack of unique database on national level cause these types of research. Regarding that there is no unique data about passenger flows, which includes all transport modes, but only partial data from certain sources and completed projects the need for gathering this kind of data remains.

Furthermore, quality of data collected through surveys within different modes of transport is critical issue due to dependency of project dynamics – period of survey, location, number of questionnaires and sample, concerning the size and complexity of transport system. To avoid risk from happening a detailed survey plan should follow the deep desktop analysis of existing data while for the second, a close cooperation with stakeholders that accepted to support project partners in the whole project lifecycle. Guarantee from a stakeholder and a good level of engagement that will be further supported via dedicated communication actions with technical round tables and events (towards wider audience) could grant positive results and minimize risk plan.

Considering pilot actions of each partner, some of them required **financial support**. Lack of financial resources to implement the proposed interventions must be added to risk management plan. With creation of plan, financial deliverables have to be taken into account in order to give clear picture of investments and refunds during the whole lifetime of project. Financial concerns can be solved by signing of contracts and/or MoUs of stakeholders regarding participation within activities, and disperse the risk among all stakeholders and involved parties.

Risk analysis has been performed and illustrated in Table . As the project go forward, the table will be updated.

Table 9 Risk analysis table

Risk	Description	Monitoring	Mitigation
Insufficient Data available	Available data do not allow to develop the analysis as planned	Make sure to gather all data well in advance of starting analysis that require such data	Re design analysis, at a level which is compatible with available data
Survey administration delays	Delays in survey administration which could lead to miss the opportunity of collecting inputs during the summer	Planning in time. Obtain timely manner	Administer analysis, later, e.g. in summer 2019 (peak flows in tourist's areas)

Stakeholders opposition	Stakeholders oppose survey. Not enough support with analysis. Lack of solutions for implementation.	Involve and keep posted all stakeholders. Make use of Inter-Connect Cooperation Platform.	Develop consensus among stakeholders, properly moderate meetings, organize effective meeting (i.e. only when needed and when there is something to discuss).
Implementation plan spin-off - changes	Analysis may lead to a result that suggest a different solution that what envisaged and anticipated for stakeholders. Changes and /or other analysis focuses may be needed, but should not deteriorate the value of analysis	Secure that, regardless of possible other solutions, the case study follows a reasonable flow and produce a valuable outcome. Focus on too many topics is opposite to desired results.	Analysis with different approach or methodology. Creation of consensus on methodology approach. Discuss all changes with relevant stakeholders. Spin-off analysis remains for further analysis.

4. Expected outcomes and key messages

Case study implementation is expected to improve rail service quality, contributing to its image as an affordable and reliable transport mode.
Within project duration, it is expected to implement a pilot actions (i.e. actual changes to rail services), therefore monitoring of changes in the form if before/after assessment will be envisaged. All stakeholders should be kept involved and updated so to contribute to consensus development and smoothness in implementation. From each case study, opportunity may arise, especially with regards to new solutions and other studies that could be foreseen for further improvements to rail transport integration.

Cooperation schemes for the promotion of intermodality are mainly at national and at a second level, transnationally (in line with EUSAIR objective towards intermodal port connectivity to the hinterland). Improvement of modal share in rail passenger's transport in the region, at the state level and cross-border level ADRION. These schemes are estimated to lay strong foundations in the development of reliable intermodal transport networks for passengers in ADRION area. The capacity building of the authorities about necessary soft interventions (not infrastructures oriented) for the seamless connection of ports to the city centre at regional and national catchment area will be the output of some cases to be studied.

Goals that needs support during project life time and beyond:

- Become an attractive city for both citizens and tourists
- Become tourist destination point
- Support PuT and alternative to private car ways of transport
- Enhance accessibility
- Reduce transport related emissions

Expected outcomes and key messages should cover examination, analysis and exploring process in three presented directions, at transnational, national and local level. Research in line with local masterplans and development strategies, national transport development strategies can be aligned in terms of regional connectivity plans as well as EUSAIR objectives towards intermodal connectivity, but having in mind EUSDR transport objectives too.
Recommendations, guidelines and conclusions of each Case examination should support the strategic goals of transport development and future development, even infrastructure projects at local level through involving different stakeholders and decision makers and their capacity building, aiming to provide support and contribute to intermodal passenger transport development in the cities of ADRION area.

Promotion of intermodal transport and use of railway transport is in line with a transport development strategy of all partners and it includes transportation and development over TEN-T network corridors. From European financial institutions is expected support in determination of regular transport lines and development of hubs having potential for intensifying inter-modal and combined transport

By creating a Strategy documents such as Feasibility study and also by implementation of all pilot actions the overall quality of the whole range of tourist services on offer in partners countries will be raised. FS as well as other documents related to pilot actions will support local and national projects and will align them with local strategies and connections of stakeholders. Public awareness as well as introduction of new findings to national governments will have a large-scale effect on all transport service as well as raise the need for PT.