



Deliverable T2.4.2  
«Cases key generalized  
messages»

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# 1. Introduction

Together with Inter-Connect project Deliverable T2.4.1 «Transferring Protocol», this report aims to guide authorities and stakeholders on the incorporation of the Inter-Connect case studies examination results into policies valid at both the Inter-Connect regions and countries level and wider European scale. To this purpose this report builds on the content of Inter-Connect project deliverables T2.3.1. «Cases examination and evaluation report» and T2.4.1 «Transferring Protocol».

Project Deliverable T2.3.1 includes a detailed description and assessment of eight case studies identified as part of the Inter-Connect project to promote intermodality and interconnectivity in the Adriatic Ionian region, which is the geographical area of reference of the ADRION program under which scope the Inter-connect project was funded. The names and order of presentation of the eight case studies in this report are derived from Deliverable T2.3.1 as follows: Igoumenitsa, Emilia-Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Port of Bar, Dürres-Tirana and Belgrade. In fact, the Emilia-Romagna Region and Friuli Venezia-Giulia Region case studies both include two sub-case studies. This report generally refers to the eight case studies. Information on the sub-case studies is provided depending on their availability from previous deliverable and relevance to the purposes of this report.

Building on the results of Deliverable T2.3.1, project Deliverable T2.4.1 describes the institutional, technical, political and economic problems and threats associated with the implementation and transferability of the solutions proposed in Inter-Connect project case studies. More specifically, Deliverable T2.4.1 summarises key findings from Inter-Connect project case studies, major needs faced in intermodal and rail enhancement, stakeholders' agreements and networks developed, financial schemes exploited, risks and threats met and solutions proposed. Aimed at supporting transferability of the case studies, Deliverable T2.4.1 analyses and presents transferability methodologies with reference to the proposed pilot solutions focussing on the following relevant topics: policy, planning and design, coordination and cooperation, legal issues, financing, technical issues and language. Specific attention in this deliverable was also given to capacity building of the authorities about necessary soft measures (not infrastructures oriented) for the seamless connection of ports to the city centre at regional and national catchment area.

The present report, corresponding to Inter-Connect project Deliverable T2.4.2 «Cases key generalized messages», concerns the elaboration of policy recommendations for the promotion of intermodality for passengers mobility, with a focus on interconnectivity between public transport systems, particularly rail and maritime transport. Key generalised messages are aimed at improving rail and maritime services quality thus contributing to the development and availability of affordable and reliable multimodal greener and sustainable transport solutions, alternative to the motorcar. Formulated on the basis of the experiences and findings from the Inter-Connect project case studies implemented in the Adriatic Ionian region, recommendations make specific reference to the European Union transport policy on the development of the Trans-European Transport Network – TEN-T, both under the technical and legislative points of view. By referring to the TEN-T policy, this report consolidates the outcome of the Inter-Connect project and the case studies implemented as part of it and contributes at the same time to the implementation of the TEN-T policy in the Adriatic Ionian region with reference to key topics of the European Transport policy, namely intermodality and interconnectivity. Interconnectivity between transport modes, at core transport nodes and across core urban nodes, represents furthermore the *link* between international/transnational traffic flows and national, regional and local traffic. By promoting interconnectivity at these nodes the Inter-Connect project case studies support transport and socioeconomic integration at different territorial scales (local, regional, national, transnational). Accordingly, the Inter-Connect project also contributes to the development and implementation of the European Union Strategy for the Adriatic Ionian region (EUSAIR), also facilitating interconnectivity between the European Union and Western Balkan countries and regions.

Further to this introductory chapter, the report consists of the following additional sections:

- Chapter 2, describing the relevant legislative and technical basis for the formulation of policy recommendations for the promotion of passengers transport through urban and transport nodes in the framework of the TEN-T policy;
- Chapter 3, describing the most relevant outcomes and key findings from the Inter-Connect project case studies, as relevant experiences to formulate policy recommendations to promote intermodality towards greener and more sustainable interconnected transport systems;
- Chapter 4, presenting the policy recommendations formulated as part of the Inter-Connect project and specific subject of this deliverable;
- Chapter 5, including the relevant bibliography and references used for the elaboration of this report.

## 2. Promoting intermodality for passengers' through urban and transport nodes in the framework of the TEN-T policy

This chapter aims at providing technical-regulatory insights on the promotion of passenger intermodality and enhancement of rail passenger transport with a focus on the trans-European transport network. Reference is primarily made to official documents by the European Union institutions concerning the planning and implementation of the TEN-T and available analyses and studies performed on these topics since the entry into force of Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU (TEN-T policy regulation)<sup>1</sup>.

When referring to intermodality for passenger transport, it is useful considering the definition provided by ELTIS in their glossary: *intermodality relates to improving the efficiency and attractiveness of a single trip made with more than one transport mode (e.g. walking, train and bus), with the aim of offering travellers a seamless journey. This requires the creation of integrated transport systems through the harmonisation of different transport services and the creation of organised connections between different transport modes, for instance as in park and ride. Five key measures that can foster improved intermodality are: 1) conveniently located transport stations and interchanges that offer a range of options for onwards travel (e.g. public transport services, bicycle-sharing, safe walking routes etc.); 2) a comprehensive public transport, cycling and walking network; 3) intermodal journey planning software; 4) integrated ticketing and e-ticketing; 5) and pricing and demand management schemes.* Based on this definition it is clear that urban and transport nodes are the key places where intermodality happens and where action is needed to support modal shift from the door-to-door dominant transport mode (the motor-car) to alternative sustainable transport solutions and also to enhance rail passenger transport or more generally public transport interconnecting solutions between transport nodes. The review of the existing legislation and studies on the TEN-T also appears to confirm the relevance of the transport nodes and particular of urban nodes in this respect. Concerning the primary relevance of urban nodes it is indeed worth noticing that these are the places where most transport nodes are also usually located, and where interconnectivity between modes occurs.

### 2.1 The role of urban and transport nodes in the TEN-T: EU regulations and strategic level planning

Urban and transport nodes play a key role in the concept of the trans-European transport network (TEN-T). In order to understand the relevance of these nodes in the framework of the TEN-T policy it is useful referring to the Commission Staff Working Document *The planning methodology for the trans-European transport network (TEN-T)*, accompanying the document *Communication from the Commission Building the Transport Core Network: Core Network Corridors and Connecting Europe Facility* {COM(2013) 940 final}<sup>2</sup>. This document sets the basic principles and methodology used to define the TEN-T core nodes and links as currently referred to in the Regulation (EU) 1315/2013.

According to the above Commission Staff Working Document the core network was identified in two steps, the first one referring to the identification of the main nodes of the Core Network and namely those nodes of the highest strategic importance in the EU, which were identified in the first step of the planning procedure. These are clustered in three groups: main nodes for passengers and freight; main nodes for freight only; main nodes for passengers only. Further to their classification with reference to

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<sup>1</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R1315>

<sup>2</sup> <https://ec.europa.eu/transparency/regdoc/rep/1/2013/EN/1-2013-940-EN-F1-1.Pdf>

the transport mode, main nodes are also classified according to their relevance in two classes and namely primary main nodes (P) and secondary nodes (S):

**(a) Main nodes for passenger and freight traffic:**

- A.1 (P) *The capital city of each EU Member State and cities with EU capital function;*
- A.2 (P) *Every "Metropolitan European Growth Area" (MEGA in the ESPON9 Atlas 2006);*
- A.3 (P) *A conurbation or city cluster which, including the corresponding environs as defined by the corresponding LUZ ("Larger Urban Zones", according to Urban Audit and EUROSTAT) exceeds 1 million inhabitants;*
- A.4 (P) *The main city of an island or a group of islands forming a NUTS 1 region with at least 1 million inhabitants;*
- A.5 (P) *One main border crossing point per mode between each EU Member State with external border and each of its neighbouring non EU Member States which is the one with the highest long-distance traffic flow.*

**(b) Main nodes for freight traffic:**

- B.1 (S) *A sea or inland port or a road-rail terminal of an urban main node according to one of the criteria A.1 – A.4;*
- B.2 (P) *A sea or inland port with an annual transshipment volume of at least 1 % of the total transshipment volume of all EU seaports, if interpolating linearly between bulk and non-bulk complies with the formula:  $vb/tb + vn/tn \geq 1$  (where  $vb$  is the volume of bulk,  $tb$  the threshold for bulk,  $vn$  the volume of non-bulk and  $tn$  the threshold for non-bulk). (Seaports which are immediate neighbours and together fulfil the volume threshold, even if individually they would not, may be considered as a cluster, if they have common hinterland connections, except for the "last mile", or if they cooperate closely, e.g. under common management, or supplement each other in function.)*
- B.3 (P) *The largest seaport (in terms of transshipment volume) along each continuous coastline ("façade") of insular Member States and non-insular NUTS 1 regions with access to the sea where no ports are classified according to the criteria B.1 or B.2. This only applies to such façades or coastlines relevant at European scale (e.g. peninsulas longer and wider than 200 km), not taking into account detail coast shapes.*
- B.4 (S) *Inland ports which have interface function to core network rail links for freight and/or to maritime transport, to be connected to the corresponding modes.*
- B.5 (S) *Seaports which are core inland ports according to B.4 and inland ports which are seaports according to B.3.*
- B.6 (S) *Road-rail terminals which are located in the area of branching or crossing points of core network rail links for freight or which are located in the neighbourhood (e.g. in the same town) of a core sea or inland port.*
- B.7 (S) *Airports with an annual airfreight volume of min. 1 % of the corresponding EU total.*

**(c) Main nodes for passenger traffic:**

- C.1 (S) *The main airport of each urban main node according to A.1 – A.4;*
- C.2 (P) *Airports with an annual passenger volume of min. 1% of the corresponding EU total;*
- C.3 (P) *The cities relative to core network seaports according to the criteria B.2 or B.3, if their population exceeds 200.000 inhabitants in the corresponding LUZ;*
- C.4 (P) *Core network seaports according to the criteria B.2 or B.3, if they have a relevant bridgehead function for passenger ferry connections within the core network.*

It is critical to notice that primary nodes were considered to shape the core network links (road, rail, inland waterways and motorways of the sea) representing the multimodal backbone infrastructure interconnecting European Union Member States. Given the multimodal nature of the core network, it is not surprising that planning methodology defines in first instance the nodes where intermodality takes place recognising as primary urban nodes. Accordingly Art. 38 of the Regulation (EU) 1315/2013 defines the core network, as consisting of those links *of the comprehensive network which are of the highest strategic importance for achieving the objectives of the trans-European transport*

*network policy, which shall be interconnected in nodes and provide for connections between Member States and with neighbouring countries' transport infrastructure networks. Art. 41 of the same regulation defines core nodes as (a) urban nodes, including their ports and airports, (b) maritime ports and inland waterways ports; (c) border crossing points to neighbouring countries; (d) rail-road terminals; (e) passenger and freight airports.*

The Commission Staff Working Document also specifies that in the framework of the dual layered approach (core network defined as a subset of the comprehensive network) set out in the Regulation EU 1315/2013, *urban nodes, which are represented by the main nodes according to A.1 – A.4 and C.3, play an important role within the multimodal core network, with regard to their infrastructure both for passengers and for freight.* More specifically these nodes are crucial as:

- *They connect network links – both of the core and the comprehensive networks;*
- *They interconnect transport modes, thus enhancing multimodality;*
- *They connect long-distance and/or international with regional and local transport (passengers and freight).*

*The quality of these connections contributes decisively to a well-functioning transport system, in particular to enhance public transport mobility chains and to achieve EU climate goals.*

Further to the above document, emphasising the primary role of the urban and transport nodes in the definition of the multimodal (core) network of the TEN-T, the Regulation (EU) 1315/2013 is worth recalling with respect to the relevance of urban and transport nodes in promoting intermodality, which turn out to be critical not only with reference to the core network but more generally for the whole TEN-T. Premises (point 30) to the Regulation (EU) 1315/2013 stipulates that *the guidelines should provide for the development of the comprehensive network in urban nodes, in accordance with Union aims regarding sustainable urban mobility, as those nodes are the starting point or the final destination ("last mile") for passengers and freight moving on the trans-European transport network and are points of transfer within or between different transport modes.* Additionally, the premises (point 41) recall the planning methodology adopted to define the core network identifying at first the most important urban nodes, ports and airports, as well as border crossing points, to be connected wherever possible, with multimodal links in order to ensure the interconnection of all Member States and the integration of the main islands into the core network.

Urban nodes are additionally relevant for the identification of the cross-border sections, which represent a key priority for development in order to build a homogeneous, interoperable, and seamless infrastructure towards a Single European Transport Area. The definitions included in the Regulation (EU) 1315/2013 (point m) specifies the meaning of 'cross-border section', i.e. *the section which ensures the continuity of a project of common interest between the nearest urban nodes on both sides of the border of two Member States or between a Member State and a neighbouring country.* A definition of 'urban node' is also finally provided (point p), i.e. *an urban area where the transport infrastructure of the trans-European transport network, such as ports including passenger terminals, airports, railway stations, logistic platforms and freight terminals located in and around an urban area, is connected with other parts of that infrastructure and with the infrastructure for regional and local traffic.*

Among the relevant articles included in the Regulation (EU) 1315/2013 the most relevant one, fully dedicated to urban nodes is Art. 30, under the common provisions and as such applicable to the whole TEN-T network. According to this article *when developing the comprehensive network in urban nodes, Member States shall, where feasible, aim to ensure:*

- *(a) for passenger transport: interconnection between rail, road, air and as appropriate, inland waterway and maritime infrastructure of the comprehensive network;*
- *(b) for freight transport: interconnection between rail, road, and as appropriate, inland waterway, air and maritime infrastructure of the comprehensive network;*
- *(c) adequate connection between different railway stations, ports or airports of the comprehensive network within an urban node;*



- (d) *seamless connection between the infrastructure of the comprehensive network and the infrastructure for regional and local traffic and urban freight delivery, including logistic consolidation and distribution centres;*
- (e) *mitigation of the exposure of urban areas to negative effects of transiting rail and road transport, which may include bypassing of urban areas* (this element also mentioned as one of the measures to support achieving the general priorities of the TEN-T policy according to point 2 of Art. 10 of the Regulation (EU) 1315/2013);
- (f) *promotion of efficient low-noise and low-carbon urban freight delivery.*

Finally, Art. 50 of the Regulation 1315/2013 concerning *engagement with public and private stakeholders* encourages cooperation among different stakeholders in addition to Member States such as regional and local authorities, managers and users of infrastructure as well as industry and civil society, towards the development and implementation of projects of common interest thereby contributing to the achievement of the objectives of the *Regulation and, moreover, specifically strengthen:*

- (a) *the enhancement of regional mobility, thereby promoting access to the trans-European transport network, for all regions of the Union;*
- (b) *the promotion of cross-border projects;*
- (c) *the integration of urban nodes into the trans-European transport network (including promotion of sustainable urban mobility);*
- (d) *the promotion of sustainable transport solutions, such as enhanced accessibility by public transport, telematic applications, intermodal terminals/multimodal transport chains, low-carbon and other innovative transport solutions and environmental improvements;*
- (e) *the enhancement of cooperation between the different stakeholders.*

The review of articles 30 and 50 of the Regulation (EU) 1315/2013 appears thus confirming the vital role of transport nodes through urban nodes as multimodal key hubs of the TEN-T network where to invest and undertake common actions involving multiple stakeholders to maximise the objectives of the TEN-T policy with reference to intermodality and greening of the transport system. In fact urban nodes are crucial as they:

- Connect TEN-T links, ensuring continuity of the network;
- Connect the links to the transport and logistics nodes in urban areas, thus interconnecting modes;
- Connect long-distance with regional and local traffic (passengers and freight), thus supporting territorial integration and cohesion.

In line with the above considerations urban nodes and within their context transport nodes, are not just important for the implementation of the TEN-T policy, they are essential also to achieve the targets of the most relevant EU policies for mobility and transport. Indeed 2 out of the 10 goals included in the Transport White Paper of 2011 are urban: i.e. halve the use of conventionally fuelled cars in urban areas by 2030, phase them out by 2050 and achieve CO<sub>2</sub> free city logistics in major urban centres by 2030. Moreover, one additional target relating to safety is also referring to the urban dimension: i.e. move close to zero fatalities in road transport by 2050<sup>3</sup>. Urban and more generally transport nodes in the context of urban areas are also relevant to achieve the targets set in the following additional directives: Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure<sup>4</sup>; Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles<sup>5</sup>; and Directive 2010/40/EU of the European

<sup>3</sup> <http://www.urban-transport-roadmaps.eu/assets/presenatations/session3/3.urban-nodes-in-connecting-europe-facility-p.rapacz.pdf>

<sup>4</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32014L0094>

<sup>5</sup> <https://eur-lex.europa.eu/eli/dir/2019/1161/oj>

Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport<sup>6</sup>.

## ***2.2 The role of urban and transport nodes in the TEN-T: technical analysis***

Albeit pivotal in the planning of the TEN-T multimodal network and critical to achieve the general objectives of the TEN-T, the urban nodes dimension of the TEN-T seems to remain partially unexplored under the empirical stand point both under the analytical and financial points of view, if referring to the activities related to the implementation of the Core Network Corridors. Building from the experience of the Priority Projects as pillars of the TEN-T policy in place before the entry into force of Regulation (EU) 1315/2013 the new TEN-T policy gave first priority to the completion of cross-border sections, the development of a homogeneous interoperable infrastructure and the interconnection of the port infrastructure to an EU multimodal network focussing on railway transport. This was required to support the development of a Single European Transport Area overcoming difficulties related to political priority given at national sections of the Priority Projects, support deployment of the European Rail Traffic Management System (ERTMS) and enhance modal shift from road to rail promoting Short Sea Shipping and intermodal/combined transport solutions. In line with these priorities the technical analysis and financing of projects by the Connecting Europe Facility (CEF) in the urban nodes and at transport nodes with reference to passenger transport seems to have primarily focussed on the need to ensure continuity of the network in urban areas and interconnect transport nodes such as ports and airports to the railway network. Alternative Clean Fuels and ITS solutions for road transport have been also implemented in urban nodes as part of corridor and cross-corridor initiatives with an aim to support effectiveness and greening of long-distance transport across the core network. Particularly as part of modernisation and new construction of rail nodes and stations along the TEN-T, interchange infrastructure and facilities were also developed. Nonetheless the urban nodes dimension of the TEN-T and the role of core urban and transport nodes in the promotion of intermodality and multimodality for a seamless interconnection of long-distance and regional/local traffic flows thus supporting territorial integration and cohesion seems to remain a topic to be further explored in the future<sup>7</sup>. Whilst the ongoing revision of the Regulation (EU) 1315/2013 may provide additional elements in this respect, the above recalled Art. 50 reminds to a multiple set of stakeholders for a more efficient and effective planning, development and implementation of the urban dimension of the TEN-T. The same article also mentions the opportunity to refer to other European programmes, in particular those supporting regional development (e.g. 'European Territorial Cooperation', 'Research and Innovation' or 'Environment and Climate action'), further to the CEF and Cohesion Fund (CF) may be considered. In fact the urban and transport nodes dimension of the TEN-T requires a multiple stakeholder governance approach. Nodes are the places where long-distance international and national flows turn into regional and local traffic and where all these movements mix and sum up together. Nodes are also the places where local and global interests may contrast due to the transiting of vehicles. They also represent entry and exit gates of international flows and cross-border interconnecting points. Accordingly, initiatives concerning urban and transport nodes also require appropriate governance tools and solutions such as Sustainable Urban Mobility Plans (SUMP) and Sustainable Urban Logistics Plans (SULP), European Economic Interest Groupings (EEIG) and Motorways of the Sea (MoS). The experience on the development of the urban and transport nodes dimension of the TEN-T seems calling for more and additional action to be

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<sup>6</sup> <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010L0040>

<sup>7</sup> See for reference: a) some presentations given by representatives of the EU Commission on the urban nodes dimension of the TEN-T and CEF funded projects: <http://nws.eurocities.eu/MediaShell/media/Gudrun%20Shulze%20-%20Urban%20nodes%20and%20CEF.pdf>; <http://www.urban-transport-roadmaps.eu/assets/presenatations/session3/3.urban-nodes-in-connecting-europe-facility-p.rapacz.pdf>; [https://ec.europa.eu/inea/sites/inea/files/3\\_info-day2016\\_urban\\_nodes\\_final.pdf](https://ec.europa.eu/inea/sites/inea/files/3_info-day2016_urban_nodes_final.pdf); and b) the content of the 2017 Baltic-Adriatic Corridor study and 2018 Baltic-Adriatic Corridor work plan [https://ec.europa.eu/transport/sites/transport/files/bac\\_corridor\\_study.pdf](https://ec.europa.eu/transport/sites/transport/files/bac_corridor_study.pdf); [https://ec.europa.eu/transport/sites/transport/files/3rd\\_bac\\_work\\_plan\\_-\\_final\\_webversion.pdf](https://ec.europa.eu/transport/sites/transport/files/3rd_bac_work_plan_-_final_webversion.pdf)

undertaken at the interregional/regional/metropolitan scales, for a *better integration* of urban and transport nodes in the TEN-T network to ensure regional and local accessibility to the core network and maximise the objectives related to territorial integration and cohesion. Some Interreg funded initiatives aimed at investigating and support territorial integration and cohesion through the development of the Core Network Corridors were implemented over the course of the period 2014-2020, which also established and consolidated links and relationships with the Corridor Fora activities of the Core Network Corridors crossing the regions involved in these initiatives. Relevant examples in this regard are the Scandria related activities<sup>8</sup> and Tentacle<sup>9</sup> project. Although not strictly focussed on the urban nodes dimension of the TEN-T policy these initiatives are significant in their purpose of promoting conjoint efforts on topics of common interest between infrastructure and territorial integration and cohesion policies also concerning urban and transport nodes. More relevant due to its focus on the integration of the urban nodes into the TEN-T network appears to be the Vital Nodes Horizon 2020 project<sup>10</sup>, as part of which specific policy recommendations were finalised in 2019. Albeit focussing on freight transport the recommendations developed as part of this initiative are summarised in Section 2.3 below, which could be also used to draw case studies specific and general recommendations within the scope of the Inter-Connect project.

Although the urban and transport nodes dimension of the TEN-T according to the existing experiences appears still to be at an inception stage of development at least with respect to the role of the nodes to enhance regional and local accessibility to the core TEN-T network, relevant actions were already accomplished as part of the Core Network Corridor activities concerning methodological and policy guidelines for the analysis of the urban nodes and the identification of type of investments and solutions to be considered for a better integration of the urban nodes into the core network.

A first important policy action was undertaken by the European Coordinators of the nine Core Network Corridors in 2016 in view of the TEN-T days in Rotterdam, consisting in the elaboration of *Issues Papers*<sup>11</sup>. Aimed at making the Core Network Corridors forerunners of a sustainable and forward-looking European transport system, the European Coordinators identified five areas of particular attention in integrating transport policy issues into further core network corridor development. One of these relevant topics relates to the integration of the urban nodes in the TEN-T:

- Multi-modality and efficient freight logistics;
- Intelligent Transport Systems;
- Innovation and alternative clean fuel infrastructure;
- *Integrating urban nodes*;
- Cooperation with third countries.

The above topics were basically identified according to their expected potential to boost sustainability, their relevance with reference to future-oriented transport policy and for integrating infrastructure and transport policy issues. The elaboration of the Issues Papers saw the involvement of all units of the Directorate for Mobility and Transport and involved through an extensive consultation process all the members of the nine Core Network Corridors' Fora. In general terms *Issues Papers* report and comment on relevant topics concerning the implementation of the TEN/T policy in the wider framework of the European Union policies for mobility and transport referring to best practices and relevant examples from the development of the nine Core Network Corridors. Considerations are made in these papers to use the corridors as test-beds for the development and implementation of innovative solutions and experiences to be transferred and implemented more widely. Finally recommendations are also provided in the Issue Papers towards the achievement of the targets set in the TEN-T policy pursuing the overall objectives of the union policies. Specifically concerning the *Issue Paper* on urban nodes elaborated by the European Coordinators Catherine Trautmann and

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<sup>8</sup> <https://www.scandria-corridor.eu/index.php/en/>

<sup>9</sup> <http://www.tentacle.eu/>

<sup>10</sup> <https://vitalnodes.eu/>

<sup>11</sup> [https://www.europarl.europa.eu/cmsdata/117302/tent-issues-papers\\_en.pdf](https://www.europarl.europa.eu/cmsdata/117302/tent-issues-papers_en.pdf)

Mathieu Grosch – *Effectively Integrating Urban Nodes* – this highlights the novelty of the introduction of the urban nodes in the scope of the TEN-T as an integral part of the network, following the entry into force of Regulation (EU) 1315/2013. Relevant project examples and investments are reported which are mostly related to ensuring continuity of the network and interconnecting modes within nodes. Considerations and recommendations are provided in the paper highlighting issues of TEN-T relevance within urban nodes and their integration into corridors, generally confirming the considerations on the principles and targets set in the Regulation (EU) 1315/2013 as also recalled in the previous section above. *The paper looks at the combination of TEN-T related goals and the objectives of sustainable urban mobility planning, as promoted by the Commission in the 2013 Urban Mobility Package. Within this framework, it also opens the perspective for forward-looking practices which both enhance transport solutions and stimulate synergies with other urban functions. Hence, a wide range of actors at different governance levels – national, regional and local level – are involved and have to cooperate.* The paper also provides a set of fields of action to be further explored in order to strengthen the effective integration of urban nodes into TEN-T corridors:

- *Promoting integrated strategies, platform(s) for exchange of experience, market places for public and private actors concerned (including the promotion of joint clean public procurement), drawing on existing experiences, such as INTERREG projects;*
- *Promoting a multi-level governance approach; increasing motivation and supporting enhanced cooperation, where commercial benefits can progress hand in hand with better liveability of the involved area;*
- *Quicker deployment of tested solutions by identifying promising HORIZON 2020 funded projects (in CIVITAS and Smart Cities) and/or CEF funded pilot actions mature enough to be proposed to EIB and private investments (with EFSI support) and/or suitable for blending (with ESI Funds);*
- *Focus on the following elements which contribute to the EU priority of Growth, Jobs, Competitiveness and Investment: - Transport system efficiency and accessibility to/from urban nodes and multi-modality for passengers, including active traveling options - Logistics operations – the link between urban logistics operations and national, EU and international supplies chains - Urban nodes as business development hubs - interaction of transport and regional development*
- *Focus on the following elements which contribute to digitalisation and the Energy Union: - Service quality levels (time, comfort, safety), traffic management and better information services - Smart cities initiatives - with ICT as an enabler - to put together transport and energy aspects*
- *Mutually reinforcing benefits to stakeholders and general public; consider creating communication tools/pilot projects actively involving urban nodes users to facilitate dialogue and cooperation at different governance layers;*
- *Designing a business model to support the take-up of mobility as a service.*

In order to translate the basic work of the *Issues Papers* into concrete action, the European Commission proposed to identify innovative flagship projects, this work to be performed as part of the Core Network Corridor studies during 2017. The aim was to generate at least one such project or guidelines per corridor and to cover all *Issues Papers*' topics such as flagship initiative to be included in the third generation of corridor work plans by the European Coordinators. Within this context an innovative flagship project on urban nodes with a focus on passenger transport was allocated for development to the Baltic-Adriatic Corridor. The title of the flagship project is *Enhance passengers' transfer hubs in urban nodes along the corridor*. The table below from the third version of the Baltic-Adriatic Corridor work plan, published in 2018<sup>12</sup>, provides the description of the main characteristics of this initiative.

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<sup>12</sup> [https://ec.europa.eu/transport/sites/transport/files/3rd\\_bac\\_work\\_plan\\_-\\_final\\_webversion.pdf](https://ec.europa.eu/transport/sites/transport/files/3rd_bac_work_plan_-_final_webversion.pdf)

**Table 1: Enhance passengers' transfer hubs in urban nodes along the corridor**

<b>Scope of the flagship project (why)</b>			
<p><i>Enhance passengers' transfer hubs in urban nodes along the corridor</i> aims to translate into concrete action the policy targets set in the <i>Issues Papers</i> on Urban nodes. The actions foreseen for possible implementation as part of the project focus on art. 30 of Regulation (EU) 1315/2013 and on the need to ensure and maximise the effectiveness of the integration of urban nodes into the core network. The implementation of these actions will facilitate the transfer of passengers between long-distance destinations and between long-distance and urban transport solutions along the corridor.</p>			
<b>Market and Beneficiaries (whom)</b>			
<p>The direct beneficiaries of the project and related actions are passengers transferring between two different nodes of the core network (Airport, Rail, Coach, Port) or accessing/egressing the core network from a core transport node (Airport or Port) or from a rail and coach station located along the corridor, where services are operated towards at least a core urban node. Passengers include here all type of possible users, namely individual or group of passengers from all nationalities, and of all ages, including people with reduced mobility. The target market of the project includes clients of long-distance passengers' services of all transport modes, users of the local public transport services, taxi passengers and users of other forms of collective/shared transport solutions (motorised and non-motorised) as well as users of private means of transport (motorised and non-motorised), and pedestrians.</p>			
<b>Places (where)</b>			
<p>The flagship project foresees the implementation of a wide range of possible hard and soft measures, which may include development of infrastructure as well as information and communication technologies, R&amp;I (Research and Innovation) solutions, including those aimed at solving administrative and legal barriers, particularly related to the provision of integrated and multimodal information, travel planning and mobility solutions along corridors and across country borders. The flagship project can have both a virtual and physical dimension thanks to the implementation of information and communication technologies accessible from internet and mobile devices; however the places subject of the actions shall affect transfer operations at least at one core transport node or rail and coach station along the corridor, where services are operated towards at least a core urban node. Solutions shall more specifically affect interchange places, and particularly those involving public transit systems (Heavy Metro, Light Metro, Tramway, Trolley Buses and Buses), park and ride and bike and ride solutions.</p>			
<b>Actions (what, when, who, to what purpose)</b>			
<p>A wide spectrum of actions focusing on transfer operations at hubs along the corridor can contribute to the objectives of the flagship project. These actions can be grouped to the scope of this flagship project into three different areas, including: <i>Land use and infrastructure solutions, Intermodal operations and information provision, Governance and management solutions.</i></p> <p>The nature of the actions, as identified and described below allows their implementation as independent solutions. Depending on the existing and planned conditions of the infrastructure and operations at the core transport and urban nodes along the corridor(s), more actions may be possible to be implemented, thus generating more effects or improving the capacity of the existing nodes and services to generate wellbeing for society.</p>			
<b>Actions</b>	<b>Time schedule for implementation</b>	<b>Relevant promoters</b>	<b>Expected effects</b>
<p><b><i>Land use and infrastructure solutions</i></b></p> <p>Development or improvement of direct interconnections between core transport nodes and the rail and coach stations along the corridor, by means of high capacity rapid transit systems (i.e. fixed links, dedicated bus lanes, etc.).</p> <p>Construction, upgrading or restructuring and reorganisation of interchange stations and facilities.</p>	<p>Actions whose construction is expected to be completed in a period of 12-18 months.</p>	<p>Infrastructure managers of the concerned infrastructure, owners of the infrastructure and concessionary companies.</p>	<p>Travel time savings. Travel time reliability. Reduction of operating and maintenance costs of transport. Reduction of external costs of transport (safety, GHG, noise...).</p> <p>Improvement of accessibility to the core network. Improvement of the quality of public transport services. Improvement of the image of the transport nodes and urban environment.</p>

<p><b>Intermodal operations and information provision</b></p> <p>Information strategies and technologies to improve the performance of transfer operations at interchange stations and centres, between different modes and urban transport solutions (motorised and non-motorised, public and/or private).</p> <p>Integrated and multimodal travel solutions towards Mobility as a Service.</p>	<p>Actions ready to be implemented or put in operation in a period of 18 months.</p> <p>Actions ready to be implemented or put in operation in a period of 24 months.</p>	<p>Infrastructure managers of the concerned infrastructure, public transport operators, MaaS providers, owners of the infrastructure and concessionary companies, users' and passengers' federations and associations, institutions or civil associations of PRM.</p>	<p>Travel time savings.</p> <p>Travel time reliability.</p> <p>Improvement of accessibility to the core network.</p> <p>Improvement of the quality of public transport and mobility services for all type of users and modes.</p> <p>Improvement of the image of the transport nodes and urban environment.</p> <p>Promote territorial cohesion.</p>
<p><b>Governance and management solutions</b></p> <p>Establishment of temporary or permanent consultative, concertation or management bodies for the planning, monitoring and provision of integrated and multimodal services, including MaaS solutions along the corridor(s).</p>	<p>Actions ready to be started and completed in a period of 12-18 months.</p>	<p>Local authorities, infrastructure managers, service providers, city users, passengers' federations and associations, institutions or civil associations of PRM.</p>	<p>Improvement of accessibility to the core network.</p> <p>Reduction of operating costs and of external impacts of transport on the environment.</p> <p>Improvement of the quality of public transport and mobility services for all type of users and modes, also supporting market opening and integration.</p>

**Funding and financing (how)**

Similarly to other infrastructure and services, the actions part of this flagship project can be financed by means of public or equivalent funds as well as private resources from the operators and/or users. It is in any case worth noting how the actions to be developed or implemented as part of this flagship project seem to present a high potential for innovative funding and financing, particularly if located at large core transport nodes and stations. Transfer operations within the same transport mode or between different transport modes at nodes can indeed generate relevant flows of passengers. This generally represents a business opportunity for retail and shop activities to be located within these centres. The rental revenues from these activities may be partially used/allocated to the development or improvement of interchange nodes. Interchange stations and centres usually involve parking infrastructure. These may be constructed and/or managed by private developers under concession agreements. The concession fees related to the operation of these parking facilities may be also used for the development or improvement of interchange nodes. The modernisation/ improvement of interchange stations and centres in large urban areas may finally create spaces for real estate developments. The revenues from these operations may be also used to enhance transfer infrastructure and services at transport and urban nodes along the corridors. Apart from these possible revenues associated with infrastructure developments at interchanges, examples exist of revenue generating activities, which are linked to the possibility to share information technologies and displays with providers of publicity/marketing services. These companies may offer the use of their technologies and devices to combine provision of information on transport services with publicity of other products and services. Furthermore transit systems and interconnections to airports usually operate with higher tariffs than standard urban services, usually allowing for their development and operation as PPP, Design Build Operate Finance projects. These considerations should encourage the stakeholders in identifying innovative financial solutions for the implementation of the flagship project.

*Source: Baltic-Adriatic Corridor work plan (2018)*

The above policy and technical considerations overall suggest the adoption of a functional and hence to a certain extent flexible approach for the analysis of the urban nodes dimension of the TEN-T, with reference to the boundaries of the urban areas. These should better include peri-urban zones as well as all the transport infrastructure of the TEN-T network, such as ports, airports, railway stations, logistic platforms and freight terminals. Although not applied consistently in all the Core Network Corridor

studies, relevant examples of the applicability of such an approach are available from some of the analyses completed in 2017, for instance the one developed for the Baltic-Adriatic Corridor<sup>13</sup>, which was also presented at the UDN conference in Autumn 2016<sup>14</sup> and at the TEN-T days in Ljubljana in 2018. Such an approach is in general terms also confirmed by the guidelines adopted for the development and analysis of the Core Network Corridor project list, which is amongst the activities related to the development and implementation of the core network one of the most relevant topics. The guidelines in the table below were proposed in May 2017 by the European Commission to the Consultants involved in the delivery of the Core Network Corridor studies for consideration in the identification/classification of relevant urban and last mile connection projects, since the topic raised methodological questions among the CNC studies Consultants and members of the nine Core Network Corridor Fora. An example of the applicability of such an analysis is again available from the 2017 Baltic-Adriatic Corridor study and 2018 Baltic-Adriatic Corridor work plan.

**Table 2: Projects to promote interconnectivity between and across transport and urban nodes**

Purpose of the investment	Type of projects
<b>a) Improvement of the standards of last mile sections of the corridor infrastructure in urban areas according to the requirements set in the Regulation (EU) 1315/2013</b>	<b>Last mile sections' projects</b> i.e. initiatives affecting rail and core network corridor links in urban areas, including stations, sidings, etc. as well as junctions
<b>b) Improvement of the standards and performance of the last mile connections to core transport nodes</b>	<b>Last mile connections' projects</b> i.e. initiatives affecting rail and road links directly interconnecting the corridor with a core transport node and possible alternatives to solve capacity issues
<b>c) Improvement of the interconnections between core transport nodes and between transport modes in core urban nodes</b>	<b>Core urban nodes projects</b> i.e. initiatives relating to regional, suburban, metro or tramway lines (and interchange facilities located on their alignment) which are directly interconnecting to at least one core transport node in a core urban area, where services are operated towards other core urban nodes belonging to the core network
<b>d) Horizontal initiatives in core urban areas to promote interconnection between different transport modes and sustainable transport solutions for both passengers and freights</b>	<b>Other core urban node projects</b> i.e. ICT, ITS, Clean fuel (or other sustainable transport and mobility) projects that are implemented in core urban areas or at a territorial scale involving at least one core urban area. These may also include any other soft or administrative measure for the promotion of integrated transport and mobility in core urban area towards Mobility as a Service solutions (including for instance passenger's rights etc.)
<b>e) Mitigation of negative effects of long-distance traffic along the corridor transiting urban areas</b>	<b>Urban bypasses</b> i.e. corridor rail and road bypasses regardless their classification as core or comprehensive, provided that they are implemented to mitigate environmental impacts associated with issues on the existing corridor sections

Source: Core Network Corridor Studies

<sup>13</sup> [https://ec.europa.eu/transport/sites/transport/files/bac\\_corridor\\_study.pdf](https://ec.europa.eu/transport/sites/transport/files/bac_corridor_study.pdf)

<sup>14</sup> [https://ec.europa.eu/regional\\_policy/sources/conferences/udn\\_brussels\\_2016/6.4%20Roberto%20Zani\\_tplan%20consulting.pdf](https://ec.europa.eu/regional_policy/sources/conferences/udn_brussels_2016/6.4%20Roberto%20Zani_tplan%20consulting.pdf)

## 2.3 Relevant policy recommendations from the Vital Nodes Horizon 2020 initiative

As mentioned in the previous section above, the Vital Nodes initiative funded by the Horizon 2020 programme appears to be of significant relevance for the elaboration of policy recommendations as part of the Inter-Connect initiative due to the focus of this project on the urban dimension of the TEN-T. This notwithstanding the focus of this project on freight transport.

Vital Nodes is a coordination and support action whose purpose was to improve European interconnection while developing sustainable mobility within the urban nodes of the trans-European transport network (TEN-T). The project focussed in particular on the promotion of the integration of the urban nodes into the TEN-T network supporting multimodal and intermodal connectivity between long-distance and last-mile freight logistics. The project started in November 2017 and was completed in October 2019. Among its main outcomes the set of recommendations listed in the table below was ultimately provided<sup>15</sup>. Recommendations were clustered into the following five areas: strategy + value, network + space, governance + time, finance + funding, and research + data.

**Table 3: Recommendations from the Vital Nodes action**

Recommendation	Relevant actors
<i>Strategy + Value</i>	
<b>1. Support the use of the Vital Nodes Toolbox as a guide for developing a fact-based comprehensive policy strategy to achieve the objectives of integrating urban nodes, Functional Urban Areas and TEN-T (e.g. by incorporating the VN Toolbox into a SUMP topic guide).</b>	European Commission
<b>2. Support the common understanding of the responsible actors at different policy levels (urban, Functional Urban Area (FUA), national, transnational).</b>	European Commission, Urban Nodes, Functional Urban Area
<b>3. Support collaborative planning at different policy levels (urban, Functional Urban Area (FUA), national, transnational (e.g. by incorporating the VN lessons into the new TEN-T policies and guidelines, and by revisiting the list of 88 urban nodes of the TEN-T Appendix II).</b>	European Commission, Urban Nodes, Functional Urban Area
<b>4. Develop a value oriented comprehensive policy (data based, using indicators, monitoring for assessment of value and focused on capturing values created).</b>	Responsible policy actors
<i>Network + Space</i>	
<b>5. Develop a multi-modal transport planning and coordinated asset management, considering its impact at local, FUA and corridor level.</b>	Infrastructure managers at urban node, regional and national level
<b>6. Develop additional guidelines on ITS applications at the interface between long-distance and last-mile transportation and the use of traffic management tools for information and navigation services.</b>	Infrastructure managers at city, regional and national level
<b>7. Invest in infrastructure interfaces at urban nodes, both in infrastructure connections, terminals, hubs and logistic centres.</b>	Urban Nodes, infrastructure managers, terminal and logistics centres operators
<b>8. Stimulate the coordination of freight/logistics and persons transport, e.g. by considering for (large) freight transport infrastructure also persons transport impacts and measures (vice versa).</b>	Urban Nodes
<b>9. Support the development of consolidation centres, which improve the link between the TEN-T and urban nodes, as they contribute to time savings for drivers and shared capacities for last mile transport. Also employ the potential of such consolidated centres for production as well as for deployment of alternative fuels infrastructure and other innovation deployment.</b>	European Commission, Urban Nodes
<b>10. Utilize the strategic real estate positions of relevant land owned by infrastructure managers (such as unused railway tracks and marshalling yards) or by logistics service providers in urban areas because for developing a comprehensive policy strategy land use and real estate are vital elements.</b>	Urban Nodes, financing institutions

<sup>15</sup> [https://vitalnodes.eu/wp-content/uploads/2020/01/Vital-Nodes-recommendations\\_final.pdf](https://vitalnodes.eu/wp-content/uploads/2020/01/Vital-Nodes-recommendations_final.pdf)



<b>11. Support the development of guidelines and standards for access restrictions in urban nodes along main transport routes on the TEN-T core network.</b>	Urban Nodes, freight and logistic sector
<b>Governance + Time</b>	
<b>12. Stimulate a more active collaboration between stakeholders vertically across governance levels and horizontally across sectors and disciplines. Expand the geographical scope of urban nodes and focus on regional cooperation on the FUA level. Regarding this also provide incentives for public-public and public-private cooperation and for the involvement of civic society.</b>	European Commission, Urban Nodes
<b>13. Enable TEN-T related cross-border collaboration and solutions for urban nodes taking into account the FUA.</b>	Urban Nodes, national transport departments, European Commission and international partners
<b>14. Develop skills and knowledge on freight logistics and integrated planning by stimulating active capacity building in urban nodes.</b>	Urban Nodes, European Network organisations
<b>15. Investigate the possibility to increase the involvement of the urban nodes into the coordination of the nine TEN-T Core Network Corridors (CNCs) by a: - dedicated urban nodes working group; and - dedicated Urban Nodes European Coordinator.</b>	European Commission
<b>16. Create an action program, including a roadmap for implementation on how to better link their urban nodes to the respective corridor(s).</b>	Urban Nodes
<b>17. Facilitate institutional networking by establishing a community of urban nodes/TEN-T corridor professionals (see also WP! Deliverable VN Legacy) .</b>	Urban Nodes
<b>Finance + Funding</b>	
<b>18. Provide funding for urban nodes focused on integration in the TEN-T corridors by pre-allocating budget in upcoming calls. E.g. a stepwise 5-10-20% of CEF funding for integrated investment in infrastructure, mobility, logistics, spatial and environmental measures enhancing such integration.</b>	European Commission, financing institutions
<b>19. The complex investment needs of urban nodes should be recognized in CEF financing – going beyond sectoral boundaries in grant decisions (e.g. similar to the climate mainstreaming objective of MFF).</b>	European Commission, financing institutions
<b>20. Combined funding solutions should be explored for integrating urban nodes in TEN-T corridors. E.g. by using existing urban earmarking (ERDF), or by linking up to SUMP(s) Multiple funding sources can be mobilized to implement integrated strategy, which can be stimulated by defining eligibility and award criteria. Also an exchange platform with different EC services (DG MOVE, REGIO), and EIB could facilitate streamlining of procedures.</b>	European Commission, European Investment Bank, financing institutions
<b>Research + Data</b>	
<b>21. Facilitate research, innovation and implementation by mobility labs. Use urban nodes as research, innovation and implementation platforms, being the main hubs for local/regional network (FUA) and TEN-T network (e.g. regarding alternative fuels, digitalisation).</b>	Urban Nodes, TEN-T coordinators
<b>22. Stimulate further development on data-based policymaking and planning, including the creation of a data collection framework and applying the relevant datasets.</b>	Urban Nodes, European Commission
<b>23. Develop a comprehensive list of data indicators by establishing a monitoring framework to determine the functioning of urban nodes, the FUA and network</b>	European Commission, Urban Nodes
<b>24. Develop tools to support sharing of mobility related data in urban nodes with other public and private partners in the logistics chain at corridor level. In order to move towards multimodal Logistics as a Service.</b>	European Commission, Urban Nodes, other public and private partners in the logistics chain
<b>25. Promote further research on the interfaces of freight/persons, intra-/inter-urban, last-mile/long-distance transport and on spatial-economic analysis of Functional Urban Areas, integrated assessment and business-cases as well as related multi-level governance approaches.</b>	European Commission

Source: Vital Nodes

### **3. Inter-Connect project case studies towards the promotion of rail and maritime intermodality across the TEN-T network in the ADRION region**

#### ***3.1 The Inter-Connect project in the context of the TEN-T and EUSAIR***

As part of the implementation of the Inter-Connect project eight case studies have been defined and implemented for the promotion of rail and maritime intermodality in the Adriatic Ionian (ADRION) region. This area involves Albania, Bosnia and Herzegovina, Croatia, Greece, Montenegro, North Macedonia, Serbia, Slovenia and 12 Italian regions and 2 provinces (Friuli Venezia-Giulia, Provincia di Trento e Provincia di Bolzano, Lombardia, Veneto, Emilia-Romagna, Marche, Umbria, Abruzzo, Molise, Puglia, Basilicata, Calabria, Sicilia).



**Figure 1: ADRION Cooperation Area**

Since 2014 the central governments and territories of the countries in the ADRION area<sup>16</sup> are involved in the implementation of the European Regional EU regional strategy for the Adriatic and Ionian Region (EUSAIR). Approved by the European Council in 2014, the EUSAIR has as its main objective the promotion of the socio-economic prosperity of the Region through economic-productive growth, the creation of jobs, the improvement of the attractiveness, competitiveness and connectivity, while preserving the environment and ensuring the health of marine and coastal ecosystems. The implementation of the strategy is based on four pillars: 1-Blue Growth, 2-Connecting the Region, 3-Environmental Quality and 4-Sustainable Tourism. Pillar 2 – Connecting the Region – relates to the Transport and Energy Networks and aims at supporting economic growth in the region by increasing accessibility and coordinate the development of the Single European

<sup>16</sup> North Macedonia joined the EUSAIR in 2020

Transport Area in the Adriatic Ionian region. The Pillar 2 priorities related to transport refer to a) the maritime dimension of the region and b) intermodal connections to the hinterland, developing in particular the Western Balkans comprehensive network, including the core network.

The maritime transport priority action aims to:

- Improving and harmonizing traffic monitoring and management;
- Developing ports, optimizing port interfaces, infrastructures and procedures/operations.

This is assumed to be achieved:

- Boosting transport digitalisation promoting eMaritime and VTMS solutions to simplify and streamline procedures and processes of maritime and intermodal transport at the regional scale;
- Supporting the implementation of ICT infrastructure at nodes and along logistics chains, as well as systems interoperability in the Adriatic-Ionian Region;
- Deploying telematic applications to improve safety and security of transport operations.

The priority action related to intermodal connections to the hinterland is assumed to be achieved:

- Reducing infrastructural gaps across the Adriatic-Ionian region and improve accessibility, by means of construction and improvement/upgrading of the TEN-T network, according to the standards foreseen by Reg. (EU) 1315;
- Facilitating cross-border traffic flows and transport operations in the Adriatic-Ionian region;
- Strengthening North-South and East-West physical and digital interconnections between the logistics and urban nodes of the Adriatic-Ionian Region to facilitate exchange between, on the one hand, long-distance global and EU flows, on the other, regional and local traffic.

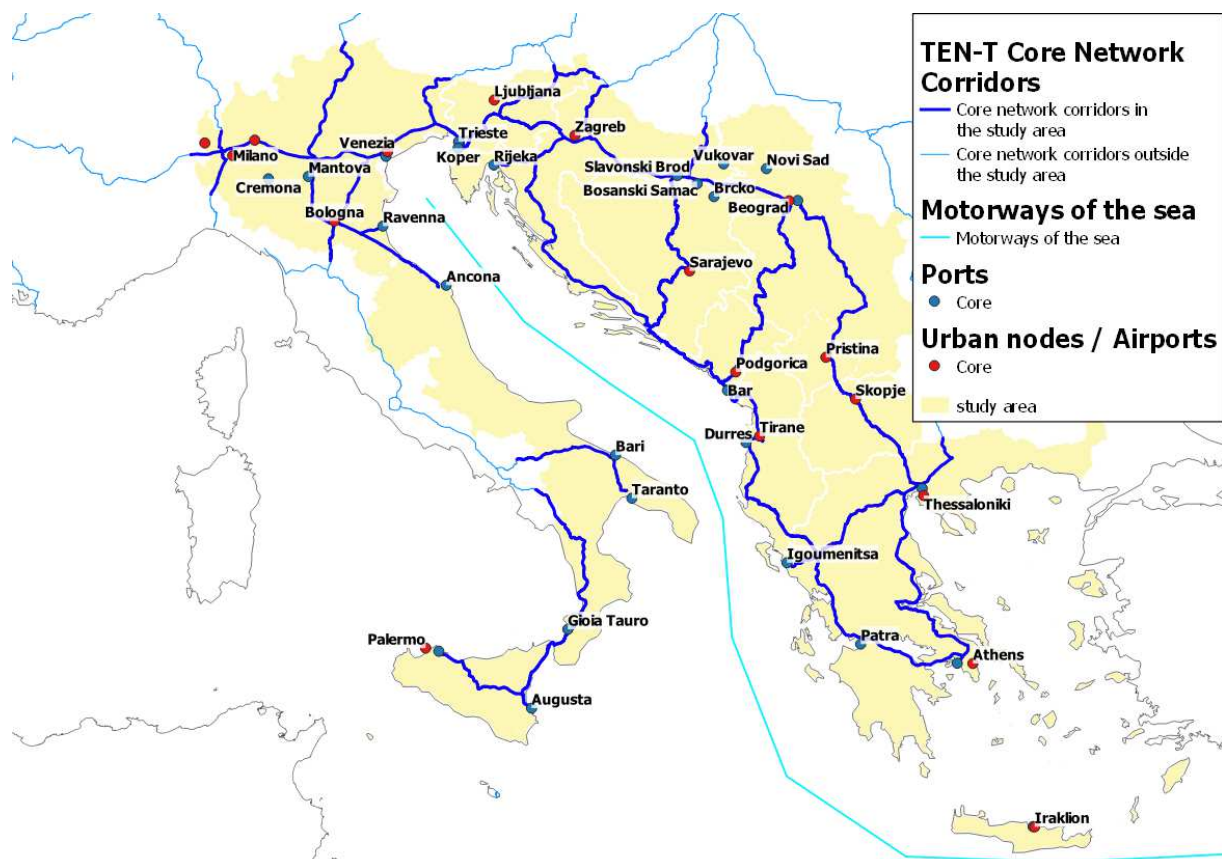


Figure 2: Core Network Corridors in the Adriatic Ionian region

The map in the figure above represents the Core Network Corridors in the ADRION region, including the indicative extension of the TEN-T network to the Western Balkans<sup>17</sup> following the agreement by the Western Balkan six Prime Ministers in Brussels in April 2015 on the regional core transport network corridors, and the further agreement (in Riga in June) on the Core Network Corridors, projects to be implemented by 2020 and the appointment of corridor coordinators<sup>18</sup>.

It is a specific target of the EUSAIR to support the development of the EU policies on mobility and transport including the implementation of the TEN-T network in line with Regulation 1315/2013, also giving priority to the development of the core network and Core Network Corridors as well as to the horizontal priorities such as innovation and alternative clean fuels, ICT and telematic applications, safe and secure transport. Within this framework it is also a specific target of the EUSAIR to promote and ensure interconnectivity between the Core Network Corridors and the comprehensive network to provide adequate accessibility to all territories of the Adriatic and Ionian region.

Further to the above referred EUSAIR Pillar 2 priorities and objectives, specifically related to transport, the following additional objectives pursued by the Pillar 2 with reference to the transport network priorities are worth mentioning which are complementary with other pillars and aspects of macroregional relevance:

- Supporting the adoption and diffusion of alternative clean fuels for maritime and intermodal transport operations by means of infrastructure investments, fleet renewal and human capital;
- Enhancing territorial cohesion interconnecting coastal areas with their hinterlands and improving accessibility and connectivity to insular regions.

Aiming at promoting intermodality and interconnectivity between core transport nodes and across urban areas the Inter-Connect project objectives are thus directly linked to the implementation of the EUSAIR strategy. In fact the Inter-Connect project pursues the promotion of sustainable transport in the ADRION area developing different solutions aimed to promote transport integration among partner states taking advantage of the rich natural, cultural and human beings that surround the Adriatic and Ionian seas, and reinforce the economic, social and territorial cohesion of the area.

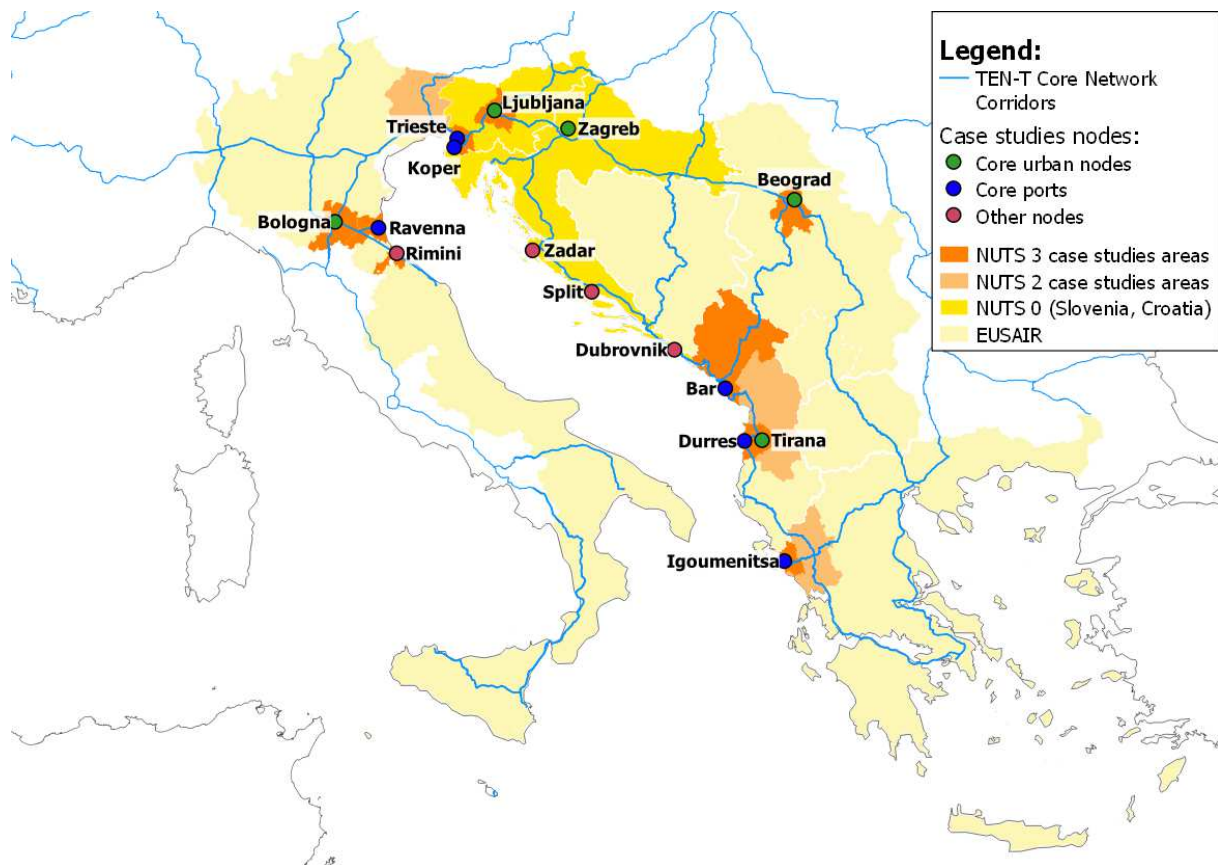
In particular, the Inter-Connect project examined the potential for promoting intermodality in eight regional cases within the Adriatic Ionian region, namely Igoumenitsa (GR), Region Emilia Romagna (IT), Friuli Venezia Giulia Region (IT), Ljubljana (SI), Zagreb (HR), Bar (ME), Durazzo (AL) and Belgrade (RS), with the aim of extracting valuable information (effective measures, cooperation schemes necessary to support the implementation of interventions, potential transferability, financing schemes for the realization of actions) able to be used also in other sectors and to be generalized in order to improve the connectivity of ADRION.

The figure below represents the localisation of the eight case studies within the EUSAIR area, also highlighting the NUTS 3, NUTS2 and NUTS 0 regions where the case studies were conceived/implemented. All the case studies involve at least one core network transport node and all of them are interconnected at least by road to the TEN-T Core Network Corridors. These conditions make all the case studies useful examples for the elaboration of relevant policy recommendations and their transferability for the promotion of intermodality towards more interconnectivity between local and regional transport flows and national/international long-distance traffic through and across core transport and urban nodes.

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<sup>17</sup> See also the TENtec interactive maps: <https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html>

<sup>18</sup> [https://ec.europa.eu/transport/themes/international/enlargement/westernbalkans\\_en](https://ec.europa.eu/transport/themes/international/enlargement/westernbalkans_en)



**Figure 3: Localization of the eight Inter-Connect project case studies**

In the following sections an overview of the main elements characterising each of the eight case studies is provided based on the content of the Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report», integrated with additional desktop research analysis with the purpose to provide additional information on the technical, functional and administrative context where the case studies were conceived/implemented. Relevant considerations and conclusions from the Inter-Connect project Deliverable T2.4.1 «Transferring Protocol» are also recalled. This report, also developed on the basis of Inter-Connect project Deliverable T2.3.1, relates to the analysis of the actions planned by each case study for the promotion of intermodal transport and the institutional, political, economic, technical and financial dimensions necessary for their implementation and transferability. The analysis presented in this chapter is aimed at commenting on the outcome and relevance of the case studies with reference to the technical and legal background presented at Chapter 2 above, thus providing a more solid basis for the elaboration of the policy recommendations described in the following chapter.

### ***3.1 Outcomes and key findings from the Inter-Connect project case studies***

#### ***3.1.1 Overview of the Inter-Connect project case studies***

The table overleaf provides a summary of the territorial, transport infrastructure and functional context in which the case studies were conceived/implemented, together with the main objectives and actions implemented or foreseen to be implemented as part of the case studies, in order to promote and support intermodality for passengers' transport services in the Adriatic and Ionian region, towards a greener and more sustainable transport system.

**Table 4: Inter-Connect project case studies context & background, objectives & action plans**

Case Study	Context & background	Objectives & actions
<b>Igoumenitsa</b>	<p>Due to the location of Igoumenitsa in Western Greece, the lack of an airport to serve flights to/from the cities of the ADRIAN area, and the lack of connections with the main Greek railway network, road transport is still the most effective transport solution, even if road transport infrastructure would also require significant improvements. Public transport within the city has poor features and therefore the need to improve bus operations and services is essential. Igoumenitsa is not currently connected to railways, although for years there have been plans for the development of the Egnatia railway axis. Therefore, the only available public transport mode for local and cross-border passengers transport is represented by intercity buses, although with relatively low performances. Furthermore the low level of availability and use of new technologies and the absence of integrated public transport services further hinders the growth and development of the area.</p>	<p>This pilot case study is seeking to establish the widely acknowledged sustainability concept of using active modes of transport (walking and cycling) for short distance displacements and new public transport service for medium distance trips within the city urban area. This target is coupled with the city’s vision of making Igoumenitsa a final destination as opposed to a mere port city serving Greek islands and international freight and passenger flows to and from Italy. The new public transport service aims at achieving to both needs. The proposed new public transport service includes two bus routes, the first one (blue route) being a regular line accommodating everyday needs of the residents all year round with an average frequency of 40min and ten (10) bus stops. The second one (brown route) is mainly targeted to the cruise/ferry ship customers and international passengers, at the same time improving the bus frequency along the blue route for 7 months a year. The new bus routes will enable the direct and seamless interconnection between two important terminals of the city, the Ro-Ro Port and the inter-city bus station.</p>
<b>Emilia-Romagna Region Case Studies A and B</b>	<p>The Emilia-Romagna Region with the support of ITL (Institute for Transport and Logistics) aims to improve rail passenger transport in the Bologna and Romagna areas in order to improve the accessibility of coastal areas (Romagna – NUTS 3 of Ravenna, Forlì -Cesena and Rimini) with the regional main transport hub (Bologna). After activation of high-speed trains operations between Bologna and main Italian capital cities, relevant time reduction was achieved. On the contrary among the Emilia Romagna main cities travel times remained the same in the last 10 years. The train lines connecting Rimini with Ravenna and Ravenna with Castel Bolognese along the itinerary between Bologna-Ravenna-Rimini are single track lines. The infrastructural upgrading of these lines would require significant investments and long times. The local authorities and railway infrastructure manager therefore opted to define and test soft solutions to reduce the train travel times. Furthermore within the same area the local authorities opted to implement an integrated ticketing system between rail and bus services to increase attractiveness of public transport services in the region.</p>	<p>The case studies of the Emilia-Romagna Region considers the following aspects: improve passenger rail transport, mainly with soft actions and with particular attention to coast-to-internal connections; tackle the seasonality of passengers flows in the Emilia-Romagna coastal area (Riviera Romagnola); define better public transport solutions both for summer period (tourists) and winter period (commuters) trying to get better rail transport for both types of users; improve the quality of public transport offer for tourists through the promotion of integrated ticketing in the region between public transport services by rail and road.</p> <p>Case study A refers to the concept of reducing the travel times between Bologna, Ravenna and Rimini. It was related to the development of soft measures aimed to reduce train travel time without large infrastructures investments. The proposed solution consists in the reduction of the railway stops replacing those with the lowest number of daily users with public transport services by bus interconnecting these stations with the nearest operating ones. It also assumed introduction of new faster rolling stock.</p> <p>Case study B is related to the extension of the current bus “Romagna smart pass” tourist tickets to rail services stopping in the most attractive destinations in the Romagna coastal area, to promote intermodality and public transport in in the region. It is an integrated travel ticket solution that enables tourists to travel along the whole Romagna region using all the public transport solutions (buses and trains).</p>

<b>Ljubljana</b>	<p>The state of public railway infrastructure in Slovenia is mainly characterized by insufficient investments devoted to the development of the public railway infrastructures in the last 15 years. The public railway infrastructure network is less competitive compared to neighbouring countries towards the Northern and Western borders. Lack of investments in new rolling stock and high motorization rates, contributes to a reduced attractiveness of public transport services. Furthermore the vignette system facilitates the use of the motorcar. Problems in developing efficient integrated public passenger transport system (slow implementation of transport policy) are finally present.</p>	<p>The Slovenian case study defined in first instance the bottlenecks affecting the rail network and identified accordingly the solutions needed to improve rail passenger transport and provide better links between the different transport modes and solutions available in the country. The analysis also considered the improvements of international connections. Along with better accessibility with neighbouring countries, the case study identifies solutions allowing to improve the intermodal trips in the whole Ljubljana metropolitan area. As part of the case study a review of the planned interventions was carry out together with a prioritisation of the actions to increase attractiveness and competitiveness of passenger transport by rail. The case study aimed at defining and implementing a common general strategy for the development of alternative solutions to private road passenger transport in the Ljubljana urban region area and beyond. In other words the case study was targeted at developing intermodality between different transport systems (bus, railway, maritime and air transport) with the aim of promoting sustainable tourism accessibility in the area between coastal towns and the Ljubljana Urban Region and beyond.</p>
<b>Friuli Venezia Giulia</b>	<p>The Friuli-Venezia Giulia Region case study focused on the Trieste area and it was implemented acting in close contact with the Autonomous Region of Friuli-Venezia-Giulia (Associated Partner) and other local stakeholders, including public transport operators. The case study focused on improving multimodal public transport, with particular attention to maritime services and their intermodal connections with the Trieste railway/public transport. This priority was developed also in other EU projects such as EA SEA-WAY project, co-financed by the CBC IPA-Adriatic program, through which new maritime services between Trieste, Piran (Slovenia), Rovinj (Croatia) and Pula (Croatia) were originally introduced. It is worth mentioning that further extensions of the maritime transnational services were implemented thanks to the MOSES project financed in the framework of the Interreg Italy Croatia 2014-2020 Programme. The routes between Trieste and Istria are of particular importance, as in addition to the tourist market, they strengthen cross-border relations between Italy, Slovenia and Croatia. These waterbus and maritime connections are considered an important opportunity for the socioeconomic growth of these territories.</p>	<p>The objective of the Friuli-Venezia-Giulia case study was to support intermodal connections and accessibility pivoting on the existing waterbus and maritime connections in Trieste and understanding the feasibility of establishing a new waterbus/maritime service between the two cities of Trieste and Koper. Following the analysis carried out and the feedbacks received from the interested parties, it was possible to elaborate a dual case study for the Trieste area. The first one (sub-case A) focuses on improving urban public transport connections with the maritime passenger terminal, also with regard to passengers visiting Trieste (thus allowing better accessibility to the main tourist sites). The second one (sub-case B) is facing another priority of the Friuli Venezia-Giulia Region related to better understanding – especially from stakeholders’ point of view - the potential of a new maritime public transport linking Trieste and Muggia (Italy) to Koper (Slovenia), also considering the important cross-border commuter flows and the lack of efficient cross-border public transport links between these two cities. This could be seen as an additional connection within a wider range of maritime links including, together with seasonal services mainly related to tourism purposes, also the current Trieste-Muggia waterbus service (operated throughout the year). Furthermore, it aimed at developing an integrated approach to cross-border mobility by promoting the development of sustainable multimodal solutions (rail / bus / waterway transport / bicycle sharing).</p>

<b>Zagreb</b>	<p>Most of the tourist trips involving maritime transport in South-Eastern Europe include road transport solutions (mainly buses) to/from Italian ports and therefore ships to/from Greece. This leads to the situation where individual passengers and/or groups of tourists from Croatia travel by bus for hours to the ports of Venice, Trieste, Ancona and to Greek ports. The railway services connecting Croatia with Greece are not competitive due to the long-distance and travel times: Zagreb or Ljubljana - Athens requires about 2-6 train changes and takes 43 hours; Sarajevo - Athens requires about 3 train changes and takes 65.5 hours. Nowadays transport by railway is not a reliable and efficient solution. This concerns in particular tourists, who do not want to waste too much time traveling during their holidays.</p>	<p>The Croatian case study consists of a feasibility study covering the entire ADRIAN area, focussing on the improvement at the Croatian ports of interconnections between the existing transnational train services to Slovenia, Bosnia and Herzegovina with transnational Croatia-Greece shipping lines. The objective of the case study was to explore the possibility of facilitating faster and cheaper trips for tourists by interconnecting ADRIAN countries with innovative train and maritime services. The case study aimed at finding intermodal rail-maritime combined solutions to shorten the journey by land, encouraging the use of greener transport.</p>
<b>Port of Bar</b>	<p>Montenegro's maritime connectivity is limited to the Bar-Bari (Italy) connection. The port of Bar is the main port of Montenegro. The passenger terminal in the port of Bar is located in the Northernmost part of the port. Although it is officially classified as a passenger terminal, it is actually a ferry terminal/Ro-Pax terminal. Furthermore, the port of Bar is the final station of the Belgrade-Bar railway line. Montenegro is connected only to Serbia (Bar-Belgrade) thanks to a journey lasting 10 hours. At present, the Bar-Belgrade railway line does not meet modern rail transport standards in terms of speed and service reliability. On this basis activities have started aimed at rehabilitating modernising the existing railway infrastructure. The road infrastructure, mainly in coastal areas, is congested in the summer due to intensification of tourist flows. Montenegro's road network is also generally obsolete and inadequate for fast and efficient road transport. The two main transport axes are East-West (Ulcinj - Herceg-Novi - Croatia, along the Adriatic coast) and North-South, (Serbia - Bijelo Polje - Bar). Developing port hinterland connections is strategic for the port of Bar. Located in a sparsely populated region, the port's capacity strongly depends on its connections with the hinterland. The current low quality of connections in the hinterland of the port of Bar is one of the main causes explaining the underutilization of the port infrastructure and facilities. This means that improvements in rail and road connections with the hinterland have a strong impact on the future development of the port.</p>	<p>The Port of Bar case study includes a set of analysis aimed at identifying intermodal maritime and public transport interconnecting solutions in the area of the city port of Bar; analysing passenger flows within this area; examining intermodal passenger transport, maritime-bus-rail services to Bar; improving the role of seaports in the local and regional public transport system and promoting reliable alternatives to road transport; identifying passenger needs and expectations. The Inter-Connect case study proposed solution is related to development of new infrastructure that would enable integrating the following transport modes: bus, rail, maritime and cycling with the possibility of developing park &amp; Ride (P&amp;R) facilities.</p>



<b>Durrës-Tirana</b>	Albania has good maritime links to the rest of the ADRIAN area thanks to the port of Durrës, connected directly to Piran (Slovenia), Spalato (Croatia), and Italy (Bari). With regard to railway transport, connections exist only with the city of Belgrade (Serbia), while a freight transport link with Montenegro is at its planning stage. Consequently, the most widely used means of transport are cars and airplanes.	The Albanian case study consists of a study on the development and implementation of technological solutions aimed to improve intermodal transport by means of provision of a real-time information system for travellers, harmonization and integration of the time schedules of all available public transport solutions. Different information channels are expected to be used for the purpose of developing the real-time information system, including the websites of the Ministry of Transport, Albanian tourism fairs and websites of additional stakeholders from the Albanian tourism sector. This integrated digital information platform will allow foreigners and/or Albanians to obtain the necessary information in real-time in order to plan and coordinate their travel activities more effectively and efficiently. The area considered would be the one from Durrës to Tirana, including the Rinas international airport. The study had a dedicated specific focus in the interconnection between the Durrës ferry terminal and Durrës central train station, due to the proximity of these transport hubs. In fact, the ferry terminal at the port of Durrës is very close (and within walking distance) from the central train station of Durrës.
<b>Belgrade</b>	Due to construction works on the right bank of the river “Sava” in the city centre, as part of one of the largest urban requalification projects implemented in the Serbian capital city in last few decades, called “Belgrade Waterfront”, one of the two city central railway stations (by Savamala) was closed and replaced by a new central railway station located in Savski Venac (Prokop), and the nearby intercity bus station is also going to be moved in the coming months to a new location close to the second central railway station in Belgrade (Novi Beograd). Due to the different location of the two central railway stations and the intercity bus station at present, passengers in need of interconnecting between rail and intercity bus services have to use urban public transport services. After completion of the new bus station the situation will improve thanks to its future location in the proximity of the Novi Beograd railway station and the availability of railway services interconnecting the two central railway hubs. This new configuration will however require upgrading of the Novi Beograd railway station. Still, the Southern and Eastern parts of Belgrade will be far from the intercity bus station and an increase in the use of the bus stop at “Autokomanda” highway junction is likely to occur, resulting in higher congestion. Furthermore, the new Prokop central railway station will need to be better connected with city public transport services, requiring	The Serbian case study aims at developing guidelines and proposals and recommendations for the further development of the Belgrade public transport system, highlighting new challenges and opportunities for developing intermodal interconnections between public transport systems conjointly with urban requalification and development schemes, involving relocation and modernisation of railway and intercity bus stations in the centre of Belgrade. The case study consists of a feasibility study with a detailed analysis of the existing and future infrastructure and services, and the related demand. On the basis of the review of the existing plans the study comments on existing and future weaknesses, and provides recommendations about the need for future assets and infrastructure as well as organizational initiatives to promote the Belgrade public transport system as an integrated and intermodal one. As part of the case study the impact of the relocation of the Railway Station Belgrade Centre (Prokop) and the Bus Station Novi Beograd was investigated. Specific attention was given to the possibility of using intermodal passenger transport solutions for the appropriate interconnection between city rail and intercity and international railway services. The results of the Inter-Connect case study represent a starting point for further investigating the impact of the relocation of the stations.

additional works on the street network to enable better connectivity to the different public transport systems available, namely bus, tram and trolleybus.

*Source: Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»*

Concerning the context/background of implementation of the eight Inter-Connect project case studies, it is useful recalling project Deliverable 2.4.2, which refers to the following categories of the territorial/spatial levels of transport connectivity:

- City connectivity: actions and strategies to improve passenger connections between different urban transport hubs (train and bus stations, etc.);
- Regional connectivity: better connect the different cities, creating effective, reliable, and attractive competitive public transport solutions capable of competing with the transport of private cars. In this sense, rail links play a crucial role;
- Transnational connectivity: connections of the main cities of the Adriatic-Ionian area with fast, effective, and reliable public transport solutions. In this sense, rails and maritime connections play a crucial role.

A further consideration about the functional relevance of the eight case studies is that all of them involve in their overall concept and functioning:

- Interconnections between international long-distance traffic flows via Motorways of the Sea and national, regional and/or local traffic by railway and/or public transport, through core and comprehensive ports (Igoumenitsa, Friuli Venezia-Giulia, Zagreb, Port of Bar, Durrës-Tirana) – thus contributing to transnational connectivity;
- Interconnections between international long-distance traffic flows by railway and national, regional and local traffic by railway and/or public transport, through stations located in core urban nodes where core airports are also in operation, specified that no core airports in any of the core nodes subject of the Inter-Connect case studies is currently connected to the rail network (Emilia-Romagna Region, Ljubljana, Zagreb, Belgrade) – thus contributing to regional and city connectivity.

The following table provides an indication of the geographical and functional relevance of the case studies referring to the urban, metropolitan, regional, national and transnational territorial scales.

**Table 5: Inter-Connect project case studies territorial/functional relevance**

Territorial level	Igoumenitsa	Emilia-Romagna Region	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Urban area</b>	x	x	x	x		x	x	x
<b>Metropolitan area</b>		x	x	x				x
<b>Regional</b>	x	x	x	x		x	x	x
<b>National</b>	x		x		x		x	x
<b>Transnational</b>	x	x	x	x	x	x	x	x

*Source: Authors*

Whilst all the case studies in a broader sense are interconnecting long-distance international traffic flows with national, regional and local traffic (particularly through the interconnected ports), among the case studies, the Friuli Venezia-Giulia and the Zagreb ones are worth mentioning that include dedicated solutions for the improvement of interconnectivity specifically for transnational services. The Friuli Venezia-Giulia case study in particular, includes in its scope the analysis related to the potential development of a cross-border maritime/waterbus service between Trieste (Muggia) and Koper as well as improving inter-connections of already exiting seasonal lines linking Trieste with different ports in Slovenia and Croatia. The Croatian case study refers to the improvement at Croatian ports of interconnections between transnational train services to Slovenia, Bosnia and Herzegovina with transnational Croatia-Greece shipping lines.

Further to their relevance at the transnational scale, most of the Inter-Connect case studies are also important at the urban and regional territorial levels, whereas some of them are relevant also at the national and metropolitan scale. This is particularly due to the availability or development as part of

the case studies of ICT, telematic applications and/or ticketing systems functioning at these different territorial levels.

As already pointed out in the Inter-Connect project Deliverable T2.4.1, the main problems related to intermodal passenger transport tackled by the eight case studies concern the absence of seamless connection from hub to hub, and the difficulty in providing effective public transport solutions during the high peak tourist season, as well as the lack of cross-border train and ship services and poor competitiveness of greener solutions if compared to the motorcar (both in terms of economic convenience and time required). All these issues negatively affect the implementation and diffusion of more sustainable public transport intermodality solutions. The following table lists the specific problems and threats which affect intermodality in the context of the Inter-Connect project case studies.

**Table 6. Summary of the specific intermodality problems and threats documented in the Inter-Connect case studies**

Specific problems and threats documented in the case studies	
<i>Urban and metropolitan level</i>	
<b>Hub to hub smooth connections</b>	<ul style="list-style-type: none"> <li>- Lack of information on the interchanges opportunities among the key urban nodes;</li> <li>- Lack of soft infrastructures (info boards, dedicated road signals, etc.) guiding the tourists from one public transport hub to another;</li> <li>- Lack of public transport solutions connecting the different urban stations (dedicated bus lines, fast public connections, etc.);</li> <li>- Lack of data on passenger flows (needed for a better planning of potential on intermodal solutions);</li> <li>- Lack dedicated facilities in the interchange points (luggage deposits, etc.);</li> <li>- Lack of an integration among the different public transport services' timetables.</li> </ul>
<b>High season public transport demand</b>	<ul style="list-style-type: none"> <li>- Difficulties in balance the offer of public transport services in the different seasons (mainly in the touristic areas, affected by a great passenger flow seasonality);</li> <li>- Conflicts among residents and tourists during summer peaks on the utilization of public transport;</li> <li>- Lack of economic resources to increase the services during the demand peaks;</li> <li>- Conflicts among tourists and residents on requested stops and territorial coverage of the public transport services.</li> </ul>
<i>Regional and national level</i>	
<b>Fast and reliable coast to inland connections</b>	<ul style="list-style-type: none"> <li>- Old train infrastructures;</li> <li>- Weak connections among ports to main big cities PT networks (especially with the inland capital cities);</li> <li>- Long travel time;</li> <li>- Several train delays;</li> <li>- Low reliability of the public transport services (mainly train services and intercity buses).</li> </ul>
<b>Hub to hub smooth connections</b>	<ul style="list-style-type: none"> <li>- Weak integrations among timetables of different public transport solutions (national with regional trains, buses with trains, etc.);</li> <li>- Weak integration among PT fares and ticketing systems;</li> <li>- Hub connections only with private Taxi.</li> </ul>
<i>Transnational level</i>	
<b>Very few cross-</b>	<ul style="list-style-type: none"> <li>- Existing cross borders train services with very long travel time;</li> </ul>

Specific problems and threats documented in the case studies	
<b>boarders train and ships services</b>	- Infrastructure problems (mainly in Balkans); - Cross borders ships services only during summer period.
<b>Existing services not competitive with car use</b>	- Travel high costs; - Long travel times; - No adequate communication strategies; - Different governance level not aligned on priorities and actions to be implemented in order to improve the services.

Source: Inter-Connect project Deliverable T2.4.1 «Transferring protocol»

Further to the problems faced by the Inter-Connect project case studies, the following table summarises the needs tackled by the different proposed solutions. In general, the main challenges of the Inter-Connect case studies can be summarized in the following points:

- Integration of long-distance travel with the last urban mile;
- Integration of maritime transport with local public transport services;
- Develop innovative and effective cooperation schemes between the main stakeholders (public and private) in order to achieve seamless intermodal travel solutions.

**Table 7: Inter-Connect case studies intermodality needs**

Case studies	Case study intermodality needs		
	City connectivity	Regional connectivity	Transnational connectivity
<b>Igoumenitsa</b>	Igoumenitsa Port - city accessibility. Better management of the urban summer PT demand peck.		
<b>Emilia-Romagna Region</b>		Improvement of coast (Rimini and Ravenna) to inland (Bologna) rail connections. More attracting rail service for tourists and commuters.	
<b>Ljubljana</b>		Ports (Koper) to inland rail connections (Ljubljana Airport). Better integration of existing PT services for tourists.	
<b>Friuli Venezia-Giulia</b>	Triste Port – city centre accessibility. Improvement of waterbus/cruise urban terminal accessibility.		Improvement and strengthen of Italy-Slovenia-Croatia PT maritime links.
<b>Zagreb</b>		Ports to inland rail connections (Zagreb). Better integration of existing PT services for tourists.	Croatia – Greece –Italy cross boarder connections. Improvement of existing services.
<b>Bar</b>	Port of Bar – city centre accessibility. Improvement on PT information provision for tourist in the port area.	Port of Bar to inland train connection. Create valid alternative to the use of private car.	
<b>Durres/Tirana</b>	Port of Durres – city centre accessibility. Improvement on PT information provision	Port of Durres to inland (Tirana) train connections. Increase the perceived quality	

Case studies	Case study intermodality needs		
	<i>City connectivity</i>	<i>Regional connectivity</i>	<i>Transnational connectivity</i>
	for tourist in the port area.	of existing train services.	
<b>Belgrade</b>	Train stations – Bus stations connections. Improve the urban multimodality increasing the accessibility to PT hubs.		

*Source: Inter-Connect project Deliverable T2.4.1 «Transferring protocol»*

The results obtained within the Inter-Connect project showed that the common intermodality needs pursued, both at national and regional levels, concern the following aspects:

- Promotion of more attractive public transport services capable of involving an increasing number of users (both commuters and tourists);
- Creation of hub to hub “smooth” connections between railways, ports and bus stations;
- Creation of integrated fares systems and ticketing for tourists in order to facilitate the intermodal solutions both for commuters and tourists;
- Soft and technological solutions aimed to improve the railway network without major investments;
- Improvement of the real-time information and timetables integration.

In general, the various technical solutions tested in the Inter-Connect project case studies described in the previous table above can be summarised as follows:

- Urban planning solutions (e.g. transport hubs accessibility);
- Integration of ticketing solutions (e.g. integrated train-bus ticketing system at regional level);
- Different solutions for the integration of the transport mode;
- Flexible public transport solutions (DRT);
- Better information solutions for end users (e.g. train timetables optimization aimed at reducing travel times, train timetables, real time information);
- Solutions of transnational agreements (e.g. cooperation scheme for the promotion of a new cross border ship line service);
- Solutions of multi-stakeholder agreements (e.g. collaborative strategies among key stakeholders).

### 3.1.2 Inter-Connect project case studies and TEN-T Network

Referring to the Core Network Corridors, the Inter-Connect project case studies affect five out of the nine axes: Baltic-Adriatic, Mediterranean, Orient East Mediterranean, Rhine-Danube and Scandinavian- Mediterranean. Most of the case studies (six out of eight) affect the infrastructure located along the Mediterranean corridor, whereas the Emilia-Romagna case study is the one involving more corridors.

**Table 8: Inter-Connect project case studies and their localisation on the CNCs**

Core Network Corridors	Igoumenitsa	Emilia-Romagna Region	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Baltic-Adriatic</b>		x	x	x				
<b>Mediterranean</b>		x	x	x	x	x	x	
<b>Orient East Mediterranean</b>	x							
<b>Rhine-Danube</b>								x
<b>Scandinavian-Mediterranean</b>		x						

*Source: Authors*

The following table provides an indication of the infrastructure affected by each case study, focussing on the TEN-T. specifically aimed at promoting intermodality and interconnectivity between public transport modes and maritime transport, it is not surprising that the Inter-Connect case studies involve a number of core city ports, i.e. Igoumenitsa, Ravenna, Koper, Trieste, Koper, Rijeka, Bar and Durrës. In addition to these core city ports, the following additional city ports are worth mentioning Zadar, Split and Dubrovnik that were also affected by the Croatian case study. Further to city ports, core urban nodes, with their railway and bus intercity stations are also key hubs for the promotion of intermodality according to the scope of the Inter-Connect case studies. Core urban nodes are also the places where core urban airports are located. As mentioned above, due to the unavailability at present of rail interconnections to the core airports in the case study territories, the links between the airports and the railway transport system is only possible by means of other public transport solutions (bus, tram, metro etc. as applicable). Accordingly the interconnection between aviation and railway and maritime/waterbus transport services is only possible via road transport.

**Table 9: TEN-T infrastructure affected by the scope of the Inter-Connect project case studies**

Transport modes	Igoumenitsa	Emilia-Romagna Region	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Core Urban Nodes Railway and Bus Station(s)</b>		Bologna	Ljubljana		Zagreb	(Podgorica)	Tirana	Belgrade
<b>Core Airport(s)</b>		(Bologna)	(Ljubljana)		(Zagreb)	(Podgorica)	(Tirana)	(Belgrade)
<b>Core City Port(s) as well as their railways and bus stations</b>	Igoumenitsa	Ravenna	Koper	Trieste and Koper	Rijeka	Bar	Durrës	
<b>Other railway and bus stations along</b>		Railway stations along the	Railway stations along the	Railway stations along the CNC/core	Railway stations along the		Railway stations along the	

Transport modes	Igoumenitsa	Emilia-Romagna Region	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>CNC/core network</b>		itineraries Bologna-Ravenna, Bologna-Rimini	CNC/core network	network in the Friuli-Venezia-Giulia Region and between Trieste and Koper	CNC/core network		CNC/ core network	
<b>Other railway and bus stations along the comprehensive network</b>		Railway stations along the itinerary Ravenna-Rimini	Railway stations along the comprehensive network	Railway stations along the comprehensive network in the Friuli-Venezia-Giulia Region	Railway stations along the comprehensive network		Railway stations along the comprehensive network	
<b>Other city ports along the comprehensive network as well as their railways and bus stations</b>					Zadar, Split and Dubrovnik			

*Source: Authors, Notes: nodes in brackets are only indirectly affected by the case studies*

In addition to city ports and core urban nodes and airports, railway and bus stations along the core and comprehensive networks as well as other local transport systems are affected by the solutions analysed and proposed in the eight case studies, for the appropriate interconnection between the different networks and transport nodes.

### 3.1.1 Inter-Connect project case studies conceived/implemented measures

In line with the theoretical and methodological approach defined for the Inter-Connect project (see Deliverable T2.3.1) and focussing on the objectives and actions analysed and implemented as part of the Inter-Connect project case studies, the promotion of rail and maritime intermodality should refer to three different project dimensions:

- Soft measures, i.e. measures working on increasing the efficiency of existing services and infrastructures without big investments;
- Major measures, i.e. measures where relevant public investments on infrastructures are required; and
- Administrative/governance measures.

The table below shows that the Inter-Connect case studies generally include many and different measures, including soft, major and governance solutions. More specifically, referring to soft measures, all the case studies include intermodality promotional activities, as they all investigate current problems and identify potential solutions to facilitate the integrated planning, development, implementation and delivery of infrastructure and services for passengers transport. In terms of specific actions, the case studies generally conceived/implemented integrated space management, integrated ticketing and harmonisation of timetables solutions between public transport services particularly by road and/or rail transport. Most case studies also involved the planning and/or organisation of railway transport promotion activities and campaigns to promote intermodality between public transport services by road and rail and maritime/waterbus transport services, as a solution towards a more sustainable transport system.



**Table 10: Inter-Connect project case studies conceived/implemented measures**

Measures	Igoumenitsa	Emilia-Romagna Region	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Soft measures</b>								
<b>Intermodality</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Integrated Space Management</b>	No	Yes	No	No	No	No	No	No
<b>Integrated ticketing</b>	No	Yes	Yes	No	No	No	No	No
<b>Harmonisation of timetables</b>	No	Yes	Yes	No	No	Yes	Yes (future)	Yes
<b>Railway transport promotion</b>	No	Yes	Yes	No	Yes	Yes	No	Yes
<b>Sustainability campaigns</b>	Yes	Yes	No	Yes	Yes	No	No	Yes
<b>Major measures</b>								
<b>New services</b>	Yes	Yes	Yes	Yes	No	No	No	No
<b>Renewal of fleets/rolling stock</b>	Yes	Yes	No	No	No	No	No	No
<b>Implementation of new infrastructure</b>	No	No	No	No	No	Yes	No	Yes
<b>Cross-border interoperability</b>	No	No	No	Yes	No	No	No	No
<b>Governance</b>								
<b>Innovative business models</b>	Yes	Yes	No	No	No	No	No	No
<b>Improvements in administration systems</b>	Yes	No	Yes	Yes	No	No	No	No
<b>Stakeholder cooperation programs</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Integrated authorities</b>	No	No	No	No	No	No	No	No
<b>Transnational agreements</b>	No	No	No	Yes	No	No	No	No

Source: Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»

Although the primary focus of the Inter-Connect project was the promotion of intermodality and interconnectivity between public transport by rail and road and maritime services for passengers, by means of soft measures, some case studies also identified a set of major measures, such as new or optimised public transport services and renewal of vehicle fleets/rolling stock to operate new services and/or optimise existing operations (Igoumenitsa, Emilia/Romagna Region, Ljubljana, Friuli Venezia-Giulia). The Port of Bar and Belgrade case studies also propose the implementation of new infrastructure solution respectively for port infrastructure development and station/street reconfigurations to optimise terminal public transport operations. By proposing the development of a cross-border maritime/waterbus service between Trieste, Muggia and Koper, the Friuli Venezia-Giulia case study is also addressing cross-border interoperability measures.

**Table 11: Synthesis of the key soft measures analysed and developed in the Inter-Connect case studies**

Case Study	Key soft measures analysed in the Inter-Connect case study
<b>Igoumenitsa</b>	Bus lines; Transport hubs accessibility; Demand Responsive Transport (DRT)
<b>Emilia-Romagna Region</b>	Train timetables optimization aimed to reduce travel times; Integrated train-bus ticketing system at regional level
<b>Ljubljana</b>	Transport hubs accessibility; Bus lines improvement; Info-mobility; Integrated ticketing
<b>Friuli Venezia-Giulia</b>	Improvement/increase accessibility of port hub; Better information to tourists; Cooperation scheme for the promotion of a new cross border waterborne line service
<b>Zagreb</b>	Train timetable; Integrated ticketing; Collaborative strategies among key stakeholders
<b>Port of Bar</b>	New ship line; Infomobility
<b>Durrës-Tirana</b>	Real time information; Train digital solutions; Cost-benefit analysis
<b>Belgrade</b>	Data and transport planning; Urban public transport lines reorganization

Source: *Inter-Connect project Deliverable T2.4.1 «Transferring protocol»*

Finally, the Inter-Connect project case studies also consider governance measures. First of all, the eight case studies required the setup of stakeholders' cooperation activities and programs for their development and implementation. In this respect the table below summarises the stakeholders' engagement strategies adopted for the implementation of the case studies. In the majority of the case studies, such as the Igoumenitsa, Ljubljana, Friuli Venezia-Giulia Region, Zagreb and Durrës-Tirana, Memoranda of Understanding were developed and signed to the purposes of further developing and implementing the solutions analysed and identified as part of the case studies. Whereas coordinating authorities were generally identified for the implementation of the case studies and/or of the identified project solutions, in none of them an integrated authority for their implementation was setup. Concerning governance measures, some of the case studies finally proposed/implemented innovative business models and improvements in administration systems, particularly for the setup of new/optimised public transport services by road, such as the Demand Responsive Transport service in Igoumenitsa and the integrated rail/bus services in the Emilia-Romagna Region for the replacement of rail stops with bus stops, ensuring continuity of Public Transport Obligation services, as well as the solutions proposed in Trieste and Ljubljana for a better integrated transport system.

**Table 12: Inter-Connect project case studies stakeholders' engagement strategies**

Engagement strategies	Igoumenitsa	Emilia-Romagna Region Case Study A	Emilia-Romagna Region Case Study B	Ljubljana	Friuli Venezia-Giulia (Trieste)	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Invitation Letters</b>	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes
<b>Questionnaires and Surveys</b>	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No
<b>Exhibitions and Road Shows</b>	No	No	No	No	No	No	No	Yes	Yes
<b>Public Meetings</b>	Yes	Yes	Yes	No	No	Yes	No	Yes	No
<b>Use of the full range of the media</b>	No	Yes	No	Yes	No	No	Yes	Yes	No
<b>Structured interviews</b>	No	No	No	No	Yes	Yes	Yes	No	No
<b>Forums</b>	No	No	No	No	No	No	No	No	Yes
<b>Focus Groups</b>	Yes	No	No	Yes	No	No	No	Yes	No
<b>Advisory Committee</b>	No	No	Yes	No	No	No	No	No	No
<b>Workshop</b>	No	No	No	No	No	No	No	Yes	No
<b>Round Table</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Engagement strategies	Igoumenitsa	Emilia-Romagna Region Case Study A	Emilia-Romagna Region Case Study B	Ljubljana	Friuli Venezia-Giulia (Trieste)	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Discussions</b>									
<b>Public-private agreement</b>	Yes	No	No	No	No	No	No	No	Yes
<b>Participatory processes</b>	No	Yes	No	No	Yes	No	Yes	Yes	No
<b>Memorandum of Understanding (MoU)</b>	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No
<b>Others</b>	No	No	No	Yes (Dissemination events)	No	No	Yes (Collection of publicly available statistics from relevant sources)	No	No

Source: Authors

### 3.1.1 Inter-Connect project case studies stakeholders' involvement

In addition to the table above, listing the stakeholders engagement strategies, the table overleaf provides the detailed set of entities and institutions that were involved in the definition and implementation of the case studies. Both tables show that significant attention and efforts have been dedicated to the involvement of a great variety of stakeholders in the definition and implementation of the solutions identified as part of the Inter-Connect case studies.

As pointed out in the Inter-Connect project Deliverable 2.4.2 the involvement of key stakeholders was paramount for the implementation of the case studies and the definition of the solutions identified within their scope. Making the various stakeholders involved was fundamental in order to achieve a good technical result of the case studies activities and to guarantee the duration of the project actions and their effectiveness. This successful outcome of the Inter-Connect project was possible thanks to the deployment of a wider range of stakeholders' engagement strategies and tools.

Further to Memoranda of Understanding, already commented above, it is noticeable that most of the case studies involved the organisation of activities aimed at collecting primary data and information from the users as well as key project stakeholders, by means of questionnaires, surveys and structured interviews, as well as workshops, fora and focus groups. Round discussion tables among the key involved stakeholders were also organised in the vast majority of the case studies. Consultation processes were organised which also involved for certain case studies the use of a wide set of media and the setup of participatory processes. Dissemination activities were finally organised, including exhibitions and road shows and public meetings. Regarding more structured forms of stakeholders engagement, a group of different kind stakeholder was actively involved in the Friuli Venezia-Giulia Region case study and a public-private agreement was signed as part of the Igoumenitsa case study for the development of the new urban public transport services in the city and between the city and the port, as well as in Belgrade for the reorganisation/restructuring of the public transport services upon completion of the new Novi Beograd bus station.

**Table 13: Stakeholders involved in the Inter-Connect project case studies**

Type of stakeholder	Igoumenitsa	Emilia-Romagna Region Case Study A	Emilia-Romagna Region Case Study B	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Public authority / decision makers</b>	<ul style="list-style-type: none"> <li>• City of Igoumenitsa</li> <li>• Port Authority of Igoumenitsa</li> <li>• Region of Epirus</li> <li>• Regional Unit of Thesprotia</li> <li>• Traffic Police</li> </ul>	<ul style="list-style-type: none"> <li>• Emilia-Romagna Region Municipalities</li> </ul>	<ul style="list-style-type: none"> <li>• Start Romagna</li> <li>• Emilia-Romagna Region</li> <li>• AMR (Agenzia Mobilità della Romagna)</li> </ul>	<ul style="list-style-type: none"> <li>• BSC, Business Support Centre, Ltd.</li> <li>• RDA of Gorenjska</li> <li>• Regional Development Centre Koper</li> <li>• RDA Green Karst, Ltd.</li> <li>• Ministry of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Autonomous Region Friuli Venezia Giulia - Regional authority</li> <li>• Trieste Municipality - Local authority</li> <li>• Koper Municipality - Local authority</li> <li>• Muggia Municipality - Local authority</li> </ul>	<ul style="list-style-type: none"> <li>• Croatian Tourist National Board</li> <li>• Port authority of Rijeka</li> <li>• Port of authority Zadar</li> <li>• Port of authority Split</li> <li>• Port of authority Dubrovnik</li> <li>• City of Rijeka</li> <li>• City of Zadar</li> <li>• City of Split</li> <li>• City of Dubrovnik</li> <li>• Ministry of Maritime Affairs, Transport and Infrastructure</li> <li>• Ministry of Tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Transport and Maritime Affairs of the Government of Montenegro</li> <li>• Ministry of Internal Affairs</li> <li>• Ministry of Sustainable Development and Tourism</li> <li>• Office for European Integration at the Prime Minister's Office</li> <li>• Chamber of Economy Montenegro</li> <li>• Bar Municipality</li> <li>• Tourism Organization of Town of Bar</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Infrastructure and Energy (MIE)</li> <li>• Ministry for Europe and Foreign Affairs (MEFA)</li> <li>• Durrës Port Authority (DPA)</li> <li>• Albanian Railways Institute of Transport</li> </ul>	<ul style="list-style-type: none"> <li>• City of Belgrade - Secretariat for public transport</li> <li>• City of Belgrade - Secretariat for transport</li> </ul>
<b>Infrastructure and public transport operators</b>	<ul style="list-style-type: none"> <li>• Intercity private bus operator</li> </ul>	<ul style="list-style-type: none"> <li>• Trenitalia</li> <li>• Tper</li> <li>• StartRomagna Firms (mobility manager)</li> </ul>	<ul style="list-style-type: none"> <li>• Trenitalia s.p.a</li> <li>• Trenitalia-TPER</li> </ul>	<ul style="list-style-type: none"> <li>• Arriva Slovenia, Luka Koper, p.l.c.</li> <li>• Fraport Slovenija, Ltd.</li> <li>• Ljubljana urban transport</li> </ul>	<ul style="list-style-type: none"> <li>• Trieste Trasporti – Public Transport operator</li> <li>• Samer &amp; Co</li> </ul>	/	<ul style="list-style-type: none"> <li>• The Port of Bar JSC</li> <li>• „Barska plovidba“ JSC</li> <li>• Railway Transport of Montenegro JSC</li> <li>• Port of Adria JSC</li> </ul>	<ul style="list-style-type: none"> <li>• Railway industry operators</li> <li>• Albanian railways partners</li> <li>• SME railway undertakings</li> </ul>	<ul style="list-style-type: none"> <li>• Belgrade Railway Node JSC</li> <li>• Traffic Company “Lasta” JSC</li> </ul>

Type of stakeholder	Igoumenitsa	Emilia-Romagna Region Case Study A	Emilia-Romagna Region Case Study B	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
				(LPP) SŽ-Passenger transport, Ltd. NOMAGO, Ltd.			<ul style="list-style-type: none"> <li>• Monteput Ltd.</li> <li>• Utilities Ltd.</li> <li>• Interlog Bar</li> <li>• Private bus carriers (Mediterranean express, Zejtin, Blue line, Nikšić transport...)</li> </ul>		
<b>Citizen/Customs</b>	/	<ul style="list-style-type: none"> <li>• Tourists</li> <li>• Commuters</li> <li>• Schools</li> <li>• Users associations</li> </ul>	• Tourists	/	<ul style="list-style-type: none"> <li>• Viaggiare Slow</li> <li>• Citizen associations</li> </ul>	/	<ul style="list-style-type: none"> <li>• Citizen associations</li> <li>• ...</li> </ul>	• Citizen	• Transportlog – association of Transport managers
<b>Others</b>	<ul style="list-style-type: none"> <li>• The chamber of commerce of Igoumenitsa</li> </ul>	/	<ul style="list-style-type: none"> <li>• Shops in Romagna Region and tourist big attractions (museums, thematic parks, restaurants, etc.)</li> </ul>	/	<ul style="list-style-type: none"> <li>• Regional Development Centre Koper</li> </ul>	/	• Citizens	/	/

Source: Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»

The Inter-Connect case studies stakeholders' composition generally reflects the complexity and articulateness of intermodal transport systems and solutions. It furthermore shows a significant involvement of entities and institutions from the public sector, in line with the fact that several case studies were more focused on developing feasibility analyses than implementing solutions. On the other hand the participation of a number of transport operators and citizens and customer associations is also noticeable, which can be considered an indicator of the relevance and solidity of the identified and proposed solutions.

### 3.1.1 Inter-Connect project case studies synergies with relevant plans and other projects

An additional element that is worth considering about the robustness of the actions identified in the Inter-Connect case studies, is related to the synergies between the Inter-Connect case studies and additional relevant plans, and additional projects.

The following table summarises the relevant plans and strategies that support the Inter-Connect project case studies. It is noticeable that by promoting intermodality, the Inter-Connect project is not only in line with the European policy for transport and mobility, including but not limited to the development of the TEN-T. The case studies are also in line with the relevant national and regional transport plans, as well as with Sustainable Urban Mobility Plans – SUMP.

**Table 14: Inter-Connect case studies main supporting policies**

Inter-Connect case studies main supporting policies			
Case studies	Local level	Regional level	Transnational level
<b>Igoumenitsa</b>	<ul style="list-style-type: none"> <li>- Master Plan of the Port of Igoumenitsa 2016-2019</li> <li>- Igoumenitsa's SUMP – Sustainable Urban Mobility Plan of Igoumenitsa</li> </ul>	<ul style="list-style-type: none"> <li>- Strategic Plan for the Region of Epirus (2014-2020)</li> <li>- Operational Program “Transport Infrastructure, Environment and Sustainable Development”</li> </ul>	
<b>Emilia-Romagna</b>		<ul style="list-style-type: none"> <li>- Regional Integrated Transport Plan (PRIT) 2025</li> <li>- “Mi Nuovo” and Stimer. Regional integrated ticketing action plans</li> <li>- Regional Energy plan</li> </ul>	
<b>Ljubljana</b>	<ul style="list-style-type: none"> <li>- Sustainable Urban Mobility Plan for Municipality of Ljubljana</li> </ul>	<ul style="list-style-type: none"> <li>- Sustainable Urban Mobility Plan of Ljubljana urban region (SUMP LUR)</li> <li>- Regional Development Program of the Ljubljana Urban Region (2014-2020)</li> </ul>	<ul style="list-style-type: none"> <li>- The transport Development Strategy in the Republic of Slovenia;</li> <li>- Resolution on the National Program for the Development of Transport in the Republic of Slovenia (2030)</li> </ul>
<b>Trieste</b>	<ul style="list-style-type: none"> <li>- Sustainable Urban Mobility Plan (SUMP)</li> </ul>	<ul style="list-style-type: none"> <li>- FVG regional strategic plan 2014-2018</li> <li>- FVG Public Transport Regional Plan (2013)</li> </ul>	<ul style="list-style-type: none"> <li>- “Connettere l’Italia” (Connecting Italy)</li> <li>- “Piano straordinario mobilità turistica” (2017-2022) Tourism Mobility extraordinary national plan</li> </ul>

Inter-Connect case studies main supporting policies			
Case studies	Local level	Regional level	Transnational level
<b>Zagreb</b>			<ul style="list-style-type: none"> <li>- Transport Development Strategy (<i>TDS 2017</i>) of the Republic of Croatia (2017- 2030)</li> <li>- Master plan of Hz Putnicki prijevoz d.o.o.- Strategic programme for the period 2015-2030</li> </ul>
<b>Port of Bar</b>		<ul style="list-style-type: none"> <li>- Regional Development Strategy of Montenegro 2014–2020</li> <li>- Airport Development Master Plan of Montenegro for the period 2011-2030</li> </ul>	<ul style="list-style-type: none"> <li>- Transport Development Strategy of Montenegro (2019-2035)</li> <li>- Spatial Plan of Montenegro Until 2020</li> <li>- National Strategy for Sustainable Development Until 2030</li> <li>- The Railway Development Strategy 2017-2027</li> </ul>
<b>Durres/Tirana</b>			<ul style="list-style-type: none"> <li>- The National Strategy for Development and Integration (2015-2020) of the Republic of Albania</li> <li>- The National Transport Strategy and Action Plan (2016-2020)</li> <li>- Albanian National Transport Plan (ANTP 3)</li> <li>- General National Plan of Albania</li> <li>- The Sectorial Strategy of Transport &amp; Action Plan (2016-2020)</li> <li>- First Five-Year Review of the Albanian National Transport Plan (ANTP)</li> </ul>
<b>Belgrade</b>	<ul style="list-style-type: none"> <li>- Belgrade Transport Master Plan (“Smart Plan”)</li> </ul>		<ul style="list-style-type: none"> <li>- Strategy of Railway, Road, Inland Waterway, Air and Intermodal transport development in the Republic of Serbia</li> <li>- General Master Plan for Transport in Serbia</li> </ul>

Source: *Inter-Connect project Deliverable T2.4.1 «Transferring protocol»*

Considering the key role of transport nodes for the promotion of intermodality and the fact that most transport nodes are located in urban areas (including core city ports), the integration of the proposed solutions in the strategies identified as part of Sustainable Urban Mobility Plans is paramount. Whereas Sustainable Urban Mobility Plans seem not to be available in Bar, Durrës and Belgrade, the solutions proposed in a urban context as part of the Igoumenitsa, Emilia-Romagna Region, Ljubljana and Friuli Venezia-Giulia case studies are in line with the relevant SUMP, or they are in any case in line with the objectives and strategies set in these documents.

**Table 15: Integration of the case studies in the relevant local and regional/national transport strategies**

Transport plans	Igoumenitsa	Emilia-Romagna Region	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
Availability of Sustainable Urban Mobility Plan(s)	Yes	Yes	Yes	Yes	Yes	No	No	No
Case study solution integrated in Sustainable Urban Mobility Plan(s)	Yes	Yes	Yes	Yes	No	No	No	No

Source: Authors based on Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»

The Inter-Connect project case studies are moreover synergic with several projects and initiatives already implemented in the Adriatic Ionian region, also supported by Interreg programmes, including ADRION. In order to consolidate the proposed solutions and facilitate their implementation, a review of relevant projects has been made as part of some of the case studies. With reference to these case studies the following table provides a summary of the relevant identified initiatives.

**Table 16: Synergies between the Inter-Connect project case studies and other initiatives in the EUSAIR**

Case study	Synergic initiatives
<b>Igoumenitsa</b>	<b>INTERREG programmes</b> - supporting the improvement of infrastructure in road networks as well as citizen centered administration services – improving the quality of the end products and services.
<b>Friuli Venezia-Giulia (Trieste)</b>	<p><b>Interreg project co-funded within Italy Austria Programme 2007-2013 - MICOTRA</b> service related to connectivity with Austria - has allowed to re-establish rail connectivity between FVG and Carinthia (AT).</p> <p><b>CONNECT2CE project, co-funded by the Interreg Central Europe Programme</b> - pilot activity testing the extension up to Trieste of the cross-border Mi.Co.Tra train service during weekends and festivities.</p> <p><b>CROSSMOBY project, co-funded by the Interreg Italy-Slovenia Cross border cooperation Programme</b> - recent improvements with particular reference to linking Trieste and Ljubljana - a new cross-border passenger train service linking the two cities started on September 2018, with a couple of trains per day, one of which extended to Trieste Airport and Udine.</p> <p><b>CONNECT2CE project, co-funded by the Interreg Central Europe Programme</b> - an integrated cross-border ticket was launched on March 2019 providing a new intermodal PT connection combining the train service operated by Slovenian railways and the bus services operated by Trieste Trasporti, revitalizing the role of the Villa Opicina railway station as a secondary node with significant cross-border relevance.</p> <p><b>CROSSMOBY</b> - is also addressing the cross-border maritime connectivity between Slovenia and FVG region.</p> <p><b>FORTIS, co-funded by the Interreg Italy-Slovenia Cross border cooperation Programme</b> – (recently started, in March 2020) addressing cross-border pilot connectivity through different pilots also addressing the connectivity between Trieste/Muggia and Koper (both via bus and waterborne services) as well as the promotion of the integrated bus/train ticket IT-SI along the Trieste-Villa Opicina-Ljubljana connection</p>
<b>Port of Bar</b>	<b>EA SEA-WAY (IPA ADRIATIC Programme)</b> - specific project objectives were to integrate and upgrade existing and new collective passenger (tourists and residents) transport services in order to increase the accessibility across the Adriatic basin and decrease CO2 emissions; to explore a better integration of urban and regional connections between ports, airports and main tourist destinations/urban areas; to develop new or renovate existing infrastructures in the Adriatic port system in order to promote and encourage a more sustainable and efficient passenger transport; to foster passenger sea transport and other collective transport means connected to the port system; to test new governance models in the light of the forthcoming Adriatic Ionian Macro Region.



Case study	Synergic initiatives
	<p><b>CAPTAIN (IPA ADRIATIC Programme)</b> - specific objectives of the project are to promote analysis and feasibility studies for the implementation of actions of EUSAIR Pillar 2; to create synergies among EA SEA-WAY, Adrimob, AdriaticMoS projects, and their partners; to develop a broader network of main transport actors and to transfer best practices; to develop exchanges and synergies through tools, best practices, and models implemented in EA SEA-WAY, Adrimob, AdriaticMoS; to increase the impact of EA SEA-WAY, Adrimob, AdriaticMoS on regional/national policies in the AI Area to guarantee coordination of interventions to overcome bottlenecks and missing links in passenger and freight transport.</p> <p><b>ADRIMOB project (IPA ADRIATIC Programme)</b> – with the following specific objectives: to encourage the use of maritime transport for passengers between and along the coasts; to improve the quality of transport in the Adriatic area; to strengthen and integrate existing infrastructure networks; to define a strategy for cross-border maritime transport in the Adriatic Sea, in combination with other modes of transport; to increase the use of alternative transport in relation to car usage; to promote existing activities.</p>
<b>Durrës-Tirana</b>	<p><b>SEETAC Project</b> - delivered successful and important results in providing a harmonized data collection and a coherent international traffic forecasting model for the SEE region.</p> <p><b>ACROSSEE project</b> - aims to improve transport connections in South East Europe through removing bottlenecks and improving regional cohesion. A series of actions proposed by this project should allow the reduction of waiting at the border and streamline documentation. It should also propose additional rail lines in southeast of Europe and connect them to the TEN-T network of European transport corridors. The project is financed from the fund of South-East Europe (SEE).</p> <p><b>HAZADR project</b> - aims to address concrete problems and needs identified in existing European policies and strategies on sea protection, while at national and regional level it is based on an analysis of the level of preparedness of project partners. Financing by IPA Adriatic Programme.</p> <p><b>INTERMODAL project</b> - aims to share sustainable mobility models based on intermodal transport to promote tourism in the Adriatic littoral zone. Project deals with shared definition &amp; implementation of a pilot integrated transport system making urban mobility sustainable and answering each area needs.</p> <p><b>EA SEA WAY Project</b> - aims to improve the accessibility and the mobility of passengers across the Adriatic area and its hinterland, through the development of new cross-border (CB), sustainable and integrated transport services and through the improvement of the infrastructures linked to the provided service.</p>

Source: *Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»*

### 3.1.1 Inter-Connect project case studies key performance indicators

As part of the elaboration of the Inter-Connect project *Deliverable T2.3.1 «Cases examination & evaluation report»*, a set of key performance indicators was identified for the assessment of the case studies. The table overleaf summarises the key performance indicators for all the case studies.

A first key performance indicator concerns the transport modes considered in the Inter-Connect project case studies. Most case studies focus on the interconnection between railway and bus or local public transport systems (five out of eight case studies). Half of the case studies promote interconnections between rail and/or local public transport systems and maritime transport, specified that also the Emilia-Romagna and Ljubljana case studies support in wider terms the interconnection between maritime nodes (Ravenna and Koper) and public transport solutions alternative to road transport.

The Friuli Venezia-Giulia case study also involves the promotion of intermodality between local and regional public transport services by road and rail and waterbus services. Several case studies, particularly those involving in their scope railway/bus stations located in core urban nodes, also present the possibility to interconnect aviation with the rail and maritime services via public transport systems.

**Table 17: Inter-Connect project case studies key performance indicators**

Key Performance Indicators	Igoumenitsa	Emilia-Romagna Region Case Study A	Emilia-Romagna Region Case Study B	Ljubljana	Friuli Venezia-Giulia (Trieste)	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Transport modes integrated</b>	2 modes / Bus and Ferry	Train and Bus	Buses and trains	4 (ferry/cruise, rail, bus, aviation)	/	/	5 (train, bus, ship, ferry, aviation)	Bus, train	Train, bus and local public transport sub-systems
<b>MaaS approach</b>	No	Yes	Yes	Yes	/	/	Yes	No	No
<b>Foreseen users</b>	1400 passenger per day	/	Additional 7.000 users to regular public transport users	200-400 users month (any segment within the case study and dependable on time of year)	/	/	761.000 (estimated/expected)	All passengers that use ferries, trains and buses.	At least 200.000 according to developed analyses
<b>Traffic reduction* % or Co2 emissions</b>	/	/	/	Reduction of 0,5 % traffic with personal vehicles (*observation from current status of public transport usage)	/	/	Could not be estimated	/	By direct train connection between two future stations, it is expected that at least 30% of passengers stop using current bus lines, which can be estimated in reduction of bus-km at those lines for 50 per day. Comparing to current situation it is estimated that traffic and pollution reduction can be achieved for 10-20%. (based on expert's opinion)
<b>Pollution reduction* % or Co2 emissions</b>	/	/	/	Reduction of 0,3 % emissions from personal vehicles	/	/	Could not be estimated	/	
<b>Harmonisation of Timetables</b>	/	Yes	Yes	Yes	/	/	Yes	In the future will be taken into consideration	Yes. Integration of Inter-city and transnational, as well as local transport timetables can and should be integrated
<b>App for final users</b>	Yes	Yes	Yes	No	/	/	Yes	/	Possible
<b>Others</b>	/	/	/	Yes (Multilanguage systems for users)	/	/	/	/	/

Source: Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»

The set of identified key performance indicators also considers the expected number of passengers and the reduction of externalities from transport operations. With reference to traffic, it is noticeable that the Inter-Connect case studies have a positive impact on the transport systems where they are conceived, contributing to an increased attractiveness of greener mobility solutions and accordingly showing higher traffic of more sustainable transport modes. For some case studies it was also possible estimating their impact in terms of reduction of externalities, which also demonstrate the positive effect associated with the implementation of the proposed measures.

Two important indicators have been furthermore considered in the evaluation of the Inter-Connect project case studies, which relates to the consideration of the Mobility as a Service (MaaS) approach and use of telematic applications for communication, travel planning and ticketing purposes. Both topics reflect the increasing importance of transport digitalisation in increasing the attractiveness of intermodal transport solutions and making interconnectivity happen.

Last but not least, harmonisation of timetables of scheduled services is also one of the identified key performance indicators to promote intermodality. As already commented in the previous paragraphs describing the measures implemented as part of the Inter-Connect project case studies this measure is very relevant indeed for the promotion of interconnectivity across and between transport modes. In this respect and emphasising again the primary objective of the Inter-Connect project to focus on soft measures, the table below lists the case studies enabling technologies, showing that a variety of digital transport solutions have been indeed considered for the implementation of the proposed intermodal solutions.

**Table 18: Enabling technologies considered for the Inter-Connect project case studies**

Case study	Enabling technology
<b>Igoumenitsa</b>	Demand Responsive Transport software
	Bus Fleet management tool (GPS enabled)
	Smart Bus stops presenting dynamic arrival forecasts
	Smart travellers' applications (IOS/Android)
	Location Based Services for Advertisement on Mobile phone and tv monitors on board
<b>Emilia-Romagna Region Case Study B</b>	Contactless tickets
	Integrated public transport fares systems (STIMER system)
	Smart mobility App (MyCicero and Roger)
<b>Ljubljana</b>	Introduction of a single integrated ticket for all modes of transport in pilot area.
	Introduction of various payment methods for all mode of public transport: e-tickets, paying with credit cards or smart phones.
	Introduction of multilingual public transport service passenger information on all info points, web pages and mobile apps.
	Introduction of various touristic packages, that includes tickets for all modes of public transport in pilot area and tickets for tourist attractions.
<b>Friuli Venezia-Giulia</b>	ICT tools information provision
	Smart ticketing
	Big data analysis tool
<b>Zagreb</b>	Free standing vending machines
	POS terminals
	Handheld devices in trains
	Web page
	Smartphone app - smartcard
<b>Port of Bar</b>	Multilingual public transport service passenger information
	Introduction of info boards on stations with live arrival and departure boards
	Establishment of integrated public transport web and mobile app user interface.
	Public transport info points
	Various touristic packages
	Single integrated ticket for all modes of transport in the pilot area
Various payment methods for all modes of public transport (paying with credit cards, smartphones, online banking, smart ticketing)	

Case study	Enabling technology
	Big data analysis tool
	Coordination of public transport timetables for all modes of transport.
	Reformulation of concession areas and frequencies of the public transport services
	Encourage, promote and educate about the benefits of using public transport
<b>Durrës-Tirana</b>	Digital billboard
<b>Belgrade</b>	Smart ticketing
	Big data analysis tool
	New trains technologies

Source: Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»

Concerning the deployment of telematic applications towards more digitalised transport systems and MaaS solutions, the following table provides an indication of the availability of relevant solutions in the context of implementation of the Inter-Connect case studies, showing that digital transport solutions are already existing particularly in the core urban nodes and their metropolitan areas/NUTS 2 and 3 regions, as well as in large city ports.

**Table 19: ICT and telematic applications for passenger transport in the context of implementation of the Inter-Connect project case studies**

Integrated Ticketing at urban level	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade
Integrated Ticketing at metropolitan/regional level for buses	Emilia Romagna Region, Ljubljana
Integrated Ticketing at metropolitan/regional level for buses and rail	Emilia Romagna Region, Ljubljana
ICT real time information for public transport services	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade
ICT real time information for parking	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade
ITS systems for road traffic management	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade
Apps for travel planning	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade
Apps for ticketing purchase	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade

Source: Authors

Aimed at promoting intermodality in the wider context of sustainable transport systems also supporting active transport modes, shared mobility and electric micro-mobility solutions, the following table summarises the availability of relevant solutions in the context of implementation of the Inter-Connect case studies. Similar considerations made to the availability of ICT and telematic applications for intermodal transport also apply to shared active and micro-mobility, such solutions being already available in several contexts of implementation of the Inter-Connect project case studies, particularly in core urban nodes and large city ports.

**Table 20: Sustainable transport solutions for passenger transport in the context of implementation of the Inter-Connect project case studies**

Sustainable transport solutions	Case studies
<b>Bike and park and ride facilities</b>	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade
<b>Bike sharing equipment and facilities</b>	Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb
<b>Car sharing equipment and facilities</b>	Emilia Romagna Region, Ljubljana, Zagreb, Belgrade
<b>Electric micromobility equipment and facilities</b>	Igoumenitsa, Emilia Romagna Region, Ljubljana, Friuli Venezia-Giulia, Zagreb, Belgrade

*Source: Authors*

### 3.1.1 Inter-Connect project case studies financial elements

The table overleaf finally details the main financial elements of the Inter-Connect project case studies. These include the costs of the proposed solutions, the indicative revenue streams and the financial resources required for their funding and financing. Whilst the cost range of the case studies is quite wide, from about 10,000 EUR for studies and soft measures to over 13,000,000 EUR for new infrastructure, the Inter-Connect project case studies show that relevant outcomes can be already achieved by implementing digital transport and organizational/administrative solutions optimizing the performance of existing operations and improving integration between public transport services.

As also concluded in the Inter-Connect project Deliverable 2.4.1, the case studies demonstrate that it is possible to improve intermodality and attractiveness of sustainable transport solutions thanks to soft measures. These solutions, if associated with modern infrastructure or new infrastructures investments, have indeed the potential to reshape the transport system into a greener and more sustainable one.

In line with the increase in patronage expected as a result of the implementation of the measures identified in the Inter-Connect project case studies, revenues from traffic are also foreseen. Whereas the case studies generally appear to be revenue generating, they also seem to require financial support as, especially for those measures requiring larger investments, costs may exceed revenues. Concerning the revenue sources, most of the case studies consider tickets from users, specified that some case studies, such as Ljubljana, Zagreb and Durrës-Tirana, present a more articulated revenue structure, also including advertising and concessions fees, as well as touristic promotional support, and financial support from local authorities.

The analysis of the funding and financing options shows that most of the case studies are funded by European Union, national, regional and local funds, or a combination of grants from these entities. Private financing is also foreseen for some case studies, i.e. Igoumenitsa, Ljubljana and Durrës-Tirana, in all cases associated with subsidies from public authorities.

**Table 21: Inter-Connect project case studies financial elements**

Kind of funds	Igoumenitsa	Emilia-Romagna Region Case Study A	Emilia-Romagna Region Case Study B	Ljubljana	Friuli Venezia-Giulia	Zagreb	Port of Bar	Durrës-Tirana	Belgrade
<b>Project solution costs (€)</b>	2,404,242 - 13,072,617	3,000,000	10,000	4,860,000	/	12,300	13,289,118 (do something)	11,000	500,000 – 1,000,000
<b>Revenue streams</b>	Tickets sales	Tickets sales	Tickets sales	Tickets sales, Advertising, Concessions Fees, Touristic Promotional Support, Financial Support from Local Authorities	/	Tickets sales, Advertising	Tickets sales	Tickets sales, Advertising, Concessions Fees	/
<b>Envisaged/possible funding/financing sources</b>									
<i>European funds</i>	To be defined	Yes	Yes	No	Yes	/	Foreseen request	Yes	Foreseen request
<i>National funds</i>	/	Yes	No	Yes	Yes	/	Foreseen request	No	Foreseen request
<i>Regional funds</i>	2025 onwards	Yes	No	No	Yes	/	/	No	No
<i>Private funds</i>	Yes	No	No	Yes	No	/	/	Yes	No
<i>Subsidies/Incentives</i>	Yes	No	No	Yes	No	/	/	Yes	No
<i>Internal/own economic resources</i>	2023-2024	No	Yes	No	No	/	/	/	No
<i>Others</i>	/	No	/	Yes	/	/	/	/	/

Source: Inter-Connect project Deliverable T2.3.1 «Cases examination & evaluation report»

## 4. Cases key generalised messages

### 4.1 Lessons learned from the Inter-Connect project

On the basis of the technical and legal analysis presented in Chapter 2 above and the examination of the case studies conceived/implemented as part of the Inter-Connect project, this chapter provides a set of policy recommendations aimed at consolidating the impact of the solutions and measures proposed in the case studies and support transferability of the outcomes and key findings of the Inter-Connect project. These recommendations reflect the following lessons, learned from the implementation of the Inter-Connect project. This initiative aimed at promoting interconnectivity for passenger services between local, regional and national transport flows and international/transnational long-distance traffic, between and across transport and urban nodes located along the Core Network Corridors, with a focus on intermodality between public transport services (particularly by railway) and maritime transport, in the ADRION programme area:

- **Transport hubs**, where terminal operations of transport activities occur, are the places where intermodality happens, whereas urban nodes and particularly core urban nodes are the places where more transport hubs are located, and where international and national road, rail, maritime and aviation routes and traffic intersect and mix with regional and local infrastructure and flows. In these places interconnectivity between transport infrastructure and services turns into interconnectivity within urban nodes and metropolitan areas and between these territories and the regions of the European Union and its neighbouring countries;
- **Modern and high quality infrastructure** both along the networks and at transport hubs is a pre-condition for interconnectivity: without railway links between ports and airports and railway stations, no rail services can be operated, adequate infrastructure at port terminals and at railway stations is required to safely and efficiently operate maritime, waterbus and railway services. Last mile connections and interoperability of the infrastructure across state borders are thus vital, including the 1,435 mm European standard track gauge and deployment of the European Traffic Management System (ERTMS), which are crucial to support the development of a Single European Railway Area both under the infrastructure and market points of view. However, as demonstrated by the Inter-Connect project, transport digitalisation soft measures make intermodality happen. Harmonisation of timetables, real time information and infomobility solutions, as well as integrated ticketing and intermodal procurement solutions towards *Mobility as a Service* are quick win and essential enabling technologies of intermodal measures. Yet they would require the development and adoption of standards and procedures ensuring open market and interoperability, at the same time. *Mobility as a Service* in particular is also challenged by the need to set up interorganisational governance schemes and interinstitutional shared databases, with potential confidentiality and sensitivity issues about commercial information/data.
- **Special legislation and regulatory requirements** may hamper the development and implementation of new public transport services, in particular new cross-border operations. Gaps in terms of *regulatory requirements and/or authority* (State / region / metropolitan area, municipality) in the planning, regulation and granting of Public Service Obligation contracts for new urban, suburban, regional national and international public transport services may require the adjustment/integration, if not newly setup of institutional, legislative and regulatory arrangements also at the international scale (e.g. Igoumenitsa urban and port-urban DRT services and waterbus cross-border service between Trieste and Koper, proposed in the Friuli Venezia-Giulia Case study). Transnational Public Service Obligation contracts may require *adhering to specific international legislation*, such as the EU regulations on cabotage<sup>19</sup> (i.e. the provision of road haulage services within a Member State by a carrier established in another Member State), which can have remarkable effects on the feasible

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<sup>19</sup> Regulation (EC) No 1072/2009 of the European Parliament and of the Council of 21 October 2009 on common rules for access to the international road haulage market.

approaches in developing cross-border transport services. Additional potential obstacles in the set up and operation of public transport services could be represented by issues associated with *State Aid*<sup>20</sup> (advantages in any form whatsoever conferred on a selective basis to undertakings by national public authorities that are distorting competition and affecting trade between Member States) *regulation*. Moreover, with particular reference to international maritime transport, regulations on safety (SOLAS convention<sup>21</sup>) and security (ISPS code<sup>22</sup>) must duly be taken in to account (e.g. see the analyses for a waterbus cross-border service between Trieste and Koper, proposed in the Friuli Venezia-Giulia Case study). In fact, among other things, SOLAS sets minimum safety standards in the construction, equipment and operation of merchant vessels. Furthermore, ISPS prescribes specific checks and minimum-security equipment like scanners and metal detectors etc., which must be available at all times within the port facility, whose layout must be designed as to avoid the breach of security inside the port itself.

Furthermore, the need for carrying out customs checks when linking countries external to the Schengen area, though being a general rule, can be particularly impacting in the specific case of maritime transport since it implies specific criticalities in terms of operations to be performed in dedicated areas. Such administrative and legislative barriers are potentially lengthy to solve, may require involvement of the regional and national central administrations, competences and capabilities not available within the concerned institutions. Furthermore, they can impact on the users in terms of waiting times for carrying out checks (e.g. while boarding). All these elements may have a significant negative impact on the legal, institutional and even economic/financial viability of new local and cross-border services.

- Referring to **Functional Urban Areas** is crucial for the appropriate planning, development and implementation of intermodal solutions and promote transport and territorial interconnectivity at the local, regional and even transnational scales. The Inter-Connect project seems also supporting the idea that to develop cross-border interconnectivity referring to *Functional Macroregional Areas* like the EUSAIR, would also be strategic. The concept of Functional Macroregional Areas allows indeed exploring and capturing the existing and potential relevance of core urban and transport nodes at the transnational scale, with reference to their hinterland operational and market catchment areas.
- **Stakeholders' involvement and engagement** is key to develop sound project solutions and implement projects of intermodal nature. In fact, intermodal solutions require multi-governance and inter-institutional coordination and agreements, which are required at all phases of projects life cycle to achieve the expected results.
- Success of intermodal projects and solutions also depends on their integration in relevant **strategic plans** and particularly **SUMPs** for initiatives of urban/metropolitan relevance.
- **Key performance indicators** tailored to interconnecting places and solutions are needed for the appropriate assessment and evaluation of the implementation and functioning of policy measures aimed at promoting and supporting intermodality.
- Intermodality involves **interchanges** between different transport modes and services. Operational times and terminal activities usually imply waiting and transfer times and places.

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<sup>20</sup> As from Article 107 of Treaty on the Functioning of the European Union “any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market”

<sup>21</sup> International Convention for the Safety of Life at Sea that sets minimum safety standards in the construction, equipment and operation of merchant vessels. It is updated and maintained throughout the years by the Maritime Safety Committee (MSC) of the International Maritime Organization (IMO).

<sup>22</sup> International Ship and Port Facility Security” (ISPS) Code, which prescribes responsibilities to governments, shipping companies, shipboard personnel, and port/facility personnel to “detect security threats and take preventive measures against security incidents affecting ships or port facilities used in international trade.” This regulation came into force in 2004 as an amendment of the SOLAS (Chapter XI-2).



This gives the opportunity for transport hubs to be conceived and developed as mixed-use spaces, where travellers and commuters become clients of commercial and leisure activities.

- In general terms the availability of **EU funds** is critical to support local, regional and national authorities in implementing the required intermodality promotion measures. On the other hand, interconnecting hubs also present the potential to be developed as mixed-use places, where commercial and leisure activities can be located, thus generating potential revenues from advertisement, concession fees etc. Furthermore, the improvement of intermodal solutions increases the attractiveness of public transport services, with positive consequences in terms of modal shift towards greener transport solutions and sustainable mobility.

#### ***4.1 Policy recommendations***

In Chapter 2 reference has been made to the Vital Nodes initiative. Funded by the Horizon 2020 programme this project aimed at improving European interconnection while developing sustainable mobility within the urban nodes of the trans-European transport network (TEN-T), focussing on freight transport. As part of this initiative a detailed set of policy recommendations were developed (see Section 2.3 above), most of which are also pertinent and valid to the purposes of the Inter-Connect project, which focusses on passenger transport. The two initiatives are actually synergic and complementary in supporting the implementation of the TEN-T policy and provide useful recommendations for the promotion of transport and territorial interconnectivity across the European Union regions and neighbouring countries. Accordingly and in order to capitalise on other EU funded relevant initiatives, the policy recommendations formulated as part of the Inter Connect project, as presented in the table overleaf are derived from the Vital Nodes initiative, further specified and integrated as appropriate on the basis of the analysis and findings from the Inter-Connect project to address the following topics:

- Enhance passenger connections between TEN-T core transport and urban nodes;
- Enhance passenger connections between TEN-T core transport and urban nodes and their regional catchment areas, with specific reference to the Adriatic Ionian region;
- Strengthen rail and sea connections through TEN-T core transport and urban nodes;
- Better connect coastal areas with the rest of the European Union and neighbouring countries through TEN-T core transport and urban nodes.

Policy recommendations are listed according to the same areas adopted in the Vital Nodes initiative, i.e. strategy + value, network + space, governance + time, finance + funding, and research + data. For each policy recommendation, an indication of the concerned relevant actors and of their territorial relevance namely local, regional and transnational is also provided.

**Table 22: Inter-Connect project policy recommendations**

Recommendation	Relevant actors	Territorial scale
<b>Strategy + Value</b>		
1. Support the common understanding of the responsible actors at different policy levels (urban, Functional Urban Area - FUA, national, transnational, including Functional Macroregional Area – FMA, thus recognising the existing and potential transnational functional relevance of core urban and transport nodes).	European Commission, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, EUSAIR	Local, regional, transnational
2. Support collaborative planning at different policy levels (urban, Functional Urban Area (FUA), national, transnational, including Functional Macroregional Area – FMA (e.g. by taking into consideration the Inter-Connect lessons into the new TEN-T policies and guidelines, also giving more attention to the role of core transport nodes, including city ports, as interconnecting hubs between the core network and core network corridors, the comprehensive network and the regions).	European Commission, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, EUSAIR	Local, regional, transnational
3. Develop a value oriented comprehensive policy (data based, using indicators, monitoring for assessment of value and focused on capturing values created, with a particular focus on intermodality and transport and urban nodes as interconnecting places).	Responsible policy actors	Local, regional, transnational
<b>Network + Space</b>		
4. Develop a multi-modal transport planning and coordinated asset management, considering its impact at local, FUA and corridor level, including cross-border sections.	European Commission, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, Infrastructure Owners/Infrastructure Managers, Terminal Operators	Local, regional, transnational
5. Ensure coordinated development and implementation of interoperable infrastructure along corridors and across borders, as well as between corridors and transport and urban nodes.	European Commission, EUSAIR, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, Infrastructure Owners/Infrastructure Managers, Terminal Operators	Local, regional, transnational
6. Invest in infrastructure interfaces, equipment and transport digitalisation at transport and urban nodes, both in infrastructure connections and terminals.	European Commission, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, Infrastructure Owners/Infrastructure Managers, Terminal Operators	Local
7. Develop additional guidelines on ITS, ICT and telematic applications at the interface between long-distance and last-mile transportation and the use of traffic management tools for information and navigation services.	European Commission, Ministries and Infrastructure Managers	Local, regional, transnational
8. Stimulate the coordination of passenger and freight/logistics transport, e.g. by considering for (large) passenger transport infrastructure also freight transport impacts and measures (vice versa).	Urban Nodes	Local

Recommendation	Relevant actors	Territorial scale
9. Support and invest in the integration of active transport (like pedestrian and bicycle), electric micromobility, and any shared form of these transport solutions at intermodal interconnecting hubs in urban areas. This is aimed at facilitating accessibility to intermodal centres further increasing attractiveness of greener and more sustainable transport solutions.	European Commission, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, Infrastructure Owners/Infrastructure Managers, Terminal Operators	Local
10. Support and invest in the availability of alternative clean fuels refuelling and recharging stations at intermodal hubs, including at stations and ports to support development of innovative means of transport at the same time increasing attractiveness of greener and more sustainable transport solutions.	European Commission, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, Infrastructure Owners/Infrastructure Managers, Terminal Operators	Local
11. Develop intermodal transport hubs as mixed-use places, where commercial and leisure activities can be located, to increase attractiveness of intermodal transport solutions and potentially increase revenues from patronage, as well as from other activities such as advertisement, concession fees etc...	Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, Infrastructure Owners/Infrastructure Managers	Local
<b><i>Governance + Time</i></b>		
12. Stimulate a more active collaboration between stakeholders vertically across governance levels and horizontally across sectors and disciplines. Expand the geographical scope of urban nodes and focus on regional cooperation on the Functional Urban Areas and Functional Macroregional Areas levels. Regarding this also provide incentives for public-public and public-private cooperation and for the involvement of civil society.	European Commission, EUSAIR, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions	Local, regional, transnational
13. Enable TEN-T related cross-border collaboration and solutions for urban nodes (including core city ports) also taking into account Functional Urban Areas and Functional Macroregional Areas.	European Commission, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions	Local, regional, transnational
14. Develop skills and knowledge on intermodality and integrated planning by stimulating active capacity building in urban nodes (including core city ports).	Urban Nodes, European Network Organisations	Local, regional, transnational
15. Investigate the possibility to increase the involvement of the urban nodes (including core city ports) into the coordination of the nine TEN-T Core Network Corridors (CNCs).	European Commission	Local
16. Create an action program, or foresee measures in SUMP's including a roadmap for implementation on how to better integrate urban nodes (including core city ports) into their respective corridor(s).	Urban Nodes, European Network Organisations	Local
17. Facilitate institutional networking by establishing/joining a community of urban nodes/TEN-T corridor professionals.	Urban Nodes, European Network Organisations	Local

Recommendation	Relevant actors	Territorial scale
<b>Finance + Funding</b>		
18. Provide funding for urban nodes (including core city ports) focused on integration in the TEN-T corridors by pre-allocating budget in upcoming calls. E.g. a stepwise 5-10-20% of CEF funding for integrated investment in infrastructure, mobility, logistics, spatial and environmental measures enhancing such integration.	European Commission, Financing Institutions	Local
19. The complex investment needs of urban nodes (including core city ports) should be recognized in CEF financing – going beyond sectoral boundaries in grant decisions (e.g. similar to the climate mainstreaming objective of MFF).	European Commission, Financing Institutions	Local
20. Combined funding solutions should be explored for integrating urban nodes (including core city ports) in TEN-T corridors. E.g. by using existing urban earmarking (ERDF), or by linking up to SUMP) Multiple funding sources can be mobilized to implement integrated strategy, which can be stimulated by defining eligibility and award criteria. Also, an exchange platform with different EC services (DG MOVE, REGIO), and EIB could facilitate streamlining of procedures.	European Commission, European Investment Bank, Financing Institutions	Local
<b>Research + Data</b>		
21. Facilitate research, innovation and implementation by mobility labs. Use urban nodes (including core city ports) as research, innovation and implementation platforms, being the main hubs for local/regional network (FUA), macroregional network (FMA) and TEN-T network (e.g. regarding innovation, digitalisation).	European Commission, EUSAIR, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, European Network Organisations	Local, regional, transnational
22. Stimulate further development on data-based policy making and planning, including the creation of a data collection framework and applying the relevant datasets, with a particular focus on intermodality and interconnecting places.	European Commission, EUSAIR, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, European Network Organisations	Local, regional, transnational
23. Develop a comprehensive list of data indicators by establishing a monitoring framework to determine the functioning of urban nodes, the FUA, FMA and network, with a particular focus on intermodality and interconnecting places.	European Commission, EUSAIR, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, European Network Organisations	Local, regional, transnational
24. Develop tools (including multilevel governance solutions) to support sharing of mobility related data in urban nodes with other public and private partners, in order to move towards multimodal Mobility as a Service.	European Commission, EUSAIR, Ministries, Urban Nodes, Functional Urban Area /Metropolitan Area/Regions, European Network Organisations, Other Public and Private Partners	Local, regional, transnational
25. Promote further research on the interfaces of passengers/freight, intra-/inter-urban, last-mile/long-distance transport and on spatial-economic analysis of Functional Urban Areas and Functional Macroregional Areas, integrated assessment and business-cases as well as related multi-level governance approaches.	European Commission, European Network Organisations	Local, regional, transnational

Source: Authors based on Vital Nodes

## 4.2 Inter-Connect case studies policy recommendations

Starting from the strategic policy recommendation elaborated in the previous paragraph, in this section specific recommendation for the Inter-Connect case studies are provided.

### IGOUMENITSA

<b>Recommendation</b>
<b><i>Strategy + Value</i></b>
Better coordination among national, regional and local policies and strategies. Consider the integration at regional level in any future development of the city size.
Support the improvement of road network infrastructures, citizen-centered administrative services and the improvement of the quality of public transport services.
Define the pre-feasibility phase at regional and local level for creating public transport options for the city. This action plan for the future is at the heart of the SUMP.
Support the organization of surveys to define the opinions of permanent residents, discussion meetings with round tables, public meetings, focus groups and public-private agreements.
<b><i>Network + Space</i></b>
Serve regular connections between bus and ships terminals to promote a new seamless public transport service.
Invest in infrastructure interfaces in the urban nodes, both in infrastructure connection, terminals and hubs to allow international travelers to visit the city, having a clear vision of the public transport offer.
Improve the provision of Demand Responsive Transport Buses (DRT) for offering public transport services in low peak hours and period of the years (winter for example).
<b><i>Governance + Time</i></b>
Develop the SUMP in order to allow the implementation of a process that involves administrations, planning institutions and all other relevant stakeholders, who influence or are influenced by the development of the transport system and the demand for mobility, operators, service providers, special interest groups and citizens themselves.
Support a process of involvement of all interested stakeholders starting from citizens, visitors, local media and all the relevant stakeholders influenced by public transport improvement.
Work in parallel at the political level (political commitment to sustainability principles), the technical level (dealing with technical issues, deciding on routes, timetables, fleet characteristics, bus stations etc.) and at the institutional level.
Organize face-to-face meetings at various levels of representation between the various stakeholders involved as it represents the most powerful tool to implement a change in governance.
<b><i>Finance + Funding</i></b>
"Heavy" projects such as the construction of new transport infrastructures or the expansion of existing ones are difficult to finance. Use the SUMP time frame for promoting the soft measures in the short times and create the conditions for the financing of the heavy transport projects.
Considering all the typologies of public investments, both capital without the obligation to repay and the one to be repaid with interest.
Considering and integrating all the type of local, regional, national, EU funds in implementing the most innovative and ambitious public transport projects.
<b><i>Research + Data</i></b>
Support the development of GPS systems in the early stages of the PT service launch as public transport users are vulnerable as long as they do not obtain timely and reliable information on routes, timetables and arrivals at bus stops.
Promote the research for the Demand Responsive Transport (DRT) system, in particular in relation to the data needed for the management of such a service (for example real time data on buses, etc.).
Develop the management of the GPS-enabled fleet, programming of software applications with the respective hardware installations on board vehicles (modems, on-board units, etc.) and road infrastructures (bus stop displays for passenger information).

<b>Recommendation</b>
Develop a mobile phone application that will provide route information and forecasts for bus arrivals at bus stops along the PT network.
Introduction reliable and attractive interfaces for booking DRT services.

## **EMILIA-ROMAGNA REGION**

<b>Recommendation</b>
<b><i>Strategy + Value</i></b>
Develop the main transport planning tools at local and regional level starting from the Integrated Regional Transport Plan (PRIT) which provides the general framework for regional policies, both for infrastructures and for governance models.
Support the improvement of rail transport as the “vertebral column” of the regional public transport integrated offer. This is fundamental in making all the other modes of public transport more efficient and effective.
Develop/improve main transport network hubs and nodes as they must be physically connected to create an integrated public transport network. This strategy can help in improving general public transport accessibility.
Promote and facilitate the enhancement of bus and train integration, starting from timetables and going on with others soft solutions (integrated ticketing, common promotional campaigns, etc.).
As defined in the regional transport plans, the main goals to be achieved are: a) Ensure accessibility to the territories for people and goods; b) Reduction of energy consumption; c) Reduction of polluting emissions and greenhouse gases.
Promoting an integrated mobility system in which collective transport plays a key role, favouring a rational organization of traffic, promoting a culture of sustainable mobility and the development of technological innovations.
Improve intermodal train-bicycle transport by reducing the cost of the train-bike pass and providing the train with bikes friendly equipment.
<b><i>Network + Space</i></b>
Increase the attractiveness of rail passengers by reducing travel times adopting soft solutions and developing an integrated public transport ticketing system both for residents and for tourists visiting the Region.
Develop synergies with local public transport operators and private companies in order to develop intermodal public transport solutions that are more attractive for workers and tourists.
Integration of the different fares system for the development of public transport and integration between local trains and buses. This initiative was also defined and supported by the Bologna Metropolitan Sustainable Urban Mobility Plan (SUMP) and it is important to develop strong relation with existing and ongoing SUMPs.
Define a strategy for the extension of the current public bus tickets for tourists (Romagna Smart Pass) to the railways along the attractive cities, to favour intermodality and more attractive public transport services for tourists.
Foresee permanent data analysis campaigns (surveys, etc.) in order to have updated data on tourists and population transport needs and expectations.
<b><i>Governance + Time</i></b>
Define cooperation schemes between local public transport operators, the national railway operator and with the political support of the Region as a first step for an integrated and effective public transport promotion at regional level.
Stimulate activities for maintaining the efficiency and strengthening of regional railway lines and rolling stock, as well as in improving safety conditions, using both regional financial resources and from the national government and EU.
Improving the governance schemes involving in a permanent way the local associations and the users’ committees.
Increase the efficiency and effectiveness of stakeholder involvement in order to avoid disputes on future projects using the most innovative techniques for stakeholders participation (gaming, etc.).
Organize stakeholder engagement strategies with regular institutional consultations. These meetings have to foreseen intense plenary and bilateral sessions with the committees directly concerned.

<b>Recommendation</b>
Amendment of the framework law on public transport by providing for long-term tenders, in order to incentivize investments, open up to the liberalization of the sector and aim for a strong renewal of the fleet to give greater quality to the system and services.
Support the governance model allowing the joint sale of integrated tickets at regional level. The ticket sales monitoring are fundamental in obtaining data from the validation of tickets.
<b>Finance + Funding</b>
Create an effective strategy for the attraction of European and national funds on regional public transport projects. In this way it is very important to define an actions priority list.
The promotion of an integrated ticketing, from an economic point of view, requires an economic agreement among involved stakeholders in order to share in a clear way the profits generated by the selling of these tickets.
<b>Research + Data</b>
Data are the base for a correct setting of the measures aimed to improve ticketing integration and train offer quality. This data collection have to organized in a framework on “big data” collection, with potential applications of artificial intelligence (AI) for a better analysis and integration of different data sources.
Ticketing validation is one of the best and most economic way to collect reliable data on public transports users habits and needs.

## **TRIESTE**

<b>Recommendation</b>
<b>Strategy + Value</b>
Proceed further with the implementation of a series of measures identified by the MoU signed by the relevant stakeholders.
Promote interventions to improve the accessibility of infrastructures, the centralization of maritime TPL services, in synergy with ongoing initiatives, and new sustainable mobility solutions.
Promoting initiatives concerning information provision in the terminal to passengers both of a touristic nature (itineraries, areas of interest, existing applications, etc.) and with reference to the usability of the local public transport.
Promote maritime TPL initiatives (for tourists / commuters / residents) through the expansion of existing services.
Promoting an integrated approach to the cross-border mobility based on LPT (rail/road/waterborne services) also encompassing other sustainable transport solutions (e.g. bike sharing at cross-border level).
<b>Network + Space</b>
Understand the potential of a new maritime public transport connection. Intermodal transport pivoting on maritime connection is deemed of strategic relevance with reference to the enhancement of cross-border connectivity.
Improve public transport urban interchanges between buses/train hubs and the maritime passenger’s terminal. Integrated services provision with reference to multimodal solutions pivoting on the transnational waterborne services.
Improve conditions for facilitating interchanges (e.g. through user-friendly information provision and addressing the maritime terminal accessibility) between urban public transport services and the maritime passenger’s terminal; furthermore it is also taking into account the potential of passengers coming to visit (thus allowing an improved accessibility to the main touristic places).
Re-organisational aspects related to terminals location and role. In particular, this imply the centralization and uniqueness of the maritime station within a general re-organisation process of the area.
Information provision to the users, which is a key driver for supporting an improved and increased usage of the service as well as removing a relevant obstacle to the execution of intermodal trips. Obviously, target users of the services (tourists), in general, are particularly suffering from the difficulties related to lack of information and linguistic barriers that can be easily improved by the implementation of currently easily available ICT solutions. Furthermore, in this purpose travel information supporting intermodal transport can be pursued in close synergy with information provision for promoting tourism.
Support further users’ surveys encompassing on-the-field interviews by submitting a questionnaire to users

<b>Recommendation</b>
(including potential ones) of multimodal transport service.
Better understand the potential (and the existing demand) of a new maritime public transport connection, also considering the important flows of cross border commuters and lack of efficient cross border public transport connections.
Framing the measure in the wider set of (synergic) interventions fostering intermodal transport (at local/regional/transnational level).
<b><i>Governance + Time</i></b>
Promote, support, and possibly finance the development of the maritime as well as public service. In addition, urban reorganizations of the areas where a maritime station is located should be developed.
Support the development of initiatives aimed at economic development, including sustainable transport and tourism solutions.
Use different means to involve different stakeholders: <ul style="list-style-type: none"> <li>– Start involving and contacting relevant stakeholders</li> <li>– Collecting information as to ensure as to map the issue and provide a sound knowledge base with respect to a pre-identified set of aspects to be investigated</li> <li>– Focus and deepening on specific aspects interacting freely with a committed expert/pertinent stakeholder</li> <li>– Favouring the exchange of ideas and brainstorming ensuring all different viewpoints to be represented</li> <li>– Reaching a consensus and ensuring long-term commitment</li> <li>– It is to underline the importance of monitoring, tracking the developments taking place in the analysed context and adjusting accordingly the development of the case study throughout the months.</li> </ul>
Support the organization of questionnaires and surveys, to define the opinions of permanent residents, discussion meetings with round tables discussions, public meetings, invitation letters, focus groups and public-private agreements discussed and presented in the Memorandum of Understanding (MoU).
Foster the involvement and dialogue between the various stakeholders (public and private) through a participatory approach that allows to establish synergies and develop a global vision of the issue addressed. This participatory approach, fuelled by the data collection and analysis process, led (through various phases that include both round tables and bilateral meetings) to the signing of a Memorandum of Understanding. Through this declaration, in fact, the stakeholders are committed to the effective implementation of the agreed measures even beyond the duration of the project.
<b><i>Finance + Funding</i></b>
Providing funding for better interconnection, provision of information to users, and fine-tuning in the choice of stop, timing and rates of the service are potentially driving user growth and, consequently, revenue streams.
<b><i>Research + Data</i></b>
Improved communication and information provision through user-friendly ICT solutions is highly requested and perceived as a key driver for improving the usage of the maritime services as well as connected public transport services.

## LJUBLIJANA

<b>Recommendation</b>
<b><i>Strategy + Value</i></b>
Achieve a defined vision of a transport policy and ensure sustainable mobility of the population by improving mobility and accessibility, traffic safety, reducing environmental burdens, improving passenger accessibility and improving the organizational and operational structure of the transport system.
Provide adequate airport transport infrastructure and improve airport connectivity, which is an essential part of transnational connections. To ensure better sustainable mobility, the connection of the airport with public transport services must be improved.
Development of integrated transport strategies, organisation of safe access to stations and stops, P+R system, pavements and bicycle infrastructure, development of strategies for promoting the walking.
Elaboration of an analysis of the situation and development possibilities for increasing intermodality, including the emphasis on the increased use of the bicycle network in relation to PPT, the development of a bicycle



<b>Recommendation</b>
network, a strategic plan.
Establishment of an integrated ticket, modernization of public passenger transport services and provision of traffic information platform.
Harmonization of the timetables between the different modes of transport (rail, public line long distance and city transport of passengers).
Find various short- and long-term solutions to provide accessible, fast, efficient, safe, environmentally and economically acceptable transport for daily commute and also touristic purposes.
<b><i>Network + Space</i></b>
Improvement of the connections from maritime areas to Airport and urban region, of the info-mobility services (on-board and in the interchanges points) for tourists and of fare integration and integrated ticketing systems.
Definition of organizational and regulation aspects aimed to improve public transport operation and the interconnectivity at regional level.
Allocation of pilot area and identification of main stakeholders: basic geographical characterisation of pilot area with general map and main points of interest (e.g. settlement scheme, main transport hubs, main points of touristic attractions), presentation of current and projected commuting transport flows and estimation of modal split among regions, review of current and projected tourists flows with modal split and overview of transport operators in the area and relevant stakeholders for realisation of proposed measures.
Overview of transport infrastructure and services in the pilot: analysis of railway passenger infrastructure (e.g. main transport hubs, points of interchange among PT systems) and services (frequency of service on working and weekend days, transport times among main railway hubs, waiting times and reliability of connections); Analysis of road public transport service among main hubs and description of shuttle services and other irregular transport services among main hubs.
Provision of passenger information service and customer support: definition of existing information services for passengers (e.g. info-mobility apps, existing pre-trip and on-trip information systems, timetables on stations, additional information services for tourists) and interconnectivity and language provision of timetable data among different modes of transport on hubs (e.g. languages of timetables, info for busses/shuttles on train stations, availability of onsite and online data for transfers and connections).
Pilot corridor fares and ticketing systems: fare products for tourists and comparison fares for single / return tickets on different PPT options and shuttle services within the case study area. Preparation of data ticketing systems suitable for tourists (e.g. means of issuing tickets, types of sales, ticket validation) for different modes of transport PPT and shuttles. Development of an overview of current fare and ticket integration systems between modes of transport available in the pilot area.
<b><i>Governance + Time</i></b>
Encourage the overall participation of key stakeholders at all levels (local, national, international) in formulating and implementing a common general strategy for the development of alternatives to the private road passenger transport in urban region area and even wider.
Support public participation and multilevel governance as a priority in planning and preparing mobility related measures.
Promote regional development in terms of policies and economic development and provide a link between the regional and national levels of public authorities in the region.
After the stakeholder identification phase, it is necessary to consider the relationships between these actors. This analysis should be based on a list of several criteria or attributes relevant to the respective case, e.g. interest, power, mutual influence, coalitions, etc. The goal of a systematic stakeholder relationship analysis is to get a clear picture of conflicts of interest or potential coalitions and to be able to better determine the stakeholder clusters that may show different levels of interest, ability and interest in the question in question. For example, this can be done by developing an "Influence-Interest Matrix", which groups stakeholders according to their level of influence / importance.
Utilize questionnaires during stakeholder consultations and round tables to understand their preferences on public transport attributes and passenger travel at port and airport.
Organize dissemination events for the project in order to involve all interested parties.

<b>Recommendation</b>
<b><i>Finance + Funding</i></b>
Establish a facility capable of providing seamless PT transport between major points of interest from coastal areas to the hinterland. Based on the analysis of the situation and the data collected, the following measures were selected to further develop PTT and intermodality within the case study corridor: <ul style="list-style-type: none"> <li>– Creation of a direct bus connection (circular line) within the urban PPT, connecting the passenger terminal of the port and the main railway station;</li> <li>– To improve the connections and accessibility with the PPT to the main tourist attractions with the main attractions;</li> <li>– Improvement of the frequency, intervals and travel speeds of the PPT, with intermediate stops in the main regional cities and tourist centres</li> <li>– Ensure the quality of the PPT for the airport with frequent PPT connections from the main terminal;</li> <li>– The calculation of the overhead costs includes the potential pilot actions described based on the analysis of the case study and the signature of the MoU.</li> </ul>
Based on the average operating costs (EUR per v / km in public transport (excluding VAT)) annual cost estimates for all declared implementations have to be calculated.
The investment financial scheme is based on the assumption that the investment amount is too high for the investor to create their own or borrowed funds. The types of funds used are European funds, National funds, Regional funds.
<b><i>Research + Data</i></b>
Develop of a solution to implement a single integrated ticket for all modes of transport in the pilot area.
Promote the introduction of various payment methods for all modes of public transport: electronic tickets, payment by credit cards or smartphones.
Introduction of multilingual public transport passenger information on all information points, web pages and mobile apps.
Introduction of various tour packages, including tickets for all public transport modes in the pilot area and tickets for tourist attraction.

## **ZAGREB**

<b>Recommendation</b>
<b><i>Strategy + Value</i></b>
Influence at Transport Development Strategy in order to evaluate and define future measures (infrastructure, operation and organization) in the transport sector related to international and national railway transport independent of the source of funding. Recommendations for strategy improvement should provide the framework for the development of the interventions and define the interfaces with other strategies or evaluations (Functional Regional Concepts-FRC, Master Plan, sectoral strategies, etc.). Consider European strategies and requirements (TEN-T, ERTMS, ITS, environmental protection, climate protection, etc. - general objectives).
Based on the analysis of the current situation and in order to address the general and specific objectives defined, a series of interventions must be developed not only linked to the improvement of the infrastructure of the railway transport systems but also linked to operational and organizational aspects, as interventions isolated on the infrastructure will not have a great impact on the efficiency and sustainability of the system if they are not accompanied by adequate changes in the configuration of the system and the operations are not adapted to the real needs of the demand.
Promote and create a positive image of the railway public transport system as a reliable, safe and environmentally friendly mean of transport is important for encouraging the demand, and consequently the investments. For better promotion, it is necessary to have complete and up to date information and knowledge of the infrastructure, possibilities and development plans.
In the maritime transport sector, it is necessary to continuously modernize and integrate the IT platform in order to ensure reliable and complete data and information for all users. It is also necessary to establish e-business network services for all users of public services, establish a single port information system in order to improve business processes and increase the competitiveness of ports, establish a hydrographic information system,

<b>Recommendation</b>
improve maritime meteorology services, to develop ICT solutions for operation with emergencies at sea and to improve and develop the nautical information service as public and free safe navigation services for boats and yachts.
Based on the environmental monitoring, negative environmental and socio-economic impacts of the transport system should be reduced by effective planning/implementation of the infrastructure and the establishment of the necessary measures of environmental protection. Mitigation of the negative impact of transport on the environment must be achieved through greater energy efficiency, in particular, the use of energy sources with low or zero emissions of hydrocarbons and reducing noise emissions and the amount of continuous pollution and waste.
<b>Network + Space</b>
Improve information provision related to timetables, punctuality and other problems during the trip (delays, unexpected events, etc.), facilitate and improve faster and cheaper train travels for tourists traveling from coastal to inland areas and vice versa.
Explore the possibility of tourist arrangements using the railways and naval ports. This should shorten land travel, encourage the use of "greener" transport (such as the railroad in front of the bus) and also shorten sea travel. Consequently, travel times and expenses are expected to decrease as well as the environmental impact.
<b>Governance + Time</b>
Utilize the Memorandum of Understanding (MoU) to continue research on the current situation, support all aspects of carrier cooperation and potential integration, as well as promote integrated travel and influence strategies at all levels. The Memorandum of Understanding, (MoU) is needed to further support the integration of all aspects of transport to improve passenger mobility, to influence strategies at local and regional level, as well as to be actively involved in the preparation of proposals for the development of national strategies.
Support the organization of questionnaires and surveys, to define the opinions of permanent residents, discussion meetings with round tables discussions, public meetings, invitation letters, focus groups and public-private agreements discussed and presented in the Memorandum of Understanding (MoU).
Develop a series of activities involving interested stakeholders to achieve the set objectives. The activities considered are: <ul style="list-style-type: none"> <li>- cooperate with the competent authorities in the planning and implementation of strategies, which also include traffic aspects,</li> <li>- promote travel to / from the city by train and ship,</li> <li>- support local projects relating to new services in the traffic sector,</li> <li>- networking stakeholders with regard to the development of services in the traffic sector,</li> <li>- integrate rail traffic projects into local strategies to improve connectivity, a more competitive economy and a cleaner environment by encouraging greener modes of transport,</li> <li>- to liaise with the port authority regarding procedures, which relate to passengers, train operators and port infrastructure as a step in potential integration, which will enable a more optimal traffic system,</li> <li>- to optimize means of transport and timetable according to the possibilities and needs,</li> <li>- to promote journeys by rail through special offers,</li> <li>- to examine the possibilities of integration with maritime transport for the purpose of integration of traffic service.</li> </ul>
Encourage the overall participation of key stakeholders at all levels (local, national, international) in formulating and implementing a common goals of the general strategy for the development of alternatives to the private road passenger transport in urban region area and even wider.
<b>Finance + Funding</b>
Encourage the collaboration of two or more transport operators as it could help increase ticket sales through a viable transport service or reduced price tickets.
Urge the competent authority to sanction public service operators for the net financial effect, positive or negative, on the costs incurred and on the revenues generated by the fulfillment of the tariff obligations established by the general rules in order to avoid overcompensation.

<b>Recommendation</b>
To develop public passenger transport in balance with the revenues of the companies engaged in such transport and to pay compensation from the state budget.
Develop measures or recommendations by considering advance financial planning and the amounts are symbolic for large investments.
Encourage the signing of contracts or MoUs regarding participation in activities, as the risk of failure will be distributed among all stakeholders and parties involved. Basically, external contracted stakeholders were paid to fulfil the tasks of a particular activity (FS development) and from this they have discovered the risks of negative impacts.
<b>Research + Data</b>
Develop research activities to improve the quality level of the service, make it more usable for customers of the railway service, promote intermodal transport modes to have eco-compatible means of transport and also enhance public transport service throughout the country. Ticketing and booking system contains services such as: <ul style="list-style-type: none"> <li>- free standing vending machines,</li> <li>- POS terminals,</li> <li>- portable devices in trains,</li> <li>- Web page,</li> <li>- smartphone app,</li> <li>- Smart card.</li> </ul>
This action confirmed that the strategic priority of urban transport policy is the implementation of the intermodal and integrated passenger transport system in urban transport.

## **PORT OF BAR**

<b>Recommendation</b>
<b>Strategy + Value</b>
Enhance port infrastructures and services that need to be improved to support intermodal activities and potentially attract additional passenger and freight traffic flows The obstacle to the development of the port appears to be an inadequate connection with the railway network, as well as general connectivity (introduction of new highways, repair of the railway network, expansion of docks and passenger terminals, etc.)
Improve connectivity, address the problems associated with the limited inefficient connection of ports to the railway network by proposing measures for a better exploitation of some port services. The diversification of port services and the raising of the level of port efficiency, as well as the introduction of new cruise lines, will allow new players to emerge in this field with new operational and business plans.
Define the spatial concept of long-term development of transport infrastructures, which, through the planned improvement of links with the country's economic space, regional and inter-municipal links and local accessibility, was treated as one of the fundamental prerequisites for the achievement of the development objectives of the strategic plan, in particular in relation to more uniform regional development.
Define sustainable management solutions with four groups of national resources: human, social, natural and economic, as a priority of the global sustainable development of society. Define an umbrella, horizontal and long-term development strategy, which refers not only to the environment and the economy, but also to irreplaceable human resources and valuable social capital, which should enable prosperous development.
Develop an independent, modern and efficient transport system as it is a fundamental prerequisite for overall economic, social and territorial cohesion. Furthermore, in line with the European policies of sustainable urban mobility, cities must guarantee a multimodal transport system and work on intermodal integrations, as a main component of any urban mobility strategy based on the principles of sustainable transport. The establishment of efficient public transport would significantly reduce the use of personal vehicles in cities, as well as the crowding that characterizes the tourist season, especially in the coastal region. The intention is to address the focus of rail and waterway transport.
Establish a strategy that considers the increase in traffic safety as the main objectives of traffic development; integration into the European Union by linking to the TEN-T and improving the competitiveness of the national transport economy; improve the quality of transport services; stimulate economic growth through more efficient

<b>Recommendation</b>
and cheaper transport; minimize the negative impact of transport development on the environment.
Define strategic objectives through the Railway Development Strategy:
<ol style="list-style-type: none"> <li>1. Optimal use of the infrastructure to be implemented through: <ul style="list-style-type: none"> <li>- putting users at the heart of transport policy - transparency, insurance and use of funds for railway infrastructure</li> <li>- financial sustainability and self-sustainability of railway infrastructures</li> <li>- quality and responsible maintenance of the railway infrastructure and traffic regularity</li> <li>- maximize the development potential of the regions by improving rail services</li> </ul> </li> <li>2. The controlled development of the railway sector achieved through: <ul style="list-style-type: none"> <li>- an efficient and effective system of state institutions dealing with the railway sector</li> <li>- functional and modern railway system capable of facing competition</li> </ul> </li> <li>3. The environment and integration in the European Union will be achieved through: <ul style="list-style-type: none"> <li>- preservation of the area from the negative effects of traffic</li> <li>- Integration of the railway network into the trans-European transport network (TEN-T)</li> </ul> </li> </ol>
Define the strategy for the infrastructural development of the airports with the aim of improving the capacity and quality of the service in relation to the expected traffic. The Plan must provide for the realization of a series of development projects concerning the extension of the runway of both airports, the expansion of the passenger terminal space, the extension of the sidewalks, the provision of new parking lots, etc.
<b><i>Network + Space</i></b>
Satisfy the technical prerequisites for the admission of modern cruise ships and passenger ships, thus being able to establish new ferry lines having a favorable impact on the development of ship-passenger traffic.
Harmonizing arrival and departure times, integrating tickets from different operators and providing reliable information in real time. In addition, the passenger terminals in the port need infrastructure improvements to be able to accommodate medium / large Ro-Pax, passengers and ships from cruise.
Achieve an intermodal solution - the intersection of all types of traffic: bus, rail, maritime and cycling with the possibility of arranging a park and ride system, thereby reducing congestion in the port.
Alignment of the action plans with the EU accession policy in the field of the development of trans-European transport and energy networks (TEN-T and TEN-E), based on three bases: <ul style="list-style-type: none"> <li>- the legal basis of the TEN-T, Articles 170-172 of the Treaty on the Functioning of the European Union,</li> <li>- Regulation (EU) 1315/2013 concerning the European Union guidelines for the development of trans-European networks in the transport and energy sectors,</li> <li>- Regulation (EU) 1316/2013 establishing the financial interests of the Connecting Europe Facility (CEF)</li> </ul>
<b><i>Governance + Time</i></b>
Mapping activities to support the identification of possible conflicts and coalitions between stakeholders that can influence the process of defining the action plan in terms of geographical coverage, integration of policies and availability of resources.
Involvement of multiple levels of stakeholders in the design concept aimed at integrating strategies and involving the public, in order to develop effective mobility models, orienting them towards sustainability.
Involvement and reliance on collaboration aim to address social, environmental, and economic challenges in developing local sustainable transport strategies. This means moving away from top-down decision-making towards synergistic strategic planning that takes into account the linkage of traffic to other aspects of urban life.
The participation of different sectors, private and public, provides a greater wealth of knowledge, experience, and insights that can better help develop a sustainable transport strategy. It also creates a more cohesive and sustainable transport system through a holistic approach and cross-sector (horizontal), multilayer (vertical) and multi-territorial cooperation.
Vertical integration ensure the alignment of local strategies with relevant strategies and priorities at regional, national, and EU levels.
Support the organization of questionnaires and surveys, to define the opinions of permanent residents, discussion meetings with round tables discussions, public meetings, invitation letters, focus groups and public-private agreements discussed and presented in the Memorandum of Understanding (MoU).

<b>Recommendation</b>
Foster involvement and dialogue between stakeholders through establishing synergies and developing a comprehensive vision of the Study. This participatory approach, supported by the data collection and analysis process, leads to the final results
<b><i>Finance + Funding</i></b>
Develop a financial investment scheme that is based on the assumption that the investment amount is too high for the investor to create their own or borrowed funds. The types of funds used are European funds, national funds, regional funds. the investment amount depends on the availability of EU and central government contributions for the implementation of the project. The EU contribution is calculated in accordance with EU provisions as the discounted value of the eligible investment costs is decreased by the discounted net income value. Net profit is the difference between operating costs and net profit during the reporting period.
Develop a financial analysis to determine indicators, financial effects of the project for the owner / user of the project infrastructure.
Develop an economic analysis to determine the indicators of the economic effects of the project for society as a whole, i.e. the economic analysis estimates the contribution of the project to the general well-being of society
Stimulate investments that aim to satisfy the economic, spatial planning and transport interests of locals, tourists, local administrations and the general public, as well as to stimulate intermodality of transport. Better infrastructure creates the preconditions for better transport connectivity, which is critical for development. Investments in infrastructure must also be followed by investments in various information media, application support and supporting technologies.
<b><i>Research + Data</i></b>
Establishment of integrated public transport web and mobile app user interface - In order for users to be able to easily combine different modes of transport in one place with minimal time waste, a web or mobile app interface should be developed that summarizes all relevant information. This would make information more accessible to passengers and would, thus, encourage the use of public transport.
Public transport info points - Significant terminals should allow locations where direct information on transport options can be obtained, to direct the passengers to use public transport.
Various touristic packages - In order to encourage users to use public transport, it is also necessary to implement measures that include benefits for certain tourist attractions, i.e. sell ticket packages that include additional benefits, in order to try to reduce road transport as the prevailing mode of transport. It also gives impetus to the tourism sector.
Single integrated ticket for all modes of transport in the pilot area - Buying tickets is often a significant waste of time, and if the sales system is not sufficiently developed, it can discourage some passengers from using public transport, especially in cases where the transferring occurs and often the time for buying tickets is limited. In this way, passengers are guaranteed the opportunity not to miss certain trips and it is timesaving as well.
Various payment methods for all modes of public transport (paying with credit cards, smartphones, online banking, smart ticketing) – Making payments easier by focusing on more advanced technologies saves time, makes it easier for travellers to pay, as they are not required to have paper money with them, and especially for foreigners who do not have the local payment currency available.
Big data analysis tool - Thanks to the use of advanced technologies, it is possible to gather a large amount of information about the movement of passengers, making it easier to identify the necessary key corrections in the transport system in order to respond to the needs of passengers.
Coordination of public transport timetables for all modes of transport - Better coordination of different public transport systems reduces the time spent waiting, which can often delay some of the passengers who intend to travel using a combination of different means of transport. This encourages an increase in the number of public transport users.
Reformulation of concession areas and frequencies of the public transport service - Adjustment of timetables and the introduction of temporary lines in areas with a significant number of tourists can encourage them to rely more on the use of public transport
Encourage, promote and educate about the benefits of using public transport - Through publicly available media, it is necessary to educate potential users about the benefits of public transport in order to increase their number

## DURRES-TIRANA

<b>Recommendation</b>
<b><i>Strategy + Value</i></b>
Define strategic objectives for development and integration in terms of economic development; the vision of the European Union must be taken into consideration to ensure the development of a competitive European economy based on a balanced and sustainable use of resources. The priority is to further develop the country's infrastructure to provide greater access to the population, in parallel with its further integration into European systems.
Define a national transport strategy and action plan aligned with EU objectives and priorities. This strategy is based on a comprehensive and detailed situation of the transport sector considering infrastructure networks, regulations and financing instruments. The main objective of the strategy is to have an efficient transport system, integrated in the region and the EU network, which promotes economic development and improves citizens' quality of life.
Develop a general national plan with the aim of creating a management platform and the legal guarantees necessary for sustainable urban, economic, social and environmental development of the territory. Specific strategic objectives aimed at meeting the National General Plan, inspired by the principles of the Land Planning Law are: to ensure sustainable development of the territory, through a rational use of the territory and natural resources; assess the current and future development potential of the territory at national and local level, based on the balance of natural resources, economic and human needs; private and public interests etc.
<b><i>Network + Space</i></b>
Enhance intermodal transport between rail +maritime +air transport (and possibly other modes of transports). 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.
Collect data on rail traffic development trends, taking into consideration all existing rail infrastructure systems, the economic and financial assessment of the network, as well as all investments that are necessary to improve and increase the operational network. This increased infrastructure and all the data collected will be used to integrate the information into this innovative technological solution.
<b><i>Governance + Time</i></b>
Develop strategies, promote and encourage implementation of plans. The public administration ensures the financing of the projects and takes the final decisions on the realization of the project and on the places of investment.
Institution responsible for formulating, applying and monitoring national policies, programs and standards of road, air, rail and maritime transport infrastructures, contributes to the safety, security and efficiency of all modes of transport and to the protection of the environment. These measures will allow: <ul style="list-style-type: none"> <li>- Stimulate cooperation, harmonization and interoperability that will improve intermodal transport.</li> <li>- Ensuring travel information on regular and up-to-date traffic flows and timetables of passenger ships in Albanian ports in combination with public transport mobility.</li> <li>- Contribute to the better integration of regional connections between ports, airports and main tourist destinations / urban areas.</li> </ul>
Support the case examination on developing and implementing the technological solution in the intermodal transport.
Collaborate with other institution to support harmonization of bus, train and maritime timetables, provide information on how to improve passenger mobility and to explore new possibilities for use of the technological innovative solution.
Encourage the signing of the memorandum of understanding. The purpose of this Memorandum of Understanding is to strengthen collaboration between partners, continue to support the promotion of intermodal passenger transport and to support users of intermodal transport. This Memorandum of Understanding paves the way for further collaboration between institutions and helps to: <ul style="list-style-type: none"> <li>- stimulate cooperation, harmonization and interoperability which will improve intermodal transport.</li> <li>- collect / provide information on how to improve passenger mobility and explore new possibilities for using the innovative technological solution;</li> <li>- promote multimodality, also taking into account environmental aspects (for example atmospheric emissions, etc.), economic growth and social development.</li> </ul>

<b>Recommendation</b>
Support the organization of questionnaires and surveys, to define the opinions of permanent residents, discussion meetings with round tables discussions, public meetings, invitation letters, focus groups and public-private agreements discussed and presented in the Memorandum of Understanding (MoU).
<b><i>Finance + Funding</i></b>
Involve the interested parties as the financial resources for the implementation of the case study depend on the stakeholders interested in offering the new services on the development of a technological solution for intermodal transport.
Identify, prepare and select the financing of priority investment projects, regardless of the source of financing, through the establishment of a National Investment Committee assuming the principles of ownership, strategic coherence, long-term sustainability and transparency, as well as political commitment to final approval of the list of included projects.
<b><i>Research + Data</i></b>
Develop a technological solution that includes a digital billboard capable of reflecting travel information on ferries, trains and flights. Travelers will be informed in real time on timetables, on arrival and departure boards, on delays, on the combination of different modes of transport, etc.

## **BELGRADE**

<b>Recommendation</b>
<b><i>Strategy + Value</i></b>
Initial analysis for definition of the concept and guidance or idea for a higher-end follow-up project to develop a governance framework to be adopted.
<b><i>Network + Space</i></b>
Develop passenger traffic data; on the basis of the data presented, carry out an analysis and define the activities of the study, which should provide the answer as to how the possible relocation of railway stations can influence the status of intermodal passenger transport.
Evaluate the effects due to the movement of central bus and train stations. Investigate the impact of relocating the main train and bus stations to new locations. When examining the impact of displacement, a special review should be given to the possibility of using intermodal passenger transport and promoting the use of urban rail and interurban and international rail lines.
Define the implementation phases, detailed implementation planning, dynamics and milestones. Also include plans for the construction of new railway lines and the reconstruction of existing city railway lines.
Definition of the follow-up project for re-organization of Inner-city transit lines in the way to ensure better connections between railway and bus stations and enable future railway connections to airport, aiming to establish the base for intermodal sustainable public transport solutions.
Creation of travel generation models based on the new rail network concept that includes the possible attraction of new train and bus station locations and an enabled rail communication with the airport to provide answers on the effectiveness of urban bus and tram lines existing, proposals to avoid overlap with other modes of transport and the possibility of establishing supply lines.
<b><i>Governance + Time</i></b>
Involve all the main stakeholders in the project activities, ensuring adequate coordination and cooperation between them. The involvement of the interested parties should take place through round tables and dialogues with all the stakeholders of the project.
Develop strategies, promote and encourage implementation of plans. The public administration ensures the financing of the projects and takes the final decisions on the realization of the project and on the places of investment.
Support the organization of questionnaires and surveys, to define the opinions of permanent residents, discussion meetings with round tables discussions, public meetings, invitation letters, focus groups and public-private agreements discussed and presented in the Memorandum of Understanding (MoU).
<b><i>Finance + Funding</i></b>
Improve the collection of EU funds to develop big public transport and infrastructures projects.



<b>Recommendation</b>
<b>Research + Data</b>
Promote research for the integration of a smart ticketing system with intercity and international bus and rail connections, as well as transfers to / from the airport.
Develop a big data analysis. The electronic ticketing system can provide a huge database on passenger behavior and desire lines, as well as the load level of some public transport lines.

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