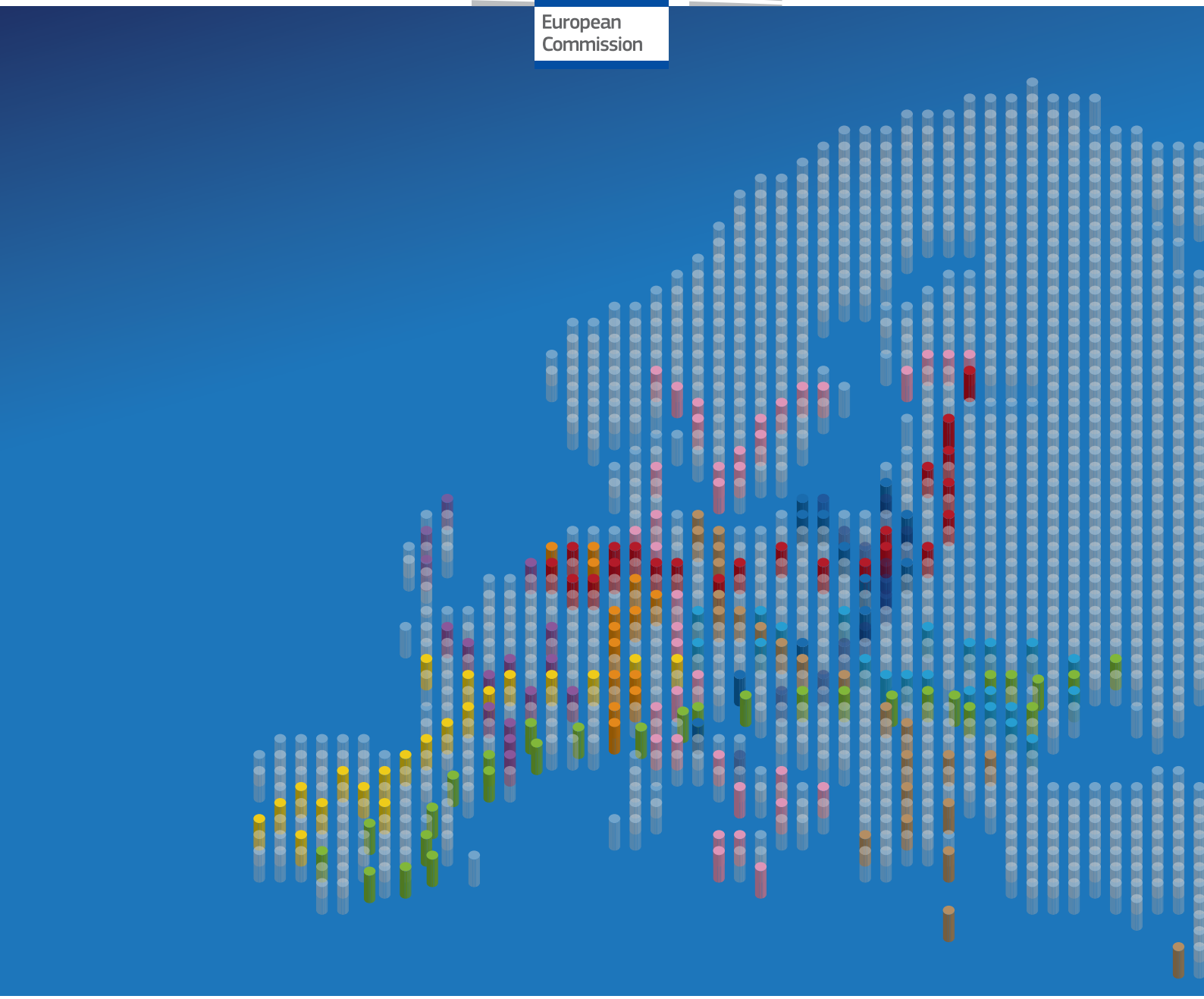
European Commission



Core Network Corridors

Progress Report

of the European Coordinators

Transport

SEPTEMBER 2014

This report only represents the opinion of the European Coordinators and does not prejudice the official position of the European Commission.

TENtec Reporting: Please note that the individual visualized corridor maps in Annex 2 show the current state of data encoding in TENtec by the contractors of each corridor study. Moreover, they do not highlight sections and nodes that are in the planning phase.

Foreword

In 2013, Europe reached a transport milestone. It is now ready to embark on a new era in infrastructure, with the right tools to develop today's transport patchwork of national parts into a smooth-running network. With the new EU policy for the Trans-European Transport Network now in place, and agreement on the Connecting Europe Facility, the EU has created the basis for Europe to build a modern integrated transport system that can meet the challenges we face in sustainable, smart and inclusive growth, and to strengthen Europe's global competitiveness. Definitions and deadlines have been set for building a high-performance comprehensive and core network, with the appropriate instruments for making this happen.

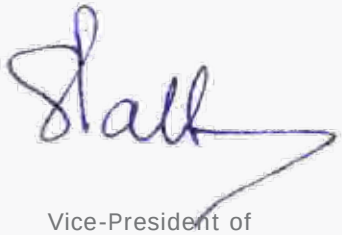
The next challenge is to turn this ambition into reality. This is why, at the Informal Council of EU Transport Ministers in Milan, I intend to present the steps that the Commission has already taken to get the Trans-European Transport Network up and running, to get things moving on the ground.

To provide impetus, the European Commission recently opened the first call for proposals under the Connecting Europe Facility: a real 'first' for Europe, in the form of dedicated infrastructure financing. It will make almost €12 billion available for projects in the EU's Member States which have been under negotiation for several years and are either being implemented or will be started now. Priority will be given to projects with the highest value for all of Europe, particularly to complete missing cross-border links and remove bottlenecks, and for projects that will deploy EU-wide systems of traffic management and so enable the European transport network to function smoothly. This funding is expected to leverage investments of around €50 billion, giving a significant boost to the European economy.

The core network is based on nine strategic integrated corridors which will be the backbone of the new Trans-European Transport Network and improve its reliability and efficiency. The corridors come under the watchful eye of European coordinators who were nominated at the start of this year. For each corridor, a work plan is being prepared that will guide and coordinate the investments to be made over the next years and also integrate all the projects agreed under the Connecting Europe Facility. The work plans will enable the corridors to become reality and connect, finally, East and West, North and South. They will also provide Europe's internal market with a transport network that can face the challenges of an increasingly global marketplace.

Each plan will have to be approved by the Member States concerned. This means that, for the first time, there will be a detailed and agreed path towards implementation. At the same time, joint monitoring and regular updates will allow each plan to stay in line with developments that will inevitably occur over time.

In these changing political and economic times, this new environment for EU transport infrastructure offers a long-term perspective of cooperation between Member States and for building and completing the transport network that Europe needs. By linking regions, countries – East and West – we create the conditions for growth and prosperity, driving competitiveness for everyone in Europe to the benefit of citizens and business.



Vice-President of
the European Commission

Core Network Corridors as the backbone of the new EU transport policy

The new legal basis for the development of the trans-European transport network (TEN-T) which has been adopted in December 2013 marks the beginning of a new era in Europe's transport infrastructure policy. Compared to the approach of the past 20 years, the main innovation of the new TEN-T policy lies in the definition of an integrated, multimodal core network which shall be developed until 2030 by Member States and relevant stakeholders such as infrastructure managers, regions and others as well as the EU. This core network links major nodes (urban nodes, ports, airports and other transport terminals) through key rail, road, inland waterway, maritime and air transport connections. Such a reinforced Europe-wide network approach – compared to past programmes for individual project funding – significantly strengthens the infrastructural basis for efficient, safe and high-quality multimodal transport chains for freight and passengers. It provides a strong integrated policy framework, overcoming the current patchwork of infrastructure projects. It aims at the smooth functioning of the internal market and ensuring economic, social and territorial cohesion and improved accessibility across the EU. Investing in the many projects that contribute to this objective will be vital for Europe's smart, inclusive and sustainable growth and has an enormous potential for creating jobs – during construction and after completion – in many sectors of the economy.

The new TEN-T Guidelines set a clear basis for action until 2030. The core network shall be completed, i.e. a full network shall be in function, missing links between Member States will have been completed and bottlenecks that hamper free flows of transport, thereby causing high cost to the economy will have been removed.

Core network corridors play a key role in the coordinated implementation of the new TEN-T policy. The corridors are based on three pillars:

- enhancing cross-border connections and removing bottlenecks;
- integrating different transport modes (multi-modality);
- promoting technical interoperability.

In order to be effective, a clear departure from the past is necessary. In this regard, the core network corridors are much more extensive in scope and nature than the Priority Projects and other corridor instruments which preceded them:

- Up to now, there have been 30 TEN-T funded priority projects. These were scattered geographically and comprised different political priorities. The work of former European Coordinators for certain Priority Projects will be the basis for the new corridors wherever possible.
- 9 Rail Freight Corridors (RFCs) have been created. They will be adapted over time (until 2020) to fit with the core network corridors. RFCs will continue to evolve in the context of Regulation (EU) 913/2010, but they will be able to profit from the new instrument and thereby be boosted considerably. ERTMS Corridors have also been integrated into the new policy.
- Other types of corridor will be incorporated into this structure such as "green corridors" or "pan-European corridors".

Nine core network corridors have been defined, each of them involving between four and nine different Member States and featuring the full range of transport modes. To make sure that the corridors are developed effectively and efficiently, each corridor is led by a **European Coordinator** who stimulates and coordinates action along the respective corridor. The Coordinator is supported by a consultative forum (the "Corridor Forum") involving relevant stakeholders. This report presents the state-of-the-art for the preparations for the work plan ongoing for each of the core network corridors.

In addition, the European Commission has nominated European Coordinators for two horizontal priorities: the European Rail Traffic Management System (ERTMS) and Motorways of the Sea (MoS). Here as well, this report presents the progress made up to date for both ERTMS and MoS.

Finally, a separate chapter is dedicated to the subject of innovation that is directly linked to the corridor approach and that will allow to grasp the opportunity of this new priority offered by the new TEN-T Guidelines.

In order to stimulate the development of the TEN-T network, the Connecting Europe Facility has been put in place. A budget of 26 billion EUR has been dedicated for its implementation, notably the core network corridors being a strong implementation instrument of the new transport guidelines. In other words, there is now real momentum that is to be used by mobilising and joining forces amongst all relevant stakeholders in order to establish a sustainable and competitive European mobility network. The innovative governance system of the core network – with European Coordinators in the lead and with a strong support structure around them – has been specifically conceived for this purpose. The process starts now and will be built up over the coming years.

CORRIDOR	MEMBER STATES	EUROPEAN COORDINATOR
Baltic-Adriatic	PL, SK, CZ, AT, SI, IT (6)	Kurt Bodewig (DE)
North Sea-Baltic	NL, BE, DE, PL, LT, LV, EE, FI (8)	Pavel Telička (CZ)
Mediterranean	ES, FR, IT, SI, HR, HU (6)	Laurens Jan Brinkhorst (NL)
Orient/East-Med	DE, CZ, SK, AT, HU, RO, BG, GR, CY (9)	Mathieu Grosch (BE)
Scandinavian-Mediterranean	FI, SE, DK, DE, AT, IT, MT (7)	Pat Cox (IE)
Rhine-Alpine	NL, BE, DE, FR, IT (5)	Ana Palacio (ES)
Atlantic	PT, ES, FR, DE (4)	Carlo Secchi (IT)
North Sea-Mediterranean	IE, UK, FR, NL, BE (5)	Péter Balázs (HU)
Rhine-Danube	FR, DE, AT, CZ, SK, HU, HR, RO, BG (9)	Karla Peijs (NL)
ERTMS	All MS with railways	Karel Vinck (BE)
Motorways of the Sea	All maritime MS	Brian Simpson (UK)

** Mr Telička resigned from his function as European Coordinator as of 1 July 2014 to take up seat in the European Parliament*

The corridor work plan 2014 – state-of-the-art

2014 is the year of starting off the core network corridors and of initiating the discussion and involvement of Member States and various other relevant stakeholders in the Corridor Fora, being the consultative body for the corridors. This participatory process is the key for a successful completion of the core network by 2030. By the end of this year each European Coordinator presents a work plan analysing the development of the corridor in question. At the same time, a work plan will be presented for the two horizontal actions (ERTMS, Motorways of the Sea).

The work plan constitutes a first – and very concrete – plan for the implementation of the core network based on a thorough analysis of the corridor. Indeed, each plan will present a detailed and coordinated programming of investments ('project pipeline') aiming at lifting the obstacles in terms of existing bottlenecks and missing links within and across the countries along each corridor. Thereby, it grasps the full benefit of investments being teamed up on either side of the borders. The effectiveness and the chance of realisation of what has been the true purpose of the trans-European transport network will thus be raised.

For the Member States concerned by the respective corridors, the work plan shall also provide investment guidance at national level, in return for the benefits to be drawn from the European network approach. Member States – closely cooperating with the respective European Coordinator – therefore, assume a vital role in developing and implementing the work plans.

One work plan per corridor

There will be one work plan per corridor, i.e. 9 work plans for the "geographical" corridors, plus one work plan for each of the two horizontal actions being ERTMS and Motorways of the Sea.

Three principles apply for its elaboration: its content is based on the results of international consultants issuing the "corridor study" and is widely consulted within the Corridor Forum and during missions of the European Coordinators with the Member States concerned. Besides, the work plan should be adaptable to progress in the coming years.

The content of the corridor work plan is defined in the Regulation (EU) 1315/2013 and each plan follows a common structure to ease the communication amongst corridors. It will mainly encompass the following elements:

- Description of the **characteristics of the corridor** which includes a description of the technical parameters of the infrastructure for each transport mode, the results of the transport market study as well as the identification of critical issues on the corridor (cross-border sections, bottlenecks, interoperability, intermodality, operational and administrative barriers);
- **Objectives** of the core network corridor in line with the objectives and priorities of the TEN-T Regulation;
- **Implementation** of the core network corridor including **a list of projects** with the investment required and the envisaged sources of finance, a deployment plan for traffic management systems (in particular ERTMS and RIS) and a plan for the removal of physical, technical, operational and administrative barriers between and within transport modes.

In terms of policy implementation, a key element of the work plan will certainly be the list of projects ('project pipeline') with their timing and as far as possible their financing. This list will include all projects that have been identified as relevant in order to complete the core network corridor by 2030. It will therefore allow in future to better assess the financing needs of the coming years and to better evaluate the EU added value of projects.

The projects listed in the corridor work plan can be financed by means of various financing sources, either public or private, local, regional, national or EU (including EIB, CEF, ERDF and Cohesion Fund) funding. The list of projects in the corridor work plan may therefore go beyond the list of the pre-identified projects of the Connecting Europe Facility (CEF).

Core network corridor studies

To support the European Coordinator in the preparation of the corridor work plan, the European Commission has launched nine corridor studies. These studies aim to provide a scientific basis for the definition of the corridor work plan, which will be finalised by the European Coordinators together with the Member States concerned and in consultation with the Corridor Forum.

The study includes the following tasks:

- Identification of stakeholders to be involved in the corridor activities;
- Collection and review of all relevant and existing studies on sections and parts of the corridor;
- Analysis of the relevant data on the infrastructure parameters and encoding of this data in the TENtec database;
- Preparation of all elements of the work plan of the core network corridor;
- Preparation, support and follow up of the meetings of the Corridor Forum.

The following consortia have been tendered for this task. Each lead expert thereby pools a group of consultants that cover as far as possible the different Member States involved in the respective corridor.

CORRIDOR	LEAD EXPERT
Baltic-Adriatic Corridor	Leigh Fisher Ltd., Bologna (IT)
North Sea-Baltic Corridor	Proximare, Tallinn (EE)
Mediterranean Corridor	PWC, Rome (IT)
Orient/East-Med Corridor	IC Consulenten, Vienna (AT)
Scandinavian-Mediterranean Corridor	KombiConsult, Frankfurt/M. (DE)
Rhine-Alpine Corridor	HaCon Ingenieursges. mbH, Hannover (DE)
Atlantic Corridor	TIS.pt, Lisboa (PT)
North Sea-Mediterranean Corridor	Panteia BV, Zoetermeer (NL)
Rhine-Danube Corridor	IC Consulenten, Vienna (AT)

As the analytical work of the consortia progresses over time, they have been asked to submit three progress reports and one final report during 2014; one report respectively in advance of each of the four Corridor Forum meetings as basis for the discussion with the stakeholders.

A first draft work plan is currently prepared and presented in the third progress reports of the different consortia of the corridor studies and will be discussed within the Corridor Forum meetings at the beginning of October. The fourth Forum meeting in November should then lead to a confirmation of this work plan and the submission of the final draft to the Member States for their agreement in December, before it is transmitted for information to the European Parliament, the Council and the Commission.

Stakeholder participation and consultation

The ambitious objective of completing the core network and its corridors by 2030 can only be achieved by involving and closely cooperating with a wide range of relevant stakeholders. The creation of ownership in this inclusive process is fundamental. Therefore, a wide variety of relevant stakeholders has been identified and will be involved in the corridor activities. These players include:

- Member States representatives;
- Representatives of infrastructure managers/authorities (all transport modes);
- Regions, EU macro-regions, European Groupings of Territorial Cooperation, and other territorial representatives;
- Representatives of infrastructure users (all modes) and civil society.

Two main tools are used to guarantee that the voices of the above groups are heard and their expertise is taken on board in the corridor process: on one side the Corridor Forum meetings and on the other side the (bilateral) contacts of the European Coordinator with these groups through missions and participation in (external) meetings and events.

Corridor Forum meetings and working groups

In 2014, the European Coordinators have scheduled for each corridor four Corridor Forum meetings in Brussels.

The **first** series of **Corridor Forum meetings** took place during the first week of April 2014. Each European Coordinator organised a one day event for his/her corridor. The meeting was reserved for Member States representatives only and served as official kick-off of the corridor activities. Prior to the meeting, the consultants had presented a first progress report of their corridor study which was the basis for the discussions amongst Member States.

Particular questions that were addressed and clarified with the Member States were the following:

- First outline of the corridor based on a first review of existing studies by the contractors;
- Exact determination of the infrastructure belonging to the corridor;
- Identification of responsible persons within the Member State;
- Identification of possible stakeholders in the Corridor Forum, notably the infrastructure managers;
- Presentation of the timing for the establishment of the corridor work plan.

Overall, the first Forum meetings were a real success and created a harmonious and constructive cooperation atmosphere amongst Member States and Coordinators.

Based on the fruitful discussions in the first Corridor Fora and on further research, the consortia presented a second progress report at the beginning of June 2014. This report was discussed during the second Corridor Forum whose participants were extended to rail infrastructure managers, port authorities and the respective Rail Freight Corridor upon approval by the Member States. The **second Corridor Forum** meetings took place in mid-June 2014. The following points were on the agenda:

- Updated and detailed outline of the corridor, based on input into the TENtec system as well as additional information gathered from all other sources;
- Feedback on the second progress report as presented by contractors;
- Presentation of the Rail Freight Corridor activities.

Strengthening the links with the Rail Freight Corridors and using synergies was particularly appreciated by all participants.

A **third Forum meeting** will take place at the beginning of October 2014 with the participation of representatives of the regions along the corridors and the airports and road infrastructure managers. A **fourth Forum meeting** in mid-November 2014 will then aim to conclude the analysis of each of the nine core network corridors and more specifically its work plan.

Up to two working groups per corridor will also be set up during the second half of 2014: one working group for inland waterways and port authorities and another working group for regions in order to gather their expertise and address their particular needs and expectations.

Coordinators' missions and events

In order to gain acceptance and ownership of all stakeholders relevant for the corridor, the European Coordinators and their team strive to be as transparent as possible when developing the corridor work plan. Apart from informing about the corridor work on a dedicated page per corridor on the Commissions' website (see http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/index_en.htm) and via press releases, the European Coordinators therefore look for direct (bilateral) exchanges with the stakeholders, either through missions to the countries belonging to the corridor or by taking part in thematic events.

Various missions, mainly to the capitals along the corridor, have already taken place throughout 2014. In a first place, the European Coordinators had exchanges with the Ministries of Transport, at ministerial level, to prepare the ground for the setting up of the Corridor Fora and to pave the way for the approval of the corridor work plan. Those missions were partly accompanied by technical visits of relevant projects along the corridor and helped to ensure that, at national level, the key stakeholders are informed about the corridor process and not taken by surprise at the end of 2014 when the final work plan will be submitted to the Member States for their approval.

From the work plan to a functioning corridor

Turning the corridor work plan into a reliable basis

After having widely consulted and discussed the draft corridor work plan in the Corridor Forum and during the Coordinator's missions, the European Coordinator submits by 22 December 2014 the final work plan for her/his corridor to the Member States for their approval.

Once the work plan is approved by Member States, the Commission may make use of its right to adopt implementing decisions on the cross-border and horizontal issues (i.e. interoperability and intermodality) of the corridor work plans. The work plan thereby gains a legal statute and will give a strong tool for the European Coordinator in the monitoring of the implementation of the work plan.

Corridor Forum meetings in 2015

The approval of the work plan is however not the end of the corridor process. On the contrary, the process is intended to be continued throughout 2015 and even after since the ultimate goal of the whole exercise is to complete the core network by 2030. The Corridor Fora in 2014 are primarily set up in order to come to a politically agreed and accepted work plan, whereas the Fora in 2015 will be more about the raising of awareness and acceptance of the work plan of a larger audience, and about further refining the analysis and measures contained therein.

It is envisaged to have up to three meetings of the Corridor Fora in 2015 which may either take place in Brussels or at locations along the corridor. The Forum meetings could also be coupled with conferences which should address a larger audience which cannot be directly involved in a Corridor Forum.

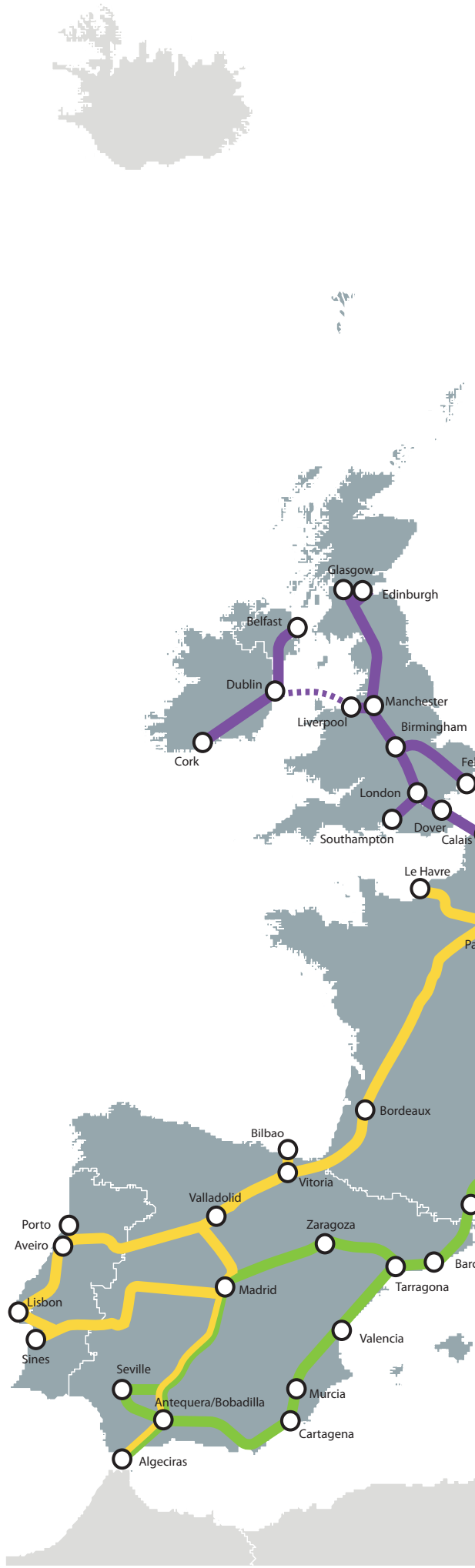
Revision of the corridor work plan

The corridor work plan will also further evolve and will have to be adapted in due time: indeed, on the one hand, the implementation of projects along the corridor should progress and this progress should be reflected in the work plan. On the other hand, the planning of infrastructure development at national level is going to evolve (e.g. Transport Master Plans established in the framework of the Cohesion Policy, Bundesverkehrswegeplan in Germany, …) which shall also be reflected in the further updates of the work plans. Currently, revisions of the work plan are therefore foreseen to happen in 2016 and 2018.

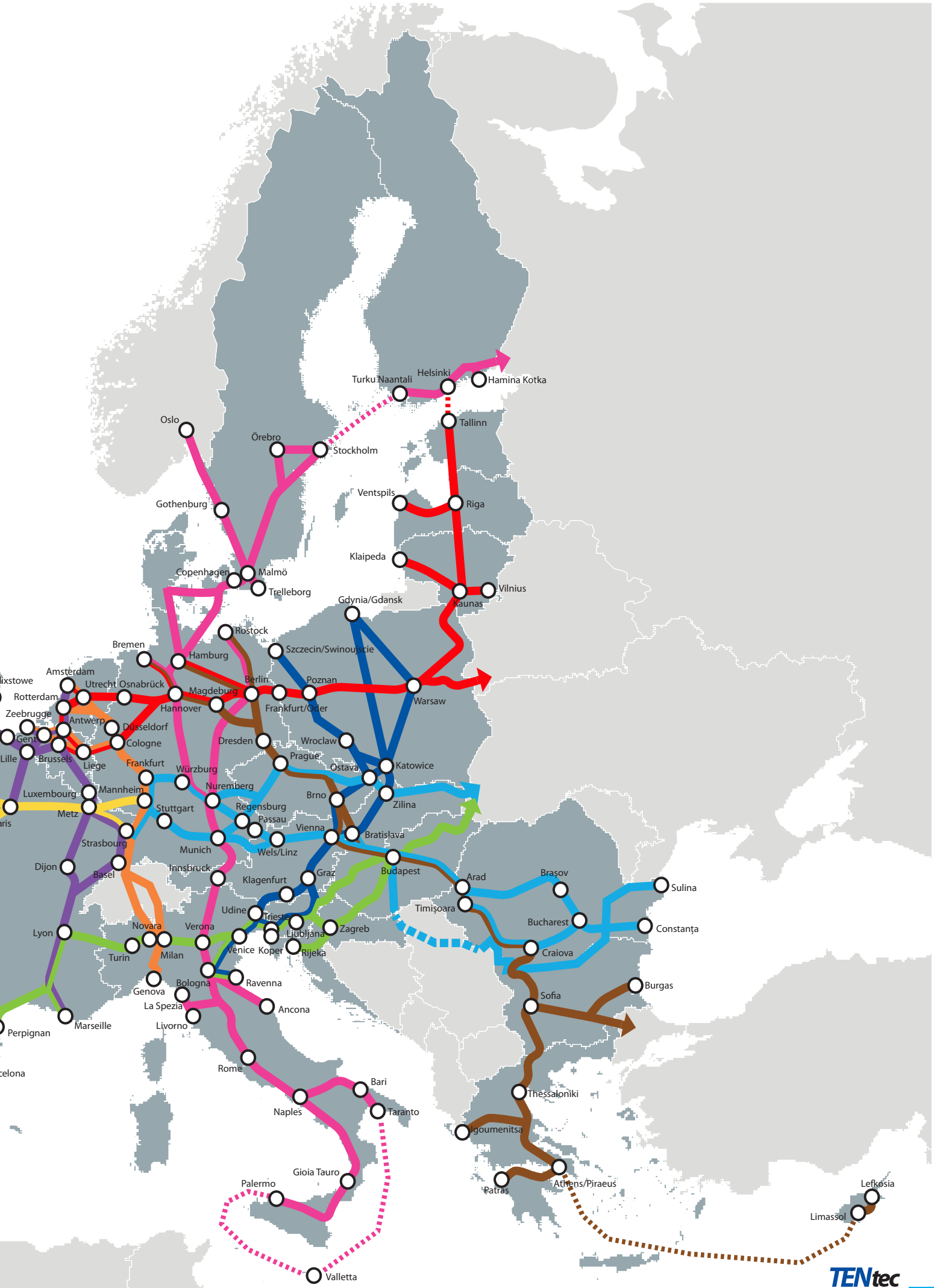
TEN-T CORE NETWORK CORRIDORS

Legend

- BALTIC - ADRIATIC
- NORTH SEA - BALTIC
- MEDITERRANEAN
- ORIENT / EAST-MED
- SCANDINAVIAN - MEDITERRANEAN
- RHINE - ALPINE
- ATLANTIC
- NORTH SEA - MEDITERRANEAN
- RHINE - DANUBE



According to chapter IV of TEN-T Regulation (EU) and CEF No 1315/2013 and as listed in Part I of Annex I of CEF Regulation (EU) No 1316/2013.


Turku
Naantali
Helsinki
Hamina Kotka
Oslo
Tallinn
Örebro
Stockholm
Ventspils
Riga
Gothenburg
Klaipeda
Copenhagen
Malmö
Trelleborg
Vilnius
Kaunas
Gdynia/Gdansk
Rostock
Szczecin/Swinoujscie
Bremen
Hamburg
Amsterdam
Utrecht
Osnabrück
Berlin
Poznan
Warsaw
Rotterdam
Magdeburg
Hannover
Frankfurt/Oder
Zeebrugge
Antwerp
Düsseldorf
Cologne
Dresden
Wroclaw
Brussels
Liege
Frankfurt
Prague
Ostava
Katowice
Würzburg
Nuremberg
Luxembourg
Mannheim
Brno
Zilina
Metz
Stuttgart
Regensburg
Passau
Vienna
Bratislava
Strasbourg
Munich
Wels/Linz
Dijon
Basel
Innsbruck
Budapest
Klagenfurt
Graz
Arad
Brașov
Sulina
Udine
Timișoara
Trieste
Bucharest
Constanța
Lyon
Novara
Verona
Ljubljana
Zagreb
Turin
Milan
Venice
Koper
Rijeka
Craiova
Genova
Bologna
Ravenna
Burgas
Sofia
La Spezia
Ancona
Livorno
Marseille
Perpignan
Rome
Bari
Thessaloniki
Naples
Taranto
Igoumenitsa
Gioia Tauro
Palermo
Patras
Athens/Piraeus
Lefkosia
Limassol
Valletta

1. From the Polish to the Adriatic ports – the Baltic-Adriatic Corridor

The Baltic-Adriatic core network corridor involves six Member States. From North to South, it connects the Baltic ports in Poland with the ports of the Adriatic Sea in Slovenia and Italy. The corridor will thus provide better access to these seaports for the economic centres along the corridor.

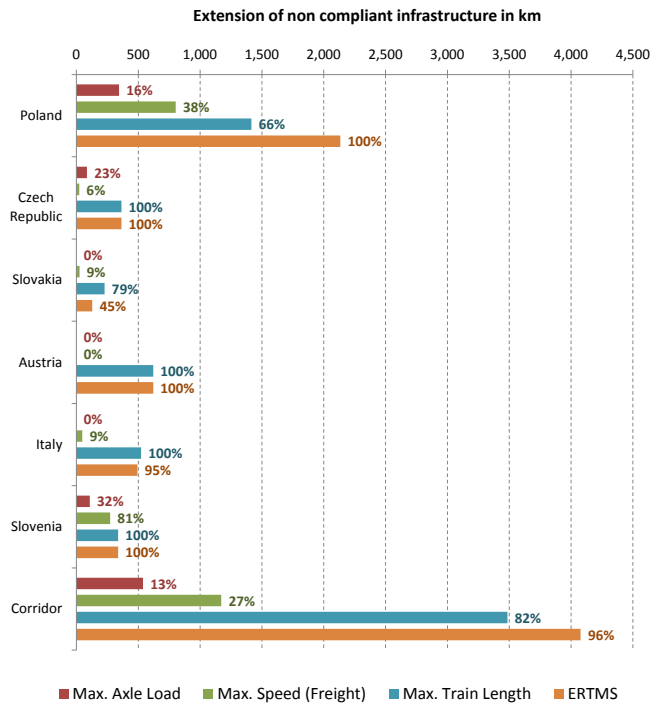
The 1,800 km long corridor allows for various itineraries between the ports: starting in the ports of Szczecin and Swinoujscie, via Poznan and Wroclaw, or in the ports of Gdynia and Gdansk directly to Katowice or through Warszawa and Lodz, the corridor interconnects the Polish urban and logistics core network nodes to the ones located in the Czech Republic, Slovakia and Austria, reaching Vienna through Bratislava or Ostrava and Brno. The corridor road and rail links continue from Austria towards the Adriatic ports of Koper, Trieste, Venice and Ravenna via Ljubljana in Slovenia or via Udine, also passing through Bologna in Italy.

The Baltic-Adriatic axis is one of the few corridors that do not include inland waterways – its urban nodes and ports, airports and rail-road terminals being interconnected only by rail and road infrastructure. The corridor encompasses a total of 13 urban nodes and airports, 10 ports and 19 rail-road terminals. Its railway network is corresponding with the Baltic-Adriatic Rail Freight Corridor.

This corridor has **intersections** with five other corridors. In Poland, the corridor is crossed by the North-Sea Baltic Corridor in West-East direction and in the Czech Republic, Austria and Slovakia by the Orient-East Med and Rhine-Danube Corridors. Further South - in Italy and Slovenia - the corridor runs for large parts in parallel to the Mediterranean Corridor. Finally, there is one intersection in Bologna with the Scandinavian-Mediterranean Corridor.

The **Baltic-Adriatic corridor study** is prepared by LeighFisher Limited (IT) and their subcontractors Jacobs Polska (PL), Paradigma (AT), NDCon (CZ, SK) and ASTRA Project d.o.o./University of Maribor (SI).

2. Characteristics of the core network corridor



2.1. Technical infrastructure parameters for each transport mode

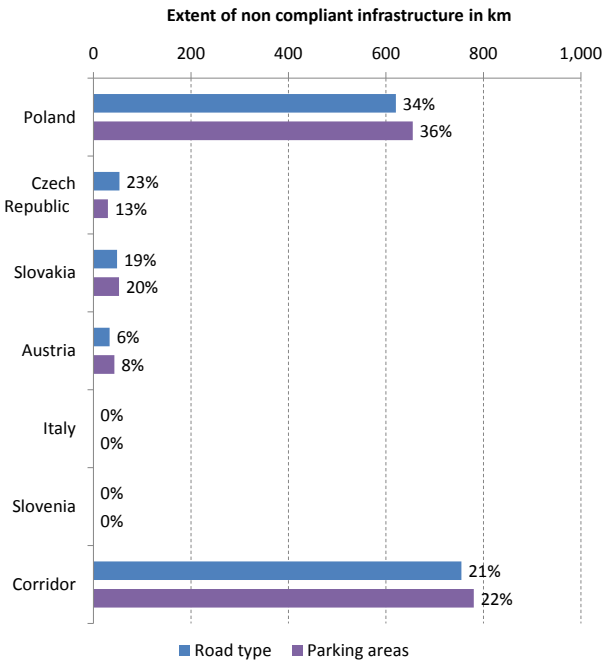
Rail

The Baltic-Adriatic Corridor includes 4,260 km of 1435 mm standard gauge railway infrastructure. Apart from two sections in Austria (Werndorf – Klagenfurt and Semmering Base Tunnel: Gloggnitz – Muerzzuschlag), the railway infrastructure is already continuous and in operation. However, a number of challenges are to be faced in terms of compliance with the different infrastructure requirements as laid down in the Regulation (EU) 1315/2013.

- As regards **electrification**, the railway infrastructure along the corridor is almost entirely electrified with the exception of diesel sections connecting Slovakia and Austria. However, three different power systems are in use: AC 15 kV 16 2/3 Hz (Austria), AC 25 kV 50 Hz (Czech Republic and Slovakia) and DC 3 kV (Poland, Czech Republic, Slovakia, Italy, Slovenia) which constitutes an important obstacle for interoperability on the corridor only partially mitigated by the use of multisystem locomotives.
- With respect to the **axle load**, the corridor is mostly compliant with the Regulation (22.5 t). There are however some corridor sections (13% of the total corridor railway infrastructure) that do not comply with this standard yet, especially in Poland (such as several sections on the lines Katowice – Czechowice Dziedzice – Zwardoń, Wrocław – Jelcz – Opole, Kędzierzyn Koźle – Chałupki and Kędzierzyn Koźle –

Gliwice – Chorzów), Slovenia (several sections between Zidani Most – Šentilj) and the Czech Republic (railway line between Brno – Přerov).

- **Line speed** is not homogeneous along the Baltic-Adriatic Corridor, with relevant bottlenecks existing particularly in Poland and calling for infrastructure modernisation. In particular, over 800 km of the Polish railway lines (about 20% of the total corridor railway infrastructure) need to be upgraded to meet the requirement set in the Regulation with respect to the line speed for freight trains (100 km/h).
- When it comes to the maximum permitted **length of trains**, this is on most sections of the corridor (82% of the total corridor railway infrastructure) shorter than the 740 m required by the Regulation (see map in Annex 2). The prevailing maximum train length along the corridor is around 600 m, but more severe restrictions exist on specific sections, especially on the Slovenian network.
- Finally, **ERMTS** is only deployed on 4% of the corridor railway infrastructure. While communication systems with few exceptions are being transferred to the GSM-R standard, the historical difference in national safety and train control systems still remains. Based on the EU deployment plan dated 2010, a complete deployment of ERTMS on the entire Baltic-Adriatic Corridor is not foreseen before 2020.



Road

The 3,600 km road infrastructure on the Baltic-Adriatic Corridor does not fully comply with the requirements of the Regulation (EU) 1315/2013 either, i.e. in what concerns the type of infrastructure and parking areas. The situation is particularly relevant for the Polish road network, whereas the corridor infrastructure in Italy and Slovenia is fully compliant. Currently, 21% of the road corridor infrastructure is constituted by ordinary roads which do not comply with the requirements.

Ports

Ports along the Baltic-Adriatic Corridor are all interconnected to the road and rail links, representing a basic infrastructure for intermodal transport. However, for many of them the quality of "last mile" access needs to be improved or capacity problems solved.

Airports

There are 13 core airports along the corridor which are all interconnected to the road network (Szczecin, Gdansk, Poznan, Wroclaw, Lodz, Warszawa, Katowice, Ostrava, Bratislava, Wien, Ljubljana, Venezia, Bologna). The two core airports (Warsaw and Vienna) which have to be connected to the rail network according to the Regulation already fully comply with this requirement. In addition, a rail connection exists for the Szczecin airport and is currently under construction for the Ostrava airport.

2.2. Preliminary results of the transport market study

The multi-modal transport market study covers all corridor relevant flows of goods and passengers with a particular focus on railways and roads traffic between and within the concerned Member States until 2030. An overview of the preliminary results of the demand analysis, focussing on international trade related transport of goods between Poland, Czech Republic, Slovakia, Austria, Italy and Slovenia, is provided below.

Rail

Regarding rail freight traffic, the dominant relationships in 2010 are between the Czech Republic, Poland and Slovakia. Another important relationship is between Slovenia and Austria, the latter representing the main destination of rail transported freights between the Baltic Adriatic Corridors' Member States.

Origin \ Destination	PL	CZ	SK	AT	IT	SI	Total Origin
PL	0.00	4.81	2.16	1.88	0.34	0.05	**9.23**
CZ	4.09	0.00	3.56	3.61	0.43	0.72	**12.40**
SK	1.54	5.54	0.00	2.48	0.28	0.93	**10.77**
AT	0.24	0.33	0.23	0.00	3.00	3.17	**6.97**
IT	0.16	0.03	0.03	1.98	0.00	0.05	**2.25**
SI	0.05	0.15	1.21	5.42	0.13	0.00	**6.96**
Total Destination	**6.08**	**10.86**	**7.18**	**15.37**	**4.18**	**4.91**	**48.58**

International Rail Freight Flows in 1,000 tonnes

Road

Similarly to rail transport, road traffic data for international goods show that the dominant relationships in 2010 are between the Czech Republic, Poland and Slovakia. The most important relationship is however the one between Italy and Austria. Italy represents the main destination of road transported freights between the Baltic Adriatic Corridors' Member States.

Origin \ Destination	PL	CZ	SK	AT	IT	SI	Total Origin
PL	0.00	4.77	2.58	1.30	2.15	0.30	**11.10**
CZ	4.63	0.00	5.10	2.97	1.69	0.32	**14.70**
SK	2.45	4.56	0.00	1.94	1.26	0.18	**10.39**
AT	1.15	2.27	1.43	0.00	7.49	1.58	**13.91**
IT	2.66	1.43	0.75	4.65	0.00	2.51	**12.01**
SI	0.29	0.22	0.32	1.71	3.20	0.00	**5.74**
Total Destination	**11.17**	**13.25**	**10.17**	**12.57**	**15.79**	**4.88**	**67.84**

International Road Freight Flows in 1,000 tonnes

More than 115 M tonnes of freight volumes were transported by road and rail between Poland, Czech Republic, Slovakia, Austria, Italy and Slovenia. The modal share for railways is 42%, with Italy registering the lowest percentages and Austria representing the main destination for rail traffic among the Baltic-Adriatic Corridor concerned Member States.

2.3. Critical issues on the corridor

The main missing links of the Baltic-Adriatic Corridor are the cross-border sections and the Semmering- and Koralm tunnels in Austria for the Alpine crossing (both under construction at present, with planned completion by 2024 and 2023 respectively). However, bottlenecks are not limited to the specific cross-border sections only, but extend on one or both sides of the neighbouring countries to the nearest urban or network node.

This calls for a more coordinated approach on both sides of the borders. In addition, specific bottlenecks exist at the local level on the corridor rail network due to the lack of capacity at stations or on sections, the lack of separation between regional and long distance train traffic for passengers and freights, especially within and close to agglomerations, and speed limitations decreasing both quality of service and line capacity.

Cross-border sections

The major cross-border bottlenecks on the corridor are the following:

- Katowice (PL) – Ostrava (CZ): Railway sections Raciborz (PL) – Bohumín (CZ) and Katowice (PL) – Petrovice u Karviné (CZ).
- Katowice (PL) – Žilina (SK): Railway and road sections.
- Brno (CZ) – Wien (AT): Road section Pohorelice (CZ) – Schrick (AT).
- Bratislava (SK) – Wien (AT): Railway section Devínska Nová Ves (SK) – Marchegg (AT).
- Graz (AT) – Maribor / Pragersko (SI): Railway section Spielfeld-Straß (AT) – Sentilj (SI).
- Trieste (IT) – Divača (SI): Railway section Villa Opicina (IT) – Sežana (SI).

Besides the major issues and needs for upgrading at the borders, several national bottlenecks need to be addressed in future on the corridor.

National bottlenecks - rail

- In Poland, major deficiencies exist on most sections particularly regarding line speed, train length and axle load.
- In the Czech Republic, capacity and speed bottlenecks exist in the junctions Ostrava, Brno and Břeclav. The section Přerov – Brno faces bottlenecks with regard to capacity, speed, train length and axle load.
- In Slovakia, modernisation to increase speed from 120 to 160 km/h is on-going or planned on parts of the line Žilina – Bratislava; upgrading of Žilina (60 km/h) and Bratislava (40 km/h) junctions are also under consideration.
- In Austria, Alpine Crossings (Semmering and Koralm) are at the construction stage as well as the new main railway station in Vienna. The line Wien Inzersdorf – Wampersdorf is planned to be doubled by 2023.
- In Italy, critical issues exist on the lines Venice – Trieste (level crossings and Bivio S.Polo) and Udine – Cervignano (to be doubled) and at the Mestre and Udine nodes.
- In Slovenia, major deficiencies exist compared to the requirements of the TEN-T standards. The upgrading of the line Divača – Koper is under implementation.

National bottlenecks - road

- In Poland, part of the road infrastructure belonging to the corridor (S69, S3, S7, A1 and S1) are being upgraded or planned to be upgraded.
- In the Czech Republic, the R52 is a missing link from Pohořelice to Mikulov. Besides, the D1 motorway section Lipník nad Bečvou – Říkovice is still to be completed.
- In Slovakia, upgrading works for sections and junctions on the D1 motorway are planned between Trnava – Bratislava; D4 bypass motorway is under preparation to solve capacity issues in Bratislava. Existing road I/18 through Žilina is close to its capacity limit, D3 motorway bypassing Žilina urban area is currently under implementation to solve this traffic bottleneck.
- The Austrian road network is complete and compliant with the Regulation, except the A5 at the border with the Czech Republic which is currently under construction. The eastern external bypass in Vienna is also at its planning stage.
- In Slovenia and Italy, the motorway network is complete and complies with the Regulation.

3. Objectives of the core network corridor

Based on a detailed analysis of the characteristics of the Baltic-Adriatic Corridor, e.g. in terms of consistency with the technical requirements of the Regulation, and on the discussion with stakeholders, the following main development needs have been identified for the corridor and been translated into specific corridor objectives for each policy category:

Cohesion:

- Improving the infrastructure quality and standards with the target to comply with the technical standards set in the Regulation, in particular concerning transport infrastructure for rail (especially line speed, axle load, train length) and road (road class - motorways or expressways) transport;
- Improving interconnection in all urban nodes along the corridor between TEN-T and local and regional transport infrastructure, for both passenger and freight traffic.

Efficiency:

- Removal of the main remaining rail and road bottlenecks, ensuring the timely completion of the on-going projects (especially at the Alpine crossing), improving the cross-border connections (Poland - Czech Republic / Slovakia, Czech Republic / Slovakia - Austria, Slovenia - Austria / Italy), completing the modernization of the national rail lines (Poland, Czech Republic, Slovakia, Slovenia), upgrading specific railway links and nodes (Austria, Italy) and completing the upgrade of the road network to motorway/expressway standard (Poland, Czech Republic, Slovakia);
- Interoperability of national transport networks, in particular through the deployment of existing interoperable telematics applications (ERTMS, ITS, VTM and e-Maritime services, SESAR) and their further technological advancement;
- Optimal integration and interconnection of all transport modes, especially improving the “last mile” connections to ports, airports and rail-road terminals;
- Promotion of economically efficient, high-quality and competitive transport, contributing to the development of intra and extra EU trade, through the Adriatic and Baltic ports as gateways to the main third commercial partners.

Sustainability:

- Developing an integrated and multi-modal sustainable transport system, contributing to the objectives of low carbon and clean transport, fuel security, reduction of external costs of transport (especially for highly populated areas) and protection for environmentally sensitive areas such as the Alpine space.

Users' benefits:

- Meeting the mobility and transport needs of its users within the Union and in relation with third countries, improving the performance of the transport system for its users, reducing congestion and expanding the infrastructure capacity when necessary;
- Ensuring safe, secure and high-quality standards, for both passenger and freight transport; supporting mobility even in the event of natural or manmade disasters, and ensuring accessibility to emergency and rescue services;
- Improving accessibility for elderly people, persons with reduced mobility and disabled passengers.

4. Outlook by the European Coordinator

The year 2014 is the starting point of a challenging, but very appealing exercise. The work plan to be elaborated by the end of this year and to be approved early next year by Member States will constitute the basis for the development and implementation of the corridor investments which are needed to remove important bottlenecks along the corridor. Three main issues need to be primarily addressed on the Baltic-Adriatic Corridor:

- the cross-border links both for rail and road;
- the hinterland connection of the ports building the start and end point of the corridor;
- the timely implementation of the major tunnel projects in Austria which will allow for a big step forward with regard to the Alpine crossing of major traffic flows.

But apart from these (technical) issues, the Baltic-Adriatic Corridor is much more than the mere transport infrastructure. It adds European value to the infrastructure investments, it enhances cross-border and interregional cooperation and thereby aims at coordinated approaches and implementation. Last but not least the corridor constitutes a powerful tool to bring relevant stakeholders across countries and sectors together in order to pave the way for a living corridor environment.

To reach its overall objective, the involvement of the various stakeholders is crucial. My role as European Coordinator is to allow for an open communication and dialogue, to join forces, to listen to the different needs and national constraints and to be – where and whenever needed – an independent mediator.

The Corridor Forum is in this context an important tool which I intend to continue over the next months and years with a gradually increasing number of stakeholders to be involved. In addition, working groups for ports and regions will be set up in 2014. Other working groups, e.g. for road infrastructure managers, may be envisaged for 2015 since the compliance with the requirements for the road infrastructure is not ensured yet, particularly in Cohesion Countries.

Apart from the Fora, the direct face-to-face dialogue is important. This is why I visited all Ministers of Transport along the corridor over the past months in their capital cities. In addition, I looked for opportunities to directly speak with the rail and road infrastructure managers. I will continue these missions in 2015 where a focus will be set on the ports and cross-border sections.

Dissemination and communication on activities and results are another important key word that will guide my work in future. Indeed, once the work plan is sound enough and based on shared agreements, it is important to spread the word to the “outside world”. For instance, the civil society – not directly involved (yet) in the Corridor Forum – shall not be left aside. This is particularly important for the Baltic-Adriatic Corridor where several – small and major – infrastructure investments are currently hampered by environmental opponents. Lengthy and complex procedures of the Strategic Environmental Assessment add on to this problematic.

Finally, the cross-cutting issue of financing infrastructure will be on my agenda as European Coordinator. Indeed, to secure co-financing is no longer only an issue for Cohesion countries. Sustainable, forward-looking ways to invest in infrastructure and thus to implement our ideas for the corridor are needed.

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BALTIC-ADRIATIC CORRIDOR
København
Kolding
Flensburg
Rødby
Sassnitz
Stralsund
Kiel
Neumünster
Rostock
Wismar
Cuxhaven
Bremerhaven
Hamburg
Bremen
Berlin
Hannover
Wolfsburg
Braunschweig
Magdeburg
Kassel
Leipzig
Görlitz
Dresden
Erfurt
Jena
Hof
Cheb
Praha
Kolin
Pardubice
Würzburg
Plzen
Nürnberg
Mannheim
Kolobrzeg
Swinoujscie
Szczecin
Gdynia
Bydgoszcz
Poznan
Wroclaw
Warszawa
Lodz
Lublin
Bialystok
Kaunas
Częstochowa
Opole
Katowice
Krakow
Przemysl
Ostrava
Bielsko-Biala
Barwinek
Olomouc
Prerov
Zilina
Presov


Ceske Budejovice
Regensburg
Stuttgart
Passau
Ulm
Augsburg
München
Linz
Enns
Wels
Wien
Bratislava
Wiener Neustadt
Sopron
Győr
Budapest
Trencin
Banska Bystrica
Zvolen
Kosice
Miskolc
Nyíregyháza
Debrecen
Oradea
Szolnok
Székesfehérvár
Kecskemét
Szombathely
Salzburg
Bruck an der Mur
Graz
Zürich
Sankt Gallen
Bregenz
Wörgl
Innsbruck
Brennero
Bolzano
Trento
Lugano
Klagenfurt
Tarvisio
Jesenice
Maribor
Pragersko
Lendava
Varaždin
Pécs
Szeged
Nadlac
Arad
Timisoara
Ljubljana
Udine
Zagreb
Osijek
Sisak
Slavonski Brod
Novi Sad
Moravita
Beograd
Rijeka
Milano
Brescia
Verona
Vicenza
Venezia
Piacenza
Alessándria
Parma
Ferrara
Ravenna
Pula
Banja Luka
Bricko
Genova
La Spézia
Rímini
Zadar
Sarajevo
Šibenik
Pisa
Livorno
Firenze
Ancona
Perugia
Piombino
Podgorica
INLAND WATERWAY
OTHER CORE NETWORK
ROAD
RAILWAY
PORT (Core)
AIRPORT (Core)
MULTIMODAL PLATFORM (Core)
0
50
100
200 Km
TENtec

1. Linking the Baltic Sea Region with the main ports of the North Sea – The North Sea - Baltic Corridor

Among all the core network corridors (CNC) the 3.200 km long North Sea – Baltic has the potential of becoming one of the most economically diverse corridors in the European Union. The North Sea – Baltic Corridor has 16 Core Network airports, 12 core network seaports, 18 core network inland ports, and 18 core network Rail-Road Terminals. The corridor connects the capitals of the eight countries concerned namely: Helsinki, Tallinn, Riga, Vilnius, Warsaw, Berlin, Brussels as well as Amsterdam. The corridor connects Europe's leading seaports in the west (Rotterdam, Antwerp, Amsterdam and Hamburg) to the fastest developing region in the EU – the Baltic Sea Macro Region in the north-east. The corridor has an effective inland waterways network stretching from the North Sea ports to Berlin and includes several of the leading logistics hot spots in Europe. The corridor is characterized by large volumes of freight and passengers at the western and northern ends meaning Finland, Germany, the Netherlands, Belgium and the western part of Poland. However, the long section from Warsaw to Tallinn is marked by insufficient transport infrastructure, lack of international railway services and over-dependence on road transport. These deficiencies are undermining the positive development of economic cohesion, especially in the Baltic States, which are less connected to the European transport flows than the other countries along the corridor.

This fundamental imbalance of transport infrastructure and services constitutes the foremost challenge of the corridor. Urgent political and investment measures are needed to build up an international rail service through the Baltic States, i.e. the Rail Baltic/Rail Baltica[1] project. In the western part of the corridor the challenges are not in the quality of infrastructure so much as the conditions that would enable it to be more efficiently used. Serious actions are also needed to improve cross border connections and to facilitate the growing flows in maritime and inland waterways transport in the light of stricter environmental requirements resulting from international and EU regulations.

Even with a relatively good quality of rail infrastructure the share of railways in transportation along the corridor is small. To increase the share of rail freight services altogether in total freight transportation is a major challenge for the corridor in both the eastern, central and western sections of the corridor. This corridor has intersections with six other corridors: the North Sea - Mediterranean and the Rhine-Alpine Corridors in the Netherlands, the Rhine-Alpine, the Scandinavian - Mediterranean and the Orient/East-Med Corridors in Germany and Finland and finally the Baltic-Adriatic Corridor in Poland.

The corridor study is being prepared by the PROXIMARE international consortium. This comprises the following partners TriniTy Law (EE), Malla Paajanen Consulting (FI), IPG Consulting (DE), Goudappel Coffeng Consulting (NL) and Norton Rose Law (UK).

2. Characteristics of the core network corridor

2.1. Technical infrastructure parameters for each transport mode

The North Sea – Baltic is a corridor with a strong maritime component. The ports of Amsterdam, Rotterdam and Antwerp (ARA) and the port of Hamburg hold the top four positions in the list of Europe's biggest ports. These ports are of great importance for future economic growth in many industrial and logistics sectors in Germany, the Netherlands, Belgium and beyond. To ensure the functioning of these economic centres, the access from the sea as well as the hinterland connections have a crucial role to play, as more than half of the incoming cargo is moved through the hinterland while the rest stays in the local economies.

The Kiel Kanal (while not of itself part of the Corridor) is the crucial link between the North Sea and the Baltic and benefits all the countries along the Baltic littoral. Its effective operation is therefore a major maritime element in the smooth working of shipping along the corridor. Optimisation of communication flows within ports between rail operators, rail terminal operators and their respective clients will contribute to an improved efficiency of transport operations in the ports. The northernmost seaport of the corridor is Helsinki which is the biggest seaport in a country where sea transport represents 90% of its trade. The ports of Estonia, Latvia and Lithuania are specialized in transit cargo between Russia and other third countries in the east. The development of LNG-terminals in all ports along the corridor will increase the

1 *For the sake of simplicity the term Rail Baltic is used in this Report consistently of Rail Baltic/Rail Baltica.*

viability of short sea shipping and have a positive impact on the environment but will be costly to introduce.

The inland waterways system (IWW) in Germany, the Netherlands and Belgium forms an efficient and strategic connection, because of low costs and relatively low environmental impact. In IWW, improvements need to be made in transport management and ICT-systems for better co-ordination between shippers and carriers. A direct IWW-connection between the Twentekanaal and the Mittellandkanal is by many parties seen as a possibility for increasing the share of IWW transport along the corridor, however neither the German nor the Dutch government have planned for this yet and its profitability is debated. As increased intermodality of freight transport is a major goal, the need for intermodal terminals (rail/road/IWW) has been mentioned as a crucial pre-condition for further growth in this sector.

An efficient network of railways is a fundamental part of the land transport system along the corridor. The connection from Antwerp/Rotterdam/Amsterdam-Berlin-Warsaw-Białystok-Belarus is potentially one of the most promising multimodal freight corridors in Europe. However, the bottlenecks (Berlin – Frankfurt (Oder), Magdeburg node, Oldenburg –Wilhelmshaven) on the western part of the corridor have to be eliminated first. In Belgium the need for an improved connection of the port of Antwerp to the hinterland is indicated. The "Iron Rhine" project, although not part of this CNC, is identified as of importance to the port of Antwerp. In the east the railway connection is weaker in the section from Białystok (PL) northwards while the European standard gauge railway currently ends in Sestokai, 22 kilometres inside the Lithuanian frontier, thus creating a "break-of-gauge". The railway connection through the Baltic States is going to be developed in two phases: first the upgrading of the existing 1520 mm gauge infrastructure will be finalized soon in order to be operationalized for international service by the end of 2015. In the second phase the new 1435 mm European standard gauge railway ("Rail Baltic") will be built from the LT/PL border to Tallinn (EE) which will be a completely new construction of a 1435 higher speed railway connection. The cross-border section LT/PL and the connection of Rail Baltic to Bialystok need to be rehabilitated and modernized. PL is planning to build a short subsection near Olecko and simplify the track layout in Suwałki. In the western part of the corridor, there are bottlenecks in rail on the heavily used sections where passenger and freight transport run in parallel (Hamburg node, Hamburg-Berlin). Additional measures are needed to improve border crossing sections and coordinate signalling and traction systems.

In the western part the corridor has a modern road network which to a large extent meets the Regulation's requirements. In the eastern part of the corridor the road network has not developed sufficiently yet while at the same time road transport is over represented both in freight and passenger transport. Via Baltica is the main road transport project through the Baltic States and Poland. Road safety is a challenge and LT, LV, PL are among the EU countries with the highest road mortality rates.

There are 16 core airports along the North Sea - Baltic Corridor (Helsinki, Tallinn, Riga, Vilnius, Warsaw, Łódź, Poznań, Berlin, Hamburg, Bremen, Hannover, Düsseldorf, Amsterdam, Rotterdam, Brussels and Liege). Out of these airports, 6 airports (Helsinki, Warsaw, Berlin, Hamburg, Düsseldorf and Amsterdam) have to be connected to the rail network according to the Regulation; only Helsinki and Warsaw are currently not complying with this requirement.

The airports have a similar leading role for economic development as the ports. Helsinki and Riga airports have developed into important air transport hubs with connections to the Far East (Helsinki), intra-EU and to the C.I.S. countries (Riga). For all airports the creation of fast and direct rail connections are a major issue, even if there is no obligation to do so. The capacity of rail and road connections is also critical for the direct accessibility of the ports and airports in the corridor.

2.2. Results of the transport market study

The multi-modal transport market study covers all corridor relevant modes of transport (road, rail, MoS) plus intermodal nodes for freight and passenger transport until 2030. It intends to provide a "big picture" of the present and future transport and traffic situation. The preliminary figures show clearly the heavy concentration of freight of all modes at the Western end of the corridor and the relatively scarce rail freight through traffic at the eastern end and in the Baltic States.

The numbers indicate that almost 70% of the total freight on the corridor is transported by road; only 11% by rail and 10% each for IWW and short sea shipping. 2.2 million tonnes of freight transported by IWW is however a significant amount despite being only a fraction of road transport underlining the fact that IWW forms a developed network from the North Sea coast as far as Berlin and in the Netherlands 30% of freight is transported by IWW and 29% in Belgium. In Poland 83% of total freight is transported by road which is a very high figure indicating the difficulties with rail freight in the country and the development of a modern road network. Road transport is also high in Germany and Finland. Only the three Baltic States have a higher rail freight component than road indicating the large quantities of oil and other bulk freight coming from Russia and the east. However, no volumes are currently being transported north-south by rail.

Estimates for the year 2030 (see table 3 below) show an increasing share for IWW, continuing heavy road and rail use in the western part of the corridor and continuing strong east west flows in the Baltic States using primarily rail.

Table 1: Freight transported on the North-Sea Baltic Corridor in 2012 (x 1000 Tonnes)

Loading Country	Mode					
	Total	Rail	Road	Inland Waterways	ShortSea Shipping	Air Intra-EU
FI	422,707	35,267	299,397		87.984	59
EE	101,509	44,725	31,321		25.459	4
LV	174,200	60,601	52,622		60.969	8
LT	130,205	49,377	48,428		32.391	9
PL	1,506,304	209,867	1,245,053	2.574	48.747	63
DE	3,652,427	366,140	2,891,837	223.170	170.372	908
NL	1,182,097	40,000	538,475	350.069	253.472	81
BE	650,832	45,000	291,380	190.288	123.928	236
Total for 8 countries	7,820,281	850,977	5,398,513	766.101	803.322	1.368

Remarks:
Unit: Freight in 1,000 tons
Source: Eurostat unless indicated otherwise below
NL: Rail estimates by ProRail, based on own data
PL: Rail data from RFC8 TMS, different to Eurostat
BE: No 2012 rail data available, 45,000 tons (x 1,000) estimated in order to calculate modal split

Table 2: Freight transported on the North Sea – Baltic Corridor in 2012 in %

Loading Country	Mode					
	Total	Rail	Road	Inland Waterways	Short Sea Shipping	Air Intra-EU
FI	100%	8%	71%	0%	21%	0%
EE	100%	44%	31%	0%	25%	0%
LV	100%	35%	30%	0%	35%	0%
LT	100%	38%	37%	0%	25%	0%
PL	100%	14%	83%	0%	3%	0%
DE	100%	10%	79%	6%	5%	0%
NL	100%	3%	46%	30%	21%	0%
BE	100%	7%	45%	29%	19%	0%
Total for 8 countries	100%	11%	69%	10%	10%	0%

Table 3: Freight estimate for the NSB Corridor 2030 all modes (rail = green, road = red IWW = blue)

2.3. Critical issues on the corridor

Cross border sections

What is exceptional for the North Sea – Baltic Corridor is that there are long sections where the core network railway infrastructure (1435 mm gauge) is completely missing. These sections will use the existing infrastructure (1520 mm) of the Comprehensive Network as an interim solution until the Core Network infrastructure is built.

FI-EE: Multimodal hinterland connections are partly missing: a rail connection is missing to Helsinki airport (expected completion 2015). The 1435 mm gauge Rail Baltic is planned to have its passenger terminus station at Ülemiste connected to Tallinn airport (for passengers by urban rail) and the ports of Tallinn (passengers by urban rail and freight through an intermodal terminal at the main cargo port in Muuga).

EE-LV: International rail connections barely exist for passengers and freight. Air connections exist between Tallinn and Riga, but are less used due to the short distance (350 km) and the fluency of bus services. The infrastructure improvements on the 1520 mm railway network have been completed in EE but are partially still on-going in LV. Rail Baltic is being planned to connect EE to LV (and further south) with international passenger and cargo services on a double track electrified 1435 mm gauge railway. The rail connection of Riga Airport to Riga City and the international rail network is also envisaged.

LV-LT: The main connections are by road. International rail connections are missing: on the 1520 mm line there is no regular train service between LV and LT. In LT reconstruction needs to be completed towards the LV border (part of the TEN-T PP 27). In the absence of a regular rail connection, there are heavy air traffic volumes between Riga and Vilnius (yet the distance is only 300 km).

LT-PL: The main connections are by road. In LT the infrastructure improvements on 1520 mm railways have been completed from LT/PL border with a dual gauge 1435/1520 mm connection to Šeštokai. The completion of a 1435 mm line within the dual gauge track to Kaunas by the end of 2015 is planned. The railway infrastructure in PL on the section Warsaw-Białystok-LT-border requires considerable improvements.

PL-BY: A Warsaw rail bypass connection exists for freight to PL/BY border.

PL-DE: Warsaw- Poznań –Frankfurt (Oder) - Berlin is one of the most important transport connections in Europe, in particular for the Rhine/Ruhr and the North Sea ports. Double tracks and electrified.

DE-NL-BE-DE: The border crossings use high-speed and convential railway services and motorways that are mostly six to eight lanes wide. However, the infrastructure is constantly under pressure from increasing volumes in all the transport modes, which entails constant upgrading.

Bottlenecks

The most severe bottleneck along the corridor is the lack of the 1435 mm gauge railway from the LT/PL border up to Tallinn. In IWW, the missing links concern the Elbe and Oder rivers, Twentekanaal and Mittellandkanal, and the general quality of the infrastructure.

Interoperability

The key interoperability issue is that the corridor uses two international railway gauges the 1520 mm broad (or Russian gauge) and the 1435 mm UIC standard gauge. The second problem in interoperability is the different voltage systems used for electric traction in the different countries along the corridor. The installation of the ERTMS signalling system also varies considerably along the corridor. Although all countries have made their ERTMS plans, currently the system is only in operation on the rail corridors in Belgium and the Netherlands as far as the DE/NL border. Implementation plans in DE and PL exist but the Baltic States will implement the ERTMS with the development of the European gauge railway. There are differences in standards for maximum axle loads on railways and maximum train length between countries. Most of the relevant lines are not designed to accommodate the required train length of 740 meters (in 2030).

Intermodality

The easy shift from one mode of transport to another is one of the key principles of the Regulation. Ideally, the customer should be able to choose from several modes of transport and decide the most timely and cost effective mode for the purpose. There are currently several missing links:

- The Ring Rail connection to the Helsinki airport, planned to be completed in 2015.
- Rail connection between the City Centre, passenger ports and the airport in Tallinn are to be built in connection with the Rail Baltic.
- Riga International Airport has no rail connection until the Rail Baltic is built.
- The airports of Warsaw, Łódź and Poznań need rail connections. Warsaw is obliged to construct such a connection.
- Interoperability in freight: a chain of logistics centres that offer services of similar quality along the corridor has been planned. NL, DE and FI operate as benchmark countries for freight villages.

3. Objectives of the core network corridor

On the basis of a detailed analysis of the legal framework, previous corridor studies, Priority Projects and feedback from stakeholders, the following objectives have been identified:

General objectives

- These corridors should ensure a seamless national and international transport by all kinds of transport modes, minimise environmental impacts and increase competitiveness.

Detailed objectives

- Removal of bottlenecks and bridging of missing links particularly at border-crossing sections;
- Regions along the corridor shall be adequately supplied with traffic infrastructure;
- To shape the core network to such an extent that at all border crossing points a seamless traffic flow, border checks, border surveillance and other border control procedures are ensured for all kind of transport modes;

- The core network shall guarantee an optimal integration of all transport modes (multimodality) and interoperability shall be ensured for national and trans-European transport networks by removing technical and administrative barriers;
- Promotion of maritime transports and motorways of the sea by the Union;
- Significant support of implementation and deployment of telematics applications and promotion of innovative technological development;

Environmental protection measures by using alternative clean fuels and propulsion systems as well as promoting low-carbon transport should result in the relevant Union CO2 reduction

4. Outlook by the European Coordinator

As the former European Coordinator I see the North Sea - Baltic Corridor as being among the most highly diverse of all the Core Network corridors. The western section (North Sea Ports to Berlin-Warsaw) is well developed whereas the connection to the Baltic States and Finland barely exists at the present time. The main difficulty in creating this corridor will be in building the idea that a true continuous corridor can exist from the North Sea ports all the way to Helsinki/Tallinn in the north Baltic. This means the setting up of the Rail Baltic Joint Venture and the eventual building of the rail connection Rail Baltic from Warsaw to Tallinn. Only then can the concept of a real multimodal land transport corridor running from the North Sea to the Baltic be fully realised. At the western end incremental improvements can be made in operations and intermodality. IWW are an important factor in the corridor from the North Sea to Berlin and better use should be made of the possibilities which they create. ERTMS implementation has to continue. Hinterland connections from the ports and connections to airports, rail and IWW are vital. Finally I am aware that the corridor is essentially a corridor linking ports. The Kiel Kanal (although not formally part of the corridor), is a vital maritime link between the two seas and its effective operation is a matter of concern for all the Baltic Sea States. Also the Motorways of the Sea policy remains at the core of a successful implementation of the corridor concept in this region of Europe.

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Mr Telička resigned from his function as European Coordinator as of 1 July 2014 to take up seat in the EP

NORTH SEA-BALTIC CORRIDOR


Helsinki
Stockholm
Tallinn
Narva
Parnu
Tartu
Valga
Ventspils
Riga
Liepaja
Rezekne
Siauliai
Klaipeda
Panevezys
Paprudziai
Kaunas
Vilnius
Marijampole
Gdynia
Gdansk
Minsk
Bydgoszcz
Bialystok
Poznan
Warszawa
Malaszewicze
Lodz
Wroclaw
Czestochowa
Opole
Katowice
0 100 200 400 Km
INLAND WATERWAY
OTHER CORE NETWORK
ROAD
RAILWAY
PORT (Core)
AIRPORT (Core)
MULTIMODAL PLATFORM (Core)
TENtec

1. Connecting the Iberian peninsula with the eastern part of Europe and beyond

The Mediterranean Corridor will link in the south-western Mediterranean region up to the Ukrainian border with Hungary, following the coastlines of Spain and France and crossing the Alps towards the east through Italy, Slovenia and Croatia and running through Hungary up to its eastern border with Ukraine.

This corridor of about 3,000 km, integrating Priority Projects 3 and 6, ERTMS Corridor D and corresponding to the Mediterranean Rail Freight Corridor, will provide a multimodal link to the ports of the western Mediterranean with the centre of the EU. It will also create an east-west link through the southern part of the EU, contribute to intermodality in sensitive areas such as the Pyrenees and the Alps and connect some of the major urban areas of the EU with high speed trains.

The main missing sections are the new cross-border rail links between France and Italy ("Lyon-Turin") and between Italy and Slovenia ("Trieste-Divača") and the finalisation of a completely upgraded rail link between Spain and France. Furthermore, the inclusion of Croatia and the cross-border links with Slovenia and Hungary shall be taken into account. Multimodal connections with the ports in Spain have to be developed and some railway sections in Italy and France ("Montpellier-Perpignan") need to be upgraded in order to remove key bottlenecks. The coexistence of two gauges: 1668 mm in Spain, 1435mm in the other countries is another challenge for this corridor, which is gradually being tackled during the oncoming Financial Perspectives.

The Mediterranean Corridor is intersecting with the Atlantic corridor in Spain (Algeciras-Madrid), with the North Sea-Mediterranean Corridor in France (Marseille-Lyon), with the Rhine-Alpine Corridor in Italy (Novara/Milano), with the Baltic-Adriatic Corridor in Italy and Slovenia, with the Rhine-Danube Corridor in Croatia and Hungary and with the Orient-East Med Corridor in Hungary.

A consortium led by PriceWaterhouseCoopers (IT), with the participation of EPYPSA (ES), Setec (FR) and Panteia (NL) is providing the technical assistance to the corridor.

2. Characteristics of the core network corridor

2.1. Technical infrastructure parameters for each transport mode

The Mediterranean Corridor includes some 6000 km of railway infrastructure. This railway infrastructure is already continuous and in operation. However, a number of challenges are to be faced in terms of compliance with the different infrastructure requirements as laid down in the Regulation (EU) 1315/2013.

Rail

- One of the main challenges of the corridor are the different **track gauges**. France and the other countries along the corridor up to Hungary feature the 1435 mm standard UIC gauge, whereas Spain applies the Iberian gauge 1668 mm (with the exception of the high-speed lines). During the oncoming years, Spain is expanding the UIC gauge along the rail freight corridor as well.
- **ERTMS-ETCS** is deployed only on high-speed lines in Spain, France and Italy, as well as on some short cross-border sections in Slovenia and Hungary.
- **Electrification** is lacking on the Iberian peninsula between Algeciras and Sevilla. On the rest of the corridor three different voltages are in use: 1.5kV DC (convential lines in France), 3kV DC (conventional lines in Spain, Italy and Slovenia), 25 kV AC (high-speed lines in France, Spain and convential lines in Croatia and Hungary).
- A **train length** of 750 m is only allowed in France, on most of the Hungarian network and on a small section in Spain. On the rest of the corridor train length restrictions apply, allowing a train length varying between 400m up to 700m.
- The infrastructure allows the required **axle load** of 22.5 t on all of the sections in Spain, France, Italy and Croatia, while in Hungary and Slovenia limitations still exist on some sections.
- The required minimum **line speed** of 160 km/h (passengers) and 100 km/h (freight) is achieved in Spain, France and Italy; and on half of the sections in Hungary and Slovenia. In Croatia, the current line speed is below the minimum on the whole corridor.

Road

- The analysis of the compliance with the requirements for roads will be provided in the third progress report of the consortium before the 3rd Corridor Forum.

Maritime and IWW ports

- While railway connections exist to all ports on the corridor there are numerous restrictions (notably as regards capacity and train length).

Airports

There are 16 core airports along the Mediterranean Corridor (Madrid, Barcelona, Valencia, Alicante, Sevilla, Marseille, Lyon, Milano (Malpensa, Linate), Bergamo, Venice, Bologna, Turin, Ljubljana, Zagreb, Budapest). Out of these airports, 6 airports (Madrid, Barcelona, Lyon, Malpensa, Linate, and Budapest) have to be connected to the rail network according to the Regulation; only Linate and Budapest are currently not complying with this requirement (see map in Annex 2).

2.2. Transport market study: preliminary outlook

International freight transport market along the corridor

The two main flows of goods are between France and Spain (45 million tons) and between France and Italy (31 million tons). These two flows represent 60% of the goods (in weight) exchanged between the six corridor countries.

The overall modal split international freight flows along the corridor is 70% for road, 11% for rail and 19% for maritime transport. More than 2/3 of the goods exchanged between Spain and Italy are transported by sea. The rail market share for relations with Spain is close to zero, mainly because of the different track gauges between Spain and the rest of Europe. Rail share is 17% between France and Italy, and reaches very high levels for flows between Hungary and Slovenia, Croatia or Italy.

Rail share	Spain	France	Italy	Slovenia	Croatia	Hungary
Spain		2%	1%	0%	0%	1%
France			17%	5%	5%	3%
Italy				3%	38%	36%
Slovenia					11%	59%
Croatia						67%
Hungary						

2010 Freight transport demand by mode between the six countries of the Mediterranean corridor

In terms of type of goods Agricultural products and manufactured products are the two main commodities exchanged between countries of the corridor, with shares of 28% and 34%respectively over total weight of exchanged goods. Agricultural products are predominant in flows between Spain and France, whereas manufactured products (including vehicles) are majority between France and Italy or Spain and Italy. Mineral fuels like coal or petroleum products have a particular importance in flows between Hungary and Slovenia / Croatia. Metal products are strong (26%) between Hungary and Italy. Crude minerals and building materials have a high market share in flows between Italy, Slovenia and Croatia.

Freight transport demand between countries of the Mediterranean Corridor and other European countries represents 450 million tons, but only 150 million are likely to use the corridor infrastructure on a significant section. Among them, the most important volumes are those in exchange with Spain, for which the corridor represents the main land itinerary to travel to most parts of Europe. Flows between Benelux and Italy are also strong (15 million tons / year); today these flows use preferably the Rhine-Alpine Corridor, but there could be some itinerary shift if the Alpine crossing between France and Italy is improved.

The rail market share is relatively high for flows between Italy / Slovenia / Croatia /Hungary and countries of north-western and central Europe (Benelux, Germany, Switzerland, Austria).

International passenger transport market along the corridor

The total international passenger traffic between the six countries of the corridor is 81 million passengers per year. The two main flows are between France and Spain and France and Italy: these two relations represent 80% of the international traffic considered.

Rail share	Spain	France	Italy	Slovenia	Croatia	Hungary
Spain		2%	1%	2%	2%	0%
France			4%	6%	7%	1%
Italy				8%	12%	4%
Slovenia					4%	15%
Croatia						20%
Hungary						

2010 Passenger transport demand by mode between the six countries of the corridor

Overall mode shares for international traffic between corridor countries are 64% for road, 33% for air and only 3% for rail transport.
Spain – France and Italy – France relations are characterized by strong road traffic, consisting mainly of short-distance trips around border points of Irun, Le Perthus (ESFR) and Ventimiglia (IT-FR). Regarding air traffic, the first country to country relation is between Italy and Spain, with almost 10 million passengers per year. France – Italy and France – Spain have both similar air traffic volumes (7,5 million).
The rail market share is generally weak, in particular for flows with Spain; but flows between Hungary and Slovenia / Croatia have significantly higher rail market shares (15-20%) than the other flows.

Passenger traffic by mode between the countries of the corridor and other European countries represents 280 million passengers per year, but only 125 million are likely to use the corridor infrastructure on a significant section. Among them, the most important volumes are those in exchange with Spain, but flows between Italy and UK or Benelux are noteworthy. Rail share is generally very low (<3%), except for some relations which affect the corridor very marginally (France – Benelux or Switzerland –Italy for example).

2.3. Critical issues on the corridor

Most of the main critical issues concern the railway infrastructure along the corridor and comprise missing links, bottlenecks and interoperability issues

1) Main missing links

- Lyon-Turin
- Montpellier-Perpignan (the last section missing to complete the high-speed line Paris-Barcelona)
- Trieste-Divača

2) Bottlenecks

- Railway nodes of Lyon, Torino, Milano, Treviglio, Verona, Venice and Trieste
- Treviglio-Brescia (this double track line faces capacity problems and needs to be enlarged to four tracks)
- In Slovenia, the main railway lines along the corridor need upgrading in order to increase capacity: Divača – Koper (second track); Divača – Ljubljana; Zidani Most – Celje; Pragersko –Hodoš; Pragersko – Hungarian border (project in progress, electrification)
- The entire Croatian railway network requires upgrading: almost the entire network consists of single track lines, except the section Dugo Selo-Zagreb.
- Southern rail bridge in Budapest
- Several sections of HU main lines require upgrading and/or reconstruction of: Boba-Székesfehérvár; Budapest-Szajol-Debrecen-Nyiregyhàza; Kelenföld – Százhalombatta – Pusztaszabolcs –Budapest; Szolnok-Szajol
- Insufficient rail connection to the ports of Barcelona, Marseille, Trieste, Koper and Rijeka
- Lack of last mile rail connection to most Italian IWW ports
- IWW infrastructure in Hungary requires complete overhaul; most serious issue: lack of draught on the Danube; this issue is dealt with by the Rhine-Danube Corridor.

3) Interoperability issues

- UIC standard gauge deployment in Spain
- Use of high-speed line Barcelona-Perpignan by freight trains requires locomotives with 3 (!) signalling systems, which currently do not exist on the market
- Lack of infrastructure for transhipment from sea ships to IWW vessels (Ravenna, Trieste, Levante ports)

3. Objectives of the core network corridor

8 main objectives have been identified in the corridor study for the Mediterranean Corridor:

- Removal of infrastructure bottlenecks and bridging of missing links;
- Upgrading of infrastructure quality to TEN-T level;
- Efficient use of infrastructure;
- Optimal integration and improved interconnection of transport modes;
- Optimal interconnection of national transport networks;
- Promotion of economically efficient and high-quality transport;
- Promote resource-efficient use of infrastructure;
- Reduction of congestion.

During the elaboration of the corridor work plan, these general objectives will be translated into specific objectives and measurement indicators.

4. Outlook by the European Coordinator

The key challenge for this year will be the definition and agreement of the corridor work plan, notably to identify the measures needed to address the above-mentioned missing links, bottlenecks and main constraints, including the administrative and operational barriers.

The work plan will be based on the transport market study, and should pave the way for an effective use of the resources that can trigger the development of key priority projects, starting from national budgets and supported for the high EU added value projects by Community sources (Cohesion Policy, Connecting Europe Facility, EIB). Therefore the corridor will be a useful facilitator to fine-tune the actions by Member States, the European Commission, the EIB, as well as private investors. The identification of projects along the corridor will be the main challenge for the oncoming two Forum meetings, with a view to be comprehensive on the one hand, but to maintain a clear focus on the EU added value on the other hand.

As European Coordinator for the Mediterranean Corridor, I see it as my main task to bring all Member States and other stakeholders together in a transparent and constantly deepening dialogue. The Forum is the ideal place for this, but I will also directly address the Member States and other stakeholders in bilateral meetings, visiting them and witnessing the progress on the ground.

I will thereby continue to particularly value the multilateral/Intergovernmental, cross-border cooperation between Member States. For the main missing links, Lyon-Turin and Trieste-Divača, this cooperation will have to be intensified and I will propose that the Commission become a formal party, given that the EU, as from 2014, contributes 40% of the financial resources to these cross-border projects. I would equally seek to further stimulate similar cross-border cooperation for the other cross-border sections.

Synergies will be sought with the Mediterranean Rail Freight Corridor, notably in addressing the administrative and operational barriers on the historic lines, especially on sections where new cross-border projects are being developed and the historic lines need to serve still as main line in the medium term. The use of the existing infrastructure will need to be improved at the best possible terms to make the corridor not only a distant dream but rather an immediate reality, serving citizens and businesses alike.

Finally, I will propose that the work of the Mediterranean Corridor will be seen in the longer-term framework set by the TEN-T and CEF Regulations and therefore continue to be monitored and fine-tuned over the years to come, making the results of 2014 irreversible through the progress on the ground and projects being realised.

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MEDITERRANEAN CORRIDOR


Dortmund
Kassel
Leipzig
Dresden
Görlitz
Wroclaw
Lublin
Erfurt
Jena
Czestochowa
Opole
Frankfurt am Main
Hof
Praha
Kolin
Pardubice
Katowice
Krakow
Würzburg
Plzen
Ostrava
Bielsko-Biala
Przemysl
Mannheim
Nürnberg
Olomouc
Prerov
Barwinek
Karlsruhe
Regensburg
Ceske Budejovice
Brno
Zilina
Stuttgart
Trencin
Banska Bystrica
Presov
Kosice
Passau
Zvolen
Ulm
Augsburg
München
Linz
Wels
Enns
Wien
Bratislava
Miskolc
Freiburg
Wiener Neustadt
Nyíregyháza
Salzburg
Sopron
Győr
Bruck an der Mur
Budapest
Debrecen
Bregenz
Zürich
Worgl
Innsbruck
Sankt Gallen
Szombathely
Székesfehérvár
Szolnok
Brennero
Graz
Oradea
Kecskemét
Klagenfurt
Maribor
Lendava
Bolzano
Tarvisio
Jesenice
Pragersko
Varaždin
Szeged
Arad
Lugano
Trento
Udine
Ljubljana
Pécs
Nadlac
Zagreb
Timisoara
Milano
Brescia
Osijek
Sisak
Venezia
Rijeka
Slavonski Brod
Novi Sad
Moravita
Verona
Vicenza
Asti
Alessandria
Banja Luka
Brcko
Beograd
Parma
Ferrara
Pula
Orsova
Bologna
Ravenna
Savona
Genova
La Spézia
Zadar
Rímini
Sarajevo
Pisa
Firenze
Šibenik
Ancona
Split
Livorno
Mostar
Nis
Montana
Perúgia
Ploče
Kalotina
Piombino
Dubrovnik
Pristina
Bastia
Podgorica
Pescara
L' Áquila
Civitavécchia
Bar
Gyueshevo
Ajaccio
Roma
Skopje
Fóggia
Durrës
Tiranë
Porto Tórres
Ólbia
Bari
Evzoni
Napoli
Niki
Sassari
Salerno
Potenza
Brindisi
Krystalopigi
Thessaloniki
Táranto
Lecce
Kastoria
Casa San Biágio
Slatista
Kozani
Kalambaka
Larissa
Ioannina
Igoumenitsa
Panagia
Volos
Cágliari
Catanzaro
Agrinio
Patra
Palermo
Messina
Trápani
Mazara del Vallo
Gela
Ragusa
0
150
300
600 Km
INLAND WATERWAY
OTHER CORE NETWORK
ROAD
RAILWAY
PORT (Core)
AIRPORT (Core)
MULTIMODAL PLATFORM (Core)
TENtec

1. Linking four seas – the Orient/East-Med Corridor

The Orient/East-Med Corridor is a long north west – south eastern corridor which connects Central Europe with the maritime interfaces of the North, Baltic, Black and Mediterranean seas. It runs from the German ports of Bremen, Hamburg and Rostock via the Czech Republic and Slovakia, with a branch through Austria, further via Hungary and Romania to the Bulgarian port of Burgas, with a link to Turkey, to the Greek ports of Thessaloniki and Piraeus and a "Motorway of the Sea" link to Cyprus. It comprises rail, road, airports, ports, rail-road terminals and the Elbe river inland waterway.

The corridor includes some key connections which need coordinated development such as the rail connection of the southern Member States to the rest of the EU or the development of the Elbe/Labe for inland navigation without damaging the environmental sensitive area.

The Orient/East-Med Corridor has a long section between Vienna/Bratislava to Craiova in common with the Rhine-Danube Corridor. In addition, several German sections and ports belong also to the Scandinavian-Mediterranean Corridor and the North Sea-Baltic Corridor. Finally, the corridor crosses the Baltic-Adriatic Corridor in Austria, the Czech Republic and Slovakia and the Mediterranean Corridor in Hungary.

The **study on the Orient / East-Med Core Network Corridor** is conducted by the group of international consultants, which consists of iC consulenten Ziviltechniker GesmbH, Austria (Lead); Panteia B.V., Netherlands; Railistics GmbH, Germany; ITC Institute of Transport and Communication OOD, Bulgaria; SYSTEMA Transport Planning and Engineering Consultants Ltd., Greece; Prodex d.o.o., Slovakia; University Politehnica of Bucharest, Romania and PricewaterhouseCoopers Advisory SpA, Italy.

2. Characteristics of the core network corridor

2.1. Technical infrastructure parameters for each transport mode

Rail

The corridor rail network covers eight countries (Germany, Czech Republic, Austria, Slovakia, Hungary, Romania, Bulgaria and Greece). Its total distance between Wilhelmshaven and Piraeus is on average 4,200 km, depending on the routing in Germany and the Czech Republic. The biggest part of this entire distance is allotted to Bulgaria (1,055 km = 25%), followed by Greece (866 km = 20%), Germany (685 km = 16%) and Romania (506 km = 12%), Czech Republic (472 km = 11%) and Hungary (403 km = 10%). Austria (150 km = 4%) and Slovakia (94 km = 2%) have only small shares of the average length. The total rail infrastructure length including all distinct sections is 6,246 km, resulting mainly from parallel branches in Germany. Cyprus has no railway infrastructure.

There are still considerable parts of the rail alignment whose technical characteristics do not comply with the thresholds set out by Regulation (EU) 1315/2013.

- Most of the corridor's rail network is compliant with the minimum **axle load** threshold, the only exception being its entire part in Romania, continuing with a smaller section into Hungary from their border in Curtici up to Békéscsaba. This is also the case along Promahonas – Thessaloniki, Domotikis – Tithorea and Kiato – Patra sections in Greece, making up approximately 15% of the corridor.
- With regard to **train length**, there are several longer sections along the corridor (approximately 50%) that cannot accommodate a train composition of 740 m trains. These are lines in Germany from Magdeburg to the Czech border, the entire part of the corridor in the Czech Republic, Slovakia and Austria, the Hegyeshalom - Budapest section in Hungary, and the entire section in Romania, apart from the section Filiasi – Craiova. Most parts of the Bulgarian rail network do not comply with the Regulation's requirements, with the exception of a number of sections between Plovdiv and Burgas as well as from Svilengrad to Turkish Border.
- As regards **electrification**, the corridor's railway network is for its most part electrified (90%) apart

from the sections Oldenburg – Wilhelmshaven in Germany, the Calafat – Craiova section in Romania, the Dimitrovgrad – Svilengrad section in Bulgaria and certain sections in Greece (Thessaloniki – Promahonas, Domokos-Tithorea, Ska-R.S.Athens-Pireaus and the connection to Patra) (see map in Annex 2).

- With regard to **operational speed**, approximately 20% of the corridor's rail network operates on a speed lower than the 100 km/h threshold. These are small sections in the Czech Republic (Děčín-Usti nad Labem Freight link), Slovakia (Bratislava - Border SK/HU) and longer ones in Romania (Border HU/RO – Arad and Craiova – Calafat) and Greece (SKA – Kiato). The issue is, however, most prominent in Bulgaria, where the majority of the network operates on a lower speed. The latter includes the entire sections of Vidin – Kulata, from the Romanian to the Greek border.
- The deployment of **ERTMS** is still a major issue along the corridor with 65% currently lacking the system. The system has not been implemented along the entire parts of Germany, Slovakia, Romania and Bulgaria apart from the sections Plovdiv – Dimitrovgrad and Stara Zagora – Burgas. In the remaining countries, the sections lacking ERTMS are between Budapest and the Romanian border in Hungary, and Domokos – Tithorea and Kiato – Patras in Greece.

The discontinuities with regard to the technical characteristics create technical bottlenecks and interoperability issues, which hinder a smooth and seamless passenger and freight rail transport along its entire length. Bottlenecks are created both within individual national networks, but in particular across cross-border sections.

Inland waterways

The corridor covers both the Elbe / Labe inland waterway and part of the Danube. However, in order to avoid unnecessary duplication, it has been decided that the latter is mainly covered by the works of the Rhine-Danube Corridor.

The River Elbe / Labe inland waterway from Hamburg Seaport to its hinterland comprises the German river ports Braunschweig and Magdeburg as well as the Czech river ports Děčín, Mělník, Praha-Holešovice and Pardubice. This includes the German section of the Elbe from Brunsbüttel to the Czech border near Děčín (of 638 km length), the Czech navigable part of the same river called Labe from the German border to Pardubice (233 km), as well as the northern part of the Vltava River from Praha-Holešovice to the river mouth into River Labe near Mělník (50 km). In northern Germany, the Elbe system is linked through Mittellandkanal and River Weser with the North Sea seaports of Bremen and Bremerhaven. The River Weser connects Bremerhaven via Bremen to Minden (221 km) and the Mittellandkanal from Minden via Hannover and Braunschweig to Magdeburg (223 km).

A long section (85%) of the Elbe River in Germany between Geesthacht (near Lauenburg) up to the German/Czech border, as well as the entire section in the Czech Republic that follows, do not comply with the minimum draught requirements. In addition, in the Czech Republic, the sections Mělník–Pardubice (Upper Elbe River) and Mělník–Praha (Lower Vltava) have non-compliant structures (bridges).

The deployment of River Information System (RIS) is less advanced on the Elbe; however, certain projects have been launched to exchange information on ship arrivals and departures from all of the parties involved in the handling process.

The parameters of this cross border inland waterway are hence not continuous and make it difficult to fully exploit the potential of inland navigation for transport. Any development of the Elbe/Labe has however to take into account the sensitive environmental issues linked to this waterway as well as the issue of flooding along the Elbe.

Road

The road infrastructure covers all 9 countries. The total average distance of the road corridor is on average 4,682 km, the total infrastructure length including all distinct sections is 5,644 km. The biggest part of this distance is allotted to Greece (1,245 km = 26%), followed by Bulgaria (969 km = 21%), Germany (727 km = 15%) and Romania (543 km = 12%), Czech Republic (460 km = 10%) and Hungary (397 km = 8%). Austria (157 km = 3%), Cyprus (102 km = 2%) and Slovakia (82 km = 2%) have only small shares of the average length.

The majority of the road sections are of Motorways / Express roads class (84%) with 2-4 lanes per direction with the exception of the mainly small sections in the Czech Republic, Slovakia and Austria; whereas the issue is particularly prominent in Romania, Bulgaria, and to a lesser extent in Greece. Certain urban nodes may face problems with the capacity of their road network.

Ports

Ports of the Orient/East-Med Corridor are the entry and exit points of the corridors: in the north, Bremen, Bremerhaven, Wilhelmshaven, Hamburg and Rostock (DE); in the south, Burgas (BG), Athína / Piraeus, Heraklion, Thessaloniki, Igoumenitsa, Patras (EL) and Lemesos (CY), thereby connecting the North Sea, Baltic Sea, Black Sea and Mediterranean. Certain Motorways of the Sea connections are implicitly foreseen, in particular to connect Cyprus and Crete.

While most of the ports are connected to road and rail networks, certain connections to the hinterland are still poor. This includes also the possible use of inland waterways for the northern ports.

Airports

There are 15 core airports along the Orient/East-Med Corridor (Hamburg, Berlin, Bremen, Hannover, Leipzig/Halle, Praha, Wien (Schwechat), Bratislava, Budapest (Ferenc Liszt International), Timişoara, Sofia, Athens, Thessaloniki, Heraklion, Larnaka). Out of these airports, 6 airports (Hamburg, Berlin, Prague, Vienna, Budapest, and Athens) have to be connected to the rail network according to the Regulation; only Prague and Budapest are currently not complying with this requirement.

2.2. Preliminary results of the transport market study

The multi-modal transport market study covers all corridor relevant flows of goods and passengers with a particular focus on the traffic between and within the concerned Member States until 2030.

Some findings on the capacity utilisation for the rail network have already been done showing that capacity utilization of the corridor rail network is very unequally balanced. The Northern part is heavily used, whereas the Southern part is less used with certain exceptions. Arad is a clear cut, dividing the northern and southern part of the corridor.

In general, the entire railway corridor is well used for rail transport. The German ports are the key import ports for the Czech Republic, which explains why, especially in the section Dresden – Czech border, the capacity utilisation is over 90%. Within the Czech Republic, the Praha – Česká Třebová line is at full capacity.

The next capacity bottleneck is Budapest; the Danube bridge is heavily used for (local) passenger and freight trains. To the east of Budapest, traffic flows are decreasing, having a direct impact on the capacity. In Arad, the main freight traffic flow is heading east to Constanta, while only few passenger and freight trains are running between Timişoara and Calafat.

The new Danube Bridge between Calafat and Vidin has low traffic volumes, which explains the very low capacity utilisation rate. From Sofia and to the Turkish border traffic is picking up, because of the freight trains taking the Balkan route to Turkey and Bulgarian passengers jointly using the Bulgarian rail infrastructure.

2.3. Critical issues on the corridor

Based on the analyses carried out so far, the following critical issues have been identified on the Orient/East-Med Corridor as being key issues that need cooperation between Member States and which will be the main areas of intervention of the Coordinator.

Elbe

The Elbe, as border crossing inland waterway, is of strategic interest for the development of the multimodal corridor.

One of the main issues is the improvement of navigation reliability through infrastructure upgrading measures to ensure an all-season navigability of the inland waterway. Due to the involvement of two Member States, Germany and the Czech Republic, coordinated actions are required to ensure an efficient cross-border oriented development to exploit the potential for inland waterway transport.

The further development of the Elbe inland waterway as part of the TEN-T network requires a balanced approach, taking into account the economic interests while ensuring compliance with environmental legislation as well as the respective legislation and policy in Germany and the Czech Republic. In this regard, both a dialogue between the involved Member States and the European Coordinator as well as joint coordinated actions are proposed to be found and discussed in the Corridor Forum.

Cross border rail connections

The railway infrastructure crosses 8 Member States. The following sections are of key interest to allow efficient cross border rail transport.

Dresden-Prag

The railway connection between Dresden and Prag will in the near future become congested. Germany and the Czech Republic have therefore started cooperation and studies in view of a high speed connection between the two nodes. This new connection would involve a cross-border tunnel of 20 km. The costs for realization come up to approx. EUR 1.9 bn. Further studies will be carried out, notably in view of the possible inclusion of the project into the German Federal Transport Infrastructure Plan 2015 (Bundesverkehrswegeplan).

Brno – Györ

The connection between the Czech Republic and Hungary is divided between two branches, one via Vienna, the other one via Bratislava. The cross-border sections are mostly in a poor technical condition, making projects to improve capacity necessary also in order to strengthen the economic integration of this region.

Szolnok – Thessaloniki

This section connects Greece to Hungary. It covers the border-crossings between Hungary and Romania, between Romania and Bulgaria as well as between Bulgaria and Greece. It has been part of the former Priority Project 22 where several studies were carried out. The characteristics of the railway lines are rather heterogeneous. In addition, operational rules could be improved in order to reduce lengthy border crossing times which can run up to 48h. A good cooperation between the four Member States is crucial in order to agree on the characteristics of the future connection and to ensure full interoperability. Budgetary constraints have to be taken into account when planning the projects.

Interoperability

A special attention needs to be paid to the deployment of ERTMS along the corridor, as only 35% of the railway lines have been equipped so far. Here deployment should be synchronised in order to optimise the investments. While certain projects are already foreseen to equip sections with ERTMS, the work of the corridor should lead to a coordinated approach ensuring also full interoperability along the corridor.

Intermodality

Intermodality is a key critical issue of the corridor that, apart from ports, must be also addressed in both rail-road terminals and airports.

Generally, the present situation could be characterized by:

- Various bottlenecks or missing links in the hinterland connections of seaports
- Bottlenecks or missing links between airports and corridor infrastructure
- Improvement potentials for inland waterway ports and rail-road terminals

National bottlenecks

Besides the major issues and needs for upgrading at the borders, several national bottlenecks need to be addressed in future on the corridor.

3. Objectives of the core network corridor

The Orient/East-Med corridor work plan will set objectives to be achieved in terms of cohesion, efficiency, sustainability and the benefits for users.

While work on the on definition of objectives is ongoing, it is clear that in general terms, the following objectives will be pursued:

Cohesion:

- Better connection of the southern Member States to the rest of the EU as well as better connection of central Member States to the maritime ports;
- Improving interconnection in all urban nodes along the corridor between TEN-T and local and regional transport infrastructure, for both passenger and freight traffic.

Efficiency:

- Improving the cross-border connections between the eight Member States sharing common borders, removal of the main remaining bottlenecks, taking full benefit from Motorways of the Sea;
- Interoperability of national transport networks, in particular through the deployment of existing interoperable telematics applications (especially ERTMS and RIS) and their further technological advancement;
- Reduce the time spent at border crossings and make best use of existing capacity.

Sustainability:

- Developing an integrated and multi-modal sustainable transport system, contributing to the objectives of low carbon and clean transport;
- Protection for environmentally sensitive areas such as for example the Elbe.

Users' benefits:

- Meeting the mobility and transport needs of its users;
- Ensuring safe, secure and high-quality standards, for both passenger and freight transport;
- Improving accessibility.

4. Outlook by the European Coordinator

The Orient/East Med Corridor is a very challenging one: it covers all modes of transport and includes nine Member States. It is a crucial connector for central and southern European countries to the rest of the EU and to foster thereby the internal market.

It will be a challenge to make the corridor compliant with the TEN-T requirements and to ensure smooth traffic flows. Because of the variety of situations, many different issues arise, ranging from environmental protection to interoperability or operational rules. It is clear that strong cooperation between the Member States is necessary to develop the corridor in the best possible way. For instance, it only makes sense to develop the Elbe if there is a consensus between Germany and the Czech Republic about the future use of this inland waterway. Likewise, the development of an interoperable railway line from Greece to Hungary and beyond requires agreement between the four Member States on the technical parameters while keeping the budget within reasonable limits. Better integration between modes remains a challenge for many ports and airports along the corridor; the work within the corridor will help put such connections into a broader picture.

In many of the cross border projects, the efforts of one Member State will only pay off if the other Member State continuous the efforts on his side. The corridor approach, including the corridor work plan, is a good opportunity to ensure that all Member States pull together on the same string and will enhance mutual trust that investments will lead to better (cross-border) transport.

However, without the adequate financing for the development of the infrastructure, only little progress can be achieved. Seven of the nine Member States are beneficiaries of the Cohesion Fund. A good coordination between the different funds available - including the Connecting Europe Facility, the European Structural and Investment Funds, national and private funding - will be necessary to ensure that the means at disposal are used in the best possible way, giving a maximal European added value. Besides projects requiring substantial funding, there are of course also opportunities to be seized to improve transport flows with smaller but important actions, for instance through improved operational rules or bilateral agreements between Member States.

As Coordinator, I look forward to discuss with all the stakeholders on the development of the corridor. It is only by ensuring a broad consensus on the projects that we can ensure success and progress.

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ORIENT/EAST-MED CORRIDOR


Gdynia
Gdansk
Marijampole
Minsk
Bydgoszcz
Bialystok
Poznan
Warszawa
Malaszewicze Male
Lodz
Lublin
Okopy
Wroclaw
Czestochowa
Opole
Kyjiv
Katowice
Hrebenne
Krakow
Ostrava
Przemysl
Olomouc
Bielsko-Biala
Prerov
Barwinek
Brno
Zilina
Banska Bystrica
Presov
Trencin
Bar
Zvolen
Kosice
Bratislava
Miskolc
Halmeu
Siret
Wien
Neustadt
Nyiregyháza
Suceava
Györ
Budapest
Debrecen
Satu Mare
Sopron
Szekesfehervar
Szolnok
Iasi
Chisinau
Oradea
Szombathely
Cluj-Napoca
Kecskemét
Turda
Bacău
Lendava
Odessa
Szeged
Arad
Sighisoara
Varaždin
Pecs
Sebeş
Mărăşeşti
Nadlac
Sibiu
Timişoara
Brasov
Osijek
Sinaia
Galati
Novi Sad
Moravita
Buzău
Tulcea
Slavonski Brod
Brcko
Ploieşti
Beograd
Pitesti
Orsova
Bucuresti
Craiova
Cernavodă
Constanţa
Sarajevo
Split
Montana
Pleven
Veliko Tarnovo
Varna
Mostar
Nis
Ploče
Kalotina
Stara Zagora
Dubrovnik
Pristina
Sofia
Bourgas
Podgorica
Gyueshevo
Sliven
Skopje
Plovdiv
Dimitrovgrad
Bar
Edirne
Tiranë
Durrës
Evzoni
Kavala
Kipi
Istanbul
Bari
Niki
Krystalopigi
Kastoria
Alexandroupolis
Brindisi
Taranto
Lecce
Kozani
Thessaloniki
Siatista
Ankara
Kalambaka
Larissa
Igoumenitsa
Ioannina
Volos
Panagia
Agrinio
Chalkida
Patra
Athina
Korinthos
Kyparissia
Chania
Heraklion
Sitia
Mires
Lefkosia
Larnaka
Pafos
Lemesos
TENtec

1. From the Finnish-Russian border to Malta – the Scandinavian-Mediterranean Corridor

The Scandinavian-Mediterranean Corridor is the longest of the nine core network corridors. It starts at the Finnish-Russian border, and goes via Helsinki, Stockholm, Malmö and a branch from Oslo to Copenhagen and then to the European mainland. There it continues via the German seaports Hamburg, Bremen, Lübeck and Rostock, following the major traffic flows in the west of Germany, via Hannover, and the east, via Berlin and Leipzig. The eastern and western sections come together in Nuremberg and continue to the south to Munich following the Brenner Corridor via Innsbruck to Verona. In Italy the corridor continues via Bologna, Rome and Naples, with branches to the ports of Ancona, Livorno and La Spezia, Bari and Taranto, before going to Gioia Tauro, Palermo and Augusta. The last section connects the Italian ports to the ports of Valletta and Marsaxlokk on Malta.

The Scandinavian-Mediterranean Corridor includes two of the key cross-border bottleneck projects in the European Union: the Fehmarn Belt Fixed Link and the Brenner Base Tunnel, including their access routes.

This north-south corridor integrates the former Priority Projects 1, 11, 12 and 20, ERTMS Corridor B and Rail Freight Corridor 3. It is a crucial axis for the European economy, linking the major urban centres in Germany and Italy both to Scandinavia and the Mediterranean region and fully integrating their seaports which are particularly important along this corridor (26 core ports in total).

The corridor intersects with the North Sea Baltic Corridor in Finland and Northern Germany. It also connects with the Orient East Med Corridor and the Rhine-Danube Corridor in Germany. Finally, in Italy, the corridor connects with the Mediterranean Corridor in Verona and with the Baltic-Adriatic Corridor in Bologna.

The corridor study for the Scandinavian-Mediterranean Corridor is conducted by a consortium of 7 partners led by KombiConsult. The team is constructed in such a way that it covers both the specific tasks and the geography of the corridor.

2. Characteristics of the core network corridor

2.1. Technical infrastructure parameters for each transport mode

The consortium has performed a deviation analysis by comparing the parameters characterising the infrastructure with the target values in Regulation (EU) 1315/2013. The analysis shows the following results:

Rail

- All rail lines along the Scandinavian-Mediterranean Corridor feature the standard **track gauge** of 1435 mm, with the exception of Finland. The Finish rail network is “isolated” and thus exempted from the requirement in the Regulation.
- In Finland, Norway, Sweden, Austria and Italy all corridor core network lines are equipped with **full electrification**. In Denmark the northern access to the Fehmarn Belt fixed link between Ringsted and Rödby is not electrified. The same situation occurs in Germany where the southern access to the Fehmarn Belt fixed link between Puttgarden and Bad Schwartau is not electrified either. In Germany also the stretch between Hof and Regensburg is not electrified. Overall, only 4.4% of the total corridor network length (8615 km) does not fulfil this requirement currently.
- With the exception of some parts in southern Italy all lines on the corridor network allow an axle load of 22.5 t. Only a minor share of 6.5% does not fulfil this requirement. However, for the Italian network it is 19.6%.
- In Sweden and Denmark all corridor core network lines fulfil the 100 km/h **operating speed** for freight requirement. In Germany, only two small sections (in total 7.3 km on the link Leipzig-Hof) allow a maximum speed of 50 km/h. In Austria, the present section Innsbruck-Brenner (36.4 km) allow maximum 80 km/h due to the mountain rail operation. In Italy, there are a wider bundle of sections (604 km) which do not allow a speed exceeding 100 km/h for freight (258 km allow 95 km/h and 117 km allow 90 km/h). Of the total corridor length of 8,615 km only a share of 7.9% does not fulfil this requirement in the strict sense.

- With the exception of Italy all networks allow a **train length** of 700 m or more. In Italy, the train length for freight is much more limited – mostly 600 m or below – especially in Southern Italy. Due to the steep grades of the ramps on the present Brenner line there are limited operation conditions especially for the gross weight for freight trains and double traction is required (up-hill).
- The actual status for **ERTMS** implementation on the corridor displays a patchwork rather than a consistent network. This situation will not change on the short term with the new projects, in particular in Germany.

  In Denmark, the actual Signalling Programme's objective is to replace all signalling on the entire Banedanmark railway network with ERTMS (Level 2) before the end of 2021. The roll-out plan allots the implementation for the ScanMed Corridor between 2018 and 2020.

  In Norway, a first test track is now equipped with ERTMS Level 2 system (Östfoldbanen eastern line) and by 2030, more than 4,000 km of railway will be fully upgraded.

  Pilot facilities are in operation in Sweden. The Swedish ERTMS project allots a complete replacement of the ATC signal system by ERTMS. The implementation plan starts in 2014 and will thereafter gradually be extended until 2035.

  In Germany, only the former pilot line Berlin-Jüterbog-Halle/Leipzig is equipped with ERTMS. No actual general implementation plan for ERTMS is known and/or published. The ERMTS implementation plan for the ERTMS Corridor B is not adopted by Germany. It is still envisaged that the most important TEN-T corridors will be equipped with ERTMS until 2030.

  In Austria, the stretch Kufstein to Brennersee is fully equipped with ERTMS (Level 2).

  In Italy, the new HSL Bologna-Firence-Roma-Napoli is fully equipped with ERTMS. Also the link Verona-Bologna and some other smaller pilot lines in South Italy are equipped with ERTMS.

Road

The analysis of the compliance with the requirements for roads will be provided in the third progress report of the consortium before the 3rd Corridor Forum.

Ports and Motorways of the Sea

As regards maritime and hinterland infrastructure the core requirements of Regulation (EU) 1315/2013 are mainly fulfilled by all 26 ports. All ports have seaward transport connections and have direct rail and motorway access, except Maltese ports (see map in Annex 2). Hamburg and Lübeck can use inland waterway transport infrastructure for freight transport.

Freight villages are widely spread in Italy and Germany but are being extended to other European countries too. All ports are equipped with reception facilities for waste and residues. LNG bunkering facilities and Onshore Power Supply are only available or are planned within the North and Baltic Sea Region in contrast to the Mediterranean Region where respective deployment plans are currently lacking.

I&C Technology is well developed regarding VTMIS (which includes VTS and SSN) throughout the whole corridor; further e-Maritime services have to be developed accordingly. For all North Sea, Baltic Sea and Maltese ports VTS are available; not for all Italian ports VTS information could be identified. SSN is implemented EU wide by local/national authorities; SSN IT infrastructure is managed by EMSA. In the future, e-Maritime services have to be established and reporting formalities shall be harmonized with SSN and e-customs services.

Airports

There are 18 core airports along the Scandinavian-Mediterranean corridor (Helsinki, Turku, Göteborg, Malmö, Stockholm, Copenhagen, Berlin, Bremen, Hamburg, Hannover, Leipzig/Halle, Munich, Nürnberg, Bologna, Napoli, Roma, Palermo, La Valetta). Out of these airports, 7 airports (Helsinki, Stockholm, Copenhagen, Hamburg, Berlin, Munich, Rome) have to be connected to the rail network according to the Regulation. The third progress report will deal with this issue more in detail to assess this requirement.

Rail-Road Terminals

Regulation (EU) 1315/2013 requires that rail-road terminals shall be connected with the road infrastructure or, where possible, the inland waterway infrastructure of the comprehensive network. The first is definitely the case for all terminals on the Scandinavian-Mediterranean Corridor; the latter applies to the trimodal nodes in Stockholm, Göteborg, Lübeck, Hamburg, Hannover and Nürnberg.

2.2. Preliminary results of the transport market study

The multi-modal transport market study covers all corridor relevant modes of transport (road, rail, MoS) plus intermodal nodes for freight and passenger transport until 2030. It intends to provide a "big picture" of the present and future transport and traffic situation.

The study comprises an evaluation of the quantitative requirements of the future infrastructure on the Scandinavian-Mediterranean Corridor in relation to the expected corridor traffic volume in 2030.

Rail

An overview of the most important and corridor relevant trade lanes between countries along the corridor shows that in 2010 the most important rail freight flows account for more than 90% of all relevant international rail freight flows comprising about 34 M tonnes. The most important relations are, in both ways, SE - DE, AT – DE, DE – IT, IT – AT.

		Destination							
		FI	NO	SE	DK	DE	AT	IT (via Brenner)	Total
		1.000 tonnes in 2010							
Origin	FI	-	26	193	1	10	0	1	231
	NO	0	-	-	3	130	0	1	134
	SE	129	-	-	124	2.087	202	154	2'697
	DK	7	2	76	-	91	1	214	392
	DE	11	91	2.099	380	-	8.219	5.105	15'904
	AT	1	0	154	45	6.553	-	3.001	9'753
	IT (via Brenner)	0	0	71	142	3.165	1.985	-	5'364
	Total	**148**	**119**	**2.592**	**695**	**12.035**	**10.408**	**8.476**	**34'474**

Source: Etis+, Alpinfo

International rail freight flows covering ScanMed corridor countries in 2010

Road

		Destination							
		FI	NO	SE	DK	DE	AT	IT (via Brenner)	Total
		1.000 tonnes in 2010							
Origin	FI		407	2.714	85	64			3.270
	NO	59			542	315			916
	SE	2.059			1.441	1.503	67	36	5.106
	DK	30	689	1.827		5.666		162	8.374
	DE	45	374	1.595	5.694		1.798	9.061	18.566
	AT			59		1.326		692	2.077
	IT (via Brenner)			29	100	9.654	420		10.203
	Total	**2.193**	**1.470**	**6.224**	**7.862**	**18.528**	**2.284**	**9.951**	**48.512**

Source: WTR, Alpinfo

International rail freight flows covering ScanMed corridor countries in 2010

The most important and corridor relevant road freight flows in 2010 account for more than 70% of all international road freight flows, comprising nearly 49 M tonnes. The relations DK – DE, IT – DE and FI – SE, in both ways, are dominant.

The first conclusion that can be drawn from the tables above is that – with the only exception of road flows between Sweden and Finland – all the other dominant trade lanes are related to Germany, thus Germany can be seen as the "turn table" for the whole corridor.

On the basis of the available studies and forecasts it can be concluded that the Fehmarn Belt fixed link and the Brenner Base Tunnel are of outstanding importance for the functioning of the corridor in the future.

2.3. Critical issues on the corridor

On the basis of the analysis of the corridor infrastructure the consortium has identified a number of critical issues. However, before listing these critical issues it is also important to be aware of the progress that has already been made on the Scandinavian-Mediterranean Corridor.

- The Great Belt fixed link bridge/tunnel construction (1998);
- The Øresund fixed link as a combined rail/road bridge and tunnel (2000);
- Maximum train length of 835 m for freight trains between Maschen and Padborg;
- Mixed high-speed lines and dedicated passenger high-speed lines in Germany;
- "Unterinntal" rail line with ERTMS Level 2 providing a mayor part of the northern access to the envisaged Brenner Base Tunnel in Austria (2012);
- Realisation of a loading profile (P400) allowing the transport of standard mega trailers on modern pocket wagons on almost all parts of the corridor north of Verona/Bologna;
- Milano-Roma-Napoli high speed line (2009).

Considering the positive impact of the realisations listed above, there still are the following main critical issues which are of crucial importance to the functioning of the corridor:

- Start and efficient completion of large infrastructure projects in Sweden;
- Sufficient handling capacity and "last mile connection" for intermodal terminals;
- Interoperability constraints resulting from different electrifications and still a few non-electrified sections in Denmark and Germany, requiring a change of locomotives and Diesel traction;
- Full attention on the completion of the Fehmarn Belt fixed link for road and rail by mitigating the inherent risk elements such as financing, environmental assessment, involvement of civil society by 2021;
- Timely completion of the southern access line to the Fehmarn Belt fixed link in Germany (electrification by 2015 and 2nd rail track by 2018);
- Completion of the new Storstrøm Bridge as double track rail and road connection in preparation of the Fehmarn Belt fixed link until 2021;
- Full attention on the completion of the Brenner Base Tunnel by mitigating the inherent risk elements such as financing, environmental assessment, involvement of civil society by 2026;
- Timely completion of the northern access lines to the Brenner Base Tunnel in the area of Kundl/Radfeld–Kufstein–Rosenheim–München;
- Timely completion of the southern access lines to the Brenner Base Tunnel on the line of Fortezza–Verona;

- Border crossing issues at Brenner station to further improve the quality and efficiency of intermodal rail services until the base tunnel line is in operation;
- Different standards with regard to
    - train length in general and below standard parameters in particular between Stockholm and Malmö, on a few sections in Germany, on the Brenner line until Verona, and on many sections in Italy south of Bologna;
    - axle loads below the standard parameter (< 22.5 t), in particular in Italy;
    - loading profile for the transport of semi-trailers ("P400") which is not achieved on the current lines in Italy south of Verona/Bologna;
- Capacity constraints on the rail network to/from Port of Lübeck, on the lines Bremerhaven-Bremen/ Hamburg–Hannover as well as Fulda–Nürnberg, Ingolstadt–München, node München, München–Kufstein;
- A "patchwork" of ERTMS implementation and practical problems caused by long realisation periods in which different levels and software releases were applied by infrastructure managers, rail industry and railway undertakings, which require a detailed observation and monitoring by the European Coordinator for ERTMS.

3. Objectives of the core network corridor

On the basis of a detailed analysis of the legal framework, previous corridor studies, Priority Projects and feedback from stakeholders, the following objectives have been identified:

General objectives

- These corridors should ensure a seamless national and international transport by all kinds of transport modes, minimise environmental impacts and increase competitiveness.

Detailed objectives

- Removal of bottlenecks and bridging of missing links particularly at border-crossing sections;
- Regions along the corridor shall be adequately supplied with traffic infrastructure;
- To shape the core network to such an extent that at all border crossing points a seamless traffic flow, border checks, border surveillance and other border control procedures are ensured for all kind of transport modes;
- The core network shall guarantee an optimal integration of all transport modes (multimodality) and interoperability shall be ensured for national and trans-European transport networks by removing technical and administrative barriers;
- Promotion of maritime transports and motorways of the sea by the Union;
- Significant support of implementation and deployment of telematics applications and promotion of innovative technological development;
- Environmental protection measures by using alternative clean fuels and propulsion systems as well as promoting low-carbon transport should result in the relevant Union CO2 reduction targets

A detailed overview of mode specific objectives is provided in the second progress report of May 2014.

4. Outlook by the European Coordinator

The Scandinavian-Mediterranean Corridor is a crucial part of the new concept of creating a real European network of highly integrated infrastructures and services of high European added value. Compared with the previous Priority Project 1 it is more complex, in particular in view of its temporal, geographical and multi-modal scope. Also the number and type of players has changed. This will require a different coordination strategy. The major challenges will be to bring together all stakeholders, lead them to concrete results and secure adequate funding of those projects which are of the highest EU added value, in particular cross-border projects capable of realisation. Also, in view of the need to concentrate funding, efficient use of innovative financial instruments should be fully exploited.

As regards corridor governance, my focus as Coordinator will be to rally all Member States and stakeholders along this corridor to agree on the corridor work plan. This work plan will be sent to the Member States for approval by the end of 2014. It is not a wish list but a programme which supports the realistic development of the corridor, including key projects such as the Brenner and the Fehmarn and both their access routes. Still, it needs to pay attention to flanking policy measures to complete the big picture. The Corridor Forum, which will serve as a platform for communication, dialogue and leadership will allow public and private stakeholders to be involved throughout. In parallel, coordination at bilateral level, in particular with and between the Member States will continue.

As a Coordinator responsible for the Scandinavian-Mediterranean Corridor, it is my endeavour to create an open and transparent dialogue through the Forum, the working groups that will be put in place and the other meetings that I will be attending when visiting the Member States, along the Corridor and in the capitals. The present year is a true challenge and arriving at a commonly agreed first work plan is a goal that I have found to be shared amongst all stakeholders involved. It will not be our final destination as work will be progressing and deepening over the years to come. But it shall be a point of no return for coordination undertaken on an unprecedented scale.

Finally, to bring this process to success we do not only need political and financial commitment but also coherent and constant communications. This is a dimension that cannot be left to chance. Stakeholder engagement and regular and open flows of information create ownership and a broad support from the stakeholders.

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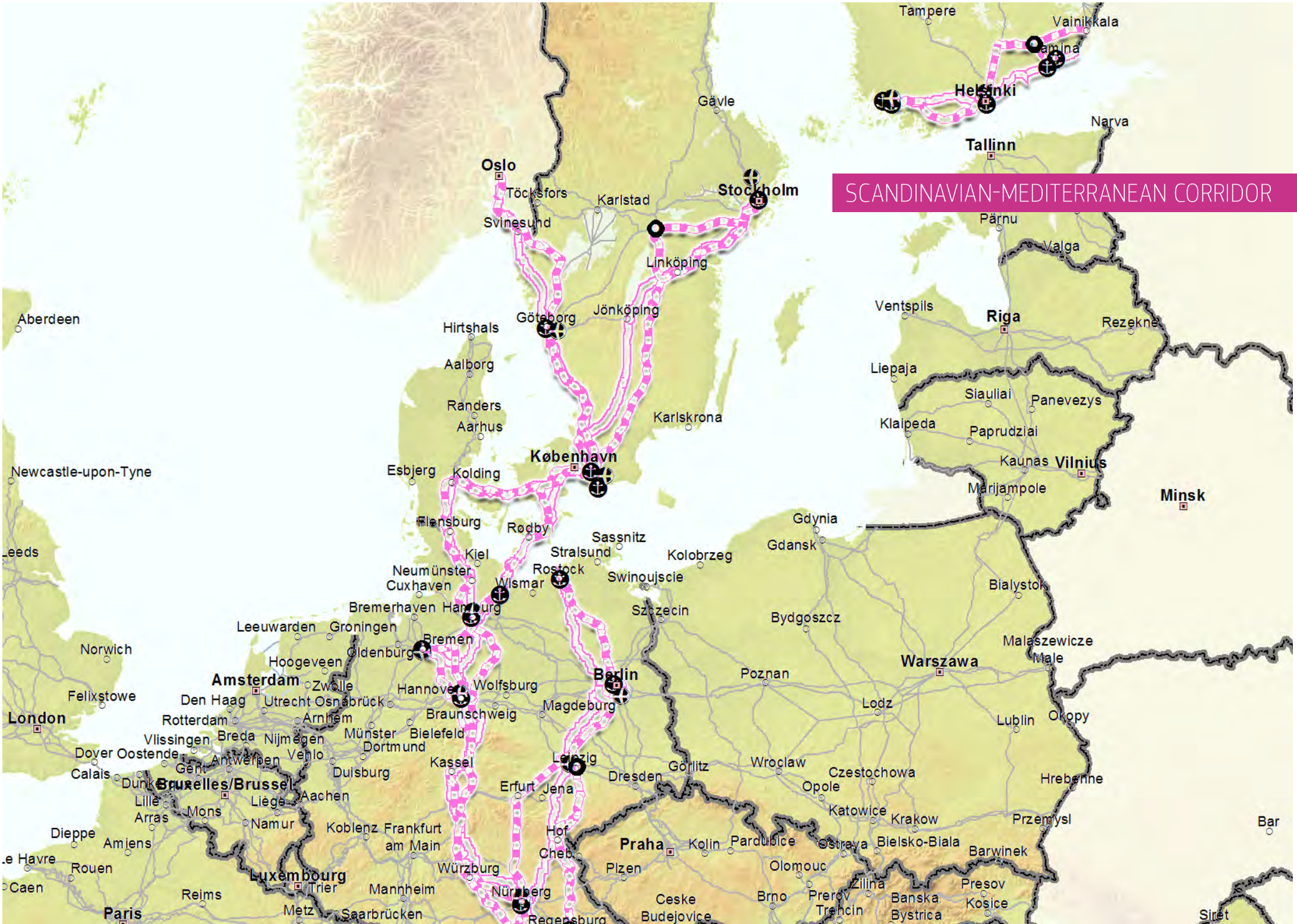
SCANDINAVIAN-MEDITERRANEAN CORRIDOR
Tampere
Vainikkala
Helsinki
Gävle
Narva
Tallinn
Oslo
Töcksfors
Karlstad
Stockholm
Svinesund
Pärnu
Valga
Linköping
Ventspils
Riga
Rezekne
Aberdeen
Göteborg
Jönköping
Hirtshals
Liepaja
Aalborg
Siauliai
Panevezys
Randers
Karlskrona
Klaipeda
Aarhus
Paprudziai
København
Kaunas
Vilnius
Newcastle-upon-Tyne
Esbjerg
Kolding
Marijampole
Minsk
Flensburg
Rødby
Gdynia
Sassnitz
Gdansk
Kiel
Stralsund
Kolobrzeg
Neumünster
Rostock
Swinoujscie
Cuxhaven
Wismar
Bialystok
Bremerhaven
Hamburg
Szczecin
Bydgoszcz
Leeuwarden
Groningen
Malaszewicze
Bremen
Norwich
Oldenburg
Male
Hoogeveen
Warszawa
Amsterdam
Zwolle
Berlin
Poznan
Felixstowe
Hannover
Wolfsburg
Den Haag
Utrecht
Osnabrück
Magdeburg
Lodz
London
Rotterdam
Arnhem
Braunschweig
Lublin
Okopy
Vlissingen
Breda
Nijmegen
Münster
Bielefeld
Dover
Oostende
Dortmund
Vehlo
Kassel
Leipzig
Wroclaw
Calais
Antwerpen
Gent
Duisburg
Dresden
Görlitz
Czestochowa
Hrebenne
Bruxelles/Brussel
Erfurt
Jena
Opole
Aachen
Lille
Liège
Katowice
Krakow
Przemysl
Bar
Arras
Mons
Namur
Koblenz
Frankfurt
am Main
Hof
Dieppe
Amiens
Praha
Kolin
Pardubice
Ostrava
Bielsko-Biala
Barwinek
Cheb
Le Havre
Rouen
Würzburg
Plzen
Olomouc
Luxembourg
Trier
Mannheim
Zilina
Presov
Caen
Reims
Nürnberg
Ceske
Budejovice
Brno
Prerov
Trehcin
Banska
Bystrica
Kosice
Paris
Metz
Saarbrücken
Regensburg
Siret


Le Mans
Tours
Vierzon
Nevers
Limoges
Clermont-Ferrand
Brive-la-Gaillarde
Toulouse
Perpignan
Barcelona
Tarragona
Palma de Mallorca
Nancy
Karlsruhe
Strasbourg
Stuttgart
Langres
Freiburg
Mulhouse
Dijon
Basel
Zürich
Bern
Lausanne
Genève
Lyon
Tournon
Nîmes
Avignon
Montpellier
Béziers
Fos-sur-Mer
Marseille
Toulon
Nice
Ventimíglia
Ulm
Augsburg
München
Bregenz
Sankt Gallen
Innsbruck
Wörgl
Brennero
Bolzano
Trento
Lugano
Domodóssola
Aosta
Milano
Bréscia
Vicenza
Venezia
Verona
Torino
Piacenza
Asti
Parma
Ferrara
Alessándria
Genova
Savona
La Spézia
Pisa
Livorno
Ravenna
Rímini
Ancona
Perúgia
Piombino
Bastia
Ajaccio
Civitavécchia
Roma
L' Áquila
Pescara
Fóggia
Bari
Napoli
Salerno
Potenza
Casa San Biágio
Taranto
Brindisi
Lecce
Porto Tórres
Sássari
Ólbia
Cágliari
Catanzaro
Messina
Palermo
Trápani
Mazara del Vallo
Réggio di Calábria
Catánia
Siracusa
Gela
Ragusa
Valletta
Passau
Linz
Wels
Enns
Wien
Bratislava
Salzburg
Bruck an der Mur
Graz
Wiener Neustadt
Győr
Sopron
Budapest
Székesfehérvár
Kecskemét
Szombathely
Klagenfurt
Maribor
Tarvisio
Jesenice
Ljubljana
Pragersko
Lendava
Varaždin
Pécs
Udine
Zagreb
Rijeka
Pula
Sisak
Osijek
Slavonski Brod
Banja Luka
Brcko
Beograd
Novi Sad
Szeged
Arad
Nadlac
Timişoara
Moravita
Orsova
Craiova
Sarajevo
Zadar
Šibenik
Split
Mostar
Ploče
Dubrovnik
Podgorica
Bar
Durrës
Tiranë
Pristina
Skopje
Gyueshevo
Nis
Montana
Pleven
Veliko Tarnovo
Kalotina
Sofia
Stara Zagora
Plovdiv
Dimitrovgrad
Evzoni
Alexandroupol
Kavala
Niki
Thessaloniki
Krystalopigi
Kozani
Kastoria
Siatista
Kalambaka
Larissa
Volos
Ioannina
Igoumenitsa
Panagia
Agrinio
Patra
Chalkida
Athina
Korinthos
Lavrio
Kyparissia
Chania
Zvolen
Miskolc
Nyíregyháza
Debrecen
Satu Mare
Halmeu
Suceava
Oradea
Cluj-Napoca
Turda
Sighisoara
Bacău
Sebes
Sibiu
Brașov
Sinaia
Ploiești
Pitești
Bucures
INLAND WATERWAY
OTHER CORE NETWORK
ROAD
RAILWAY
PORT (Core)
AIRPORT (Core)
MULTIMODAL PLATFORM (Core)
TENtec
0
100
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1. From the Dutch and Belgian ports to Genoa – the Rhine-Alpine Corridor

The Rhine-Alpine Corridor stretches from the northern seaports in The Netherlands and Belgium to the Mediterranean basin in Genoa right through most of the important and economically strong urban regions of Europe. Countries directly involved are: The Netherlands, Belgium, Germany, Switzerland, Northern Italy and the eastern part of France, namely the Strasbourg and Mulhouse areas. Altogether, more than 50 million people are living in the catchment area of the corridor.

The transport infrastructure on the Rhine-Alpine Corridor, passing through the densest regions in Central Europe, carries the highest transport volumes in Europe and therefore is the central backbone of all transport modes for connecting Northern and Southern Europe. All transport modes are represented on this corridor.

Today, multimodality already plays an important role on the corridor. This comprises the interconnection of leading international airports to rail infrastructure, as well as the intermodal transport on rail and inland waterways between the North Sea ports and the industrial regions along the Rhine as well as the transit via Switzerland to Northern Italy.

Today intermodal transports from and to Italy are mainly continental, but with the planned improved connection of the Port of Genoa to the hinterland also the volumes to Switzerland and Southern Germany are expected to grow.

Amongst the priorities along the Rhine-Alpine corridor are the cross-border bottlenecks in conjunction with the completion of the Alpine crossing, as well as the full use of the potential offered by the Rhine river basin and optimisation of the interconnections between modes. The full modernisation of the infrastructure and its compliance with the TEN-T requirements (ERTMS, rail noise protection, train length etc...) is of the highest importance for this corridor.

The Rhine-Alpine Corridor is connected with the North Sea - Baltic and the North Sea - Mediterranean Corridors in the Benelux, with the Rhine-Danube Corridor in Germany and with the Mediterranean Corridor in Novara/Milano.

A consortium led by the German company HaCon, with the participation of Panteia (NL), KombiConsult (DE), PricewaterhouseCoopers (IT), Rapp Trans (CH) and Stratec (BE) is providing the technical assistance to the corridor.

2. Characteristics of the core network corridor

2.1. Technical infrastructure parameters for each transport mode

With a length of 3,213 km, rail is the backbone of the corridor (of which the highest share is in Germany). Road represents 1,600 km and inland waterway (Rhine, Moselle and Neckar) represents roughly 1,400 km. The total relevant network represents more than 6,000 km. Germany has the highest share (50%) on all modes on the Rhine-Alpine Corridor. The respective shares of The Netherlands (14%), Belgium (12%), Switzerland (14%) and Italy (10%) vary between 10% and 14%.

Rail

In Belgium, the corridor rail lines are connecting the seaport of Zeebrugge with the city of Gent. From Gent two separate lines are going to Aachen on the German border. One line runs via Antwerp and the other line via Brussel/Liège.

In The Netherlands, two main rail lines are part of the core network: one line is connecting the Amsterdam region via Utrecht/Arnhem with Zevenaar, the second line is going from the Seaport of Rotterdam to Zevenaar (Betuwe line). The port of Vlissingen is connected via Rotterdam,.

In Germany, the rail lines from the Dutch/German border (Zevenaar/Emmerich) and the Belgium/German border (via Aachen) are merged in Köln. Between Köln and Basel the Rhein/Main and Rhein/Neckar regions are crossed by the corridor rail lines. Routing variants on the respective sections in Germany are available between 1) Duisburg - Köln 2) Köln - Mainz (conventional line on the left and right side of the river Rhine); 3) Mainz/Frankfurt – Mannheim; 4) Mannheim – Karlsruhe (passenger core route via Heidelberg) and 5) Karlsruhe – Basel (passenger route via Freiburg).

In Switzerland, between Basel and Domodossola respectively Chiasso both main north-south rail lines via the Lötschberg/Simplon and the Gotthard are part of the corridor.

In Italy, these lines coming from Switzerland are continued in two routes: from Domodossola via Novara to Genoa and from Chiasso to Milano to Genoa. The line between Arona and Milano connects these two main lines.

TEN-t requirements along the corridor

- The corridor features the **1435 mm standard UIC gauge** all along.

- The former ERTMS (European Rail Traffic Management System) Corridor A and the Rhine-Alpine Rail Freight Corridor have constantly worked on the implementation of **ERTMS** along the corridor. ERTMS is deployed along the Betuwe line up to Zevenaar, the passenger line between Amsterdam – Utrecht as well as the corridor aligned part of the HSL South Line in The Netherlands, for the section Schaerbeek – Leuven (Brussels area) for Belgium and along the Lötschberg Tunnel as well as the section Rothrist – Mattstetten in Switzerland. Switzerland is migrating its entire network to ERTMS over the coming years. Joint engagements have been taken by the Member States along the corridor to migrate the entire corridor until 2018 to ERTMS. However, for the moment the situation is very disparate with large sections equipped in national signalling systems in Germany and Italy in particular (see map in Annex 2).

- Additional interoperability constraints especially on border crossing sections result from different electrification systems in The Netherlands (1.5 kV and 25 kV), Belgium (3 kV / 25 kV on LGV sections), Germany, Switzerland (15 kV) and Italy (3 kV). These issues are addressed in the utilised rolling stock as a unification of electrification systems is not foreseen.

- A **train length** of 740 m on a regular basis is only fully operable on the Dutch part of the corridor. On other corridor sections, restrictions for regular operation of 740m long trains apply e.g. due to peak hours, lack of long sidings and inclinations. For Switzerland, the inclination of the Alpine transit routes does not allow trains of 740m (while signalling and security technologies would allow operations). On the Italian side of the corridor, 740m trains cannot be operated at all (there are various projects tackling this issue).

- The corridor network allows an **axle load** of 22.5 t on almost all sections, but not for the line between Vlissingen and Rotterdam.

- A maximum line speed of 100km/h is possible on 88.5% of the corridor. Germany and Italy fulfil this requirement with more than 97% of all section km, Belgium and Switzerland on more than 83% of all section km. In The Netherlands, the section Vlissingen – Rotterdam does not allow for 100km/h.

The following table shows the TEN-T fulfilment of technical parameters in the current status of the network for the Core Network

Tech parameter	Parameter	NL	BE	DE	IT	CH	Total
Length of section	km	418	499	1322	409	565	3213
Electrification	Electrified	100%	100%	100%	100%	100%	100%
Track gauge	1435 mm	100%	100%	100%	100%	100%	100%
Line speed (freight)	>= 100km/h	77,3%	81,6%	99,2%	97,8%	90,4%	90%
Axle load (freight)	>= 22,5T	77,3%	100%	100%	100%	100%	97%
Train length	Min 740m	100%	0%	0%	0%	72,3%	25,7%
ERTMS	YES	60,8%	18,4%	0%	0%	7,6%	12%

Road

The corridor road alignment in The Netherlands follows the A 15/E31 from Rotterdam to the Dutch/German Border. The port of Vlissingen is connected to Rotterdam via the A58(E312)/A16.

In Belgium, the infrastructure follows the E403 from Zeebrugge to Gent, the A10/E40 from Gent to Brussels and the A3/E40 from Brussels to the Belgium/German Border.

In Germany, the highways A3/E35 (from Emmerich via Köln to Frankfurt), the A 4/E40 from Aachen to Köln and the A5/E35 from Frankfurt to Basel are part of the core road network.

In Switzerland, the road alignment follows the A2/E35 from Basel to Chiasso.

In Italy, the corridor comprises the A9/E35 from Chiasso to Milano and the A7/E62 from Milano to Genoa.

Ports and Inland waterways:

Backbone of the IWW infrastructure on the corridor is the river Rhine which is connected via the Amsterdam-Rijn Kanaal and the Maas to the ports of Amsterdam and Rotterdam in The Netherlands and from there further to Vlissingen and futher to Terneuzen/Ghent and Antwerp.

The IWW system in Belgium is not part of the Rhine-Alpine Corridor but part of the North Sea - Mediterranean Corridor.

All seaports are connected to the rail network of the corridor. However, projects are planned to upgrade these connections further. Not all IWW ports are connected to rail at the moment.

There is a large potential for further developing the inland waterway dimension of the Rhine-Alpine corridor. Currently, projects are under way for the implementation of LNG along the Rhine, all the way from Rotterdam to Basel. The Upper Rhine Ports are jointly studying and improving their hinterland connections under the lead of Strasbourg and upgrading locks is ongoing on the Moselle river. This shows the variety of action still

needed today to ensure a full use of this capacity that is at hand.

Airports

There are 13 core airports along the Rhine - Alpine Corridor (Düsseldorf, Frankfurt, Köln-Bonn, Brussels, Liège, Genova-Sestri, Milano Linate, Milano Malpensa, Bergamo, Amsterdam, Rotterdam, Basel and Zürich). Out of these airports, 7 airports (Brussels, Dusseldorf, Frankfurt, Köln, Milano Linate, Milano Malpensa and Amsterdam) have to be connected to the rail network according to the Regulation. Except for Milano Linate, these 7 airports already fully comply with this requirement.

2.2. Results of the transport market study

Countries most affected by cross-border freight traffic on the corridor are Germany, The Netherlands and Belgium. The analysis of the modal split showed that in 2010, rail had a share of 12%, IWW 54% and road 34%. The small share of rail freight must be considered against the background of a market featuring overwhelmingly short- and medium-distance transports of bulk goods on trade lanes along the Rhine valley where particularly IWW has a competitive edge. In its territory the corridor covers almost 75% of the port activities in the Hamburg – Le Havre range, involving ports, such as Antwerp, Rotterdam and Amsterdam with distinct inland waterway hinterland connections. The main international flows on the corridor between Germany, The Netherlands and Belgium add up to 307.2 million tons, covering 83% of the total corridor's international freight. The highest import and export flows are between Germany and The Netherlands. Belgium has also a strong presence especially related to the country's imports and exports with The Netherlands (for example, the Rotterdam-Antwerp link with more than 40 million tons). The rest of the flows represent 17% of the international demand. The trade flows from/to Switzerland account for more than 27 million tons (or 7.6% of the total corridor activity) and from/to Italy for almost 25 million tons (or 6.7% of the total corridor activity). Finally, the international freight activity for France (Strasbourg/ Mulhouse region) is estimated at 19 million tons (or 5.3% of the total corridor activity).

Based on the national freight scenarios, the corridor countries market development is expected mainly for imports and exports and to a lesser extent for domestic and transit transport. Consequently, and due to the fact that important sea and inland ports are part of the corridor, international freight flows are also expected to grow in terms of volumes. Modal-wise, a strong shift to non-road modes is estimated, especially with regard to long distance transport, having a further positive effect on the non-road modes on the corridor.

2.3. Critical issues on the corridor

As multimodality plays an important role along the entire corridor and especially for international transport flows today already, the efficient interconnection between the seaports and the hinterland is a particular challenge.

This applies for the maritime access of the seaports (e.g. preparation of ports for larger vessels in Amsterdam and Genoa), new locks in Amsterdam and Zeebrugge and especially for the rail connections with the hinterland to cope with the increasing transport volumes.

Rail capacity and connections in and to the ports as well as to the hinterland has to be adapted accordingly. The improvement of rail connections is relevant for all seaports on the corridor (Zeebrugge, Ghent, Antwerpen, Rotterdam, Amsterdam, Vlissingen, Moerdijk and Genoa).

This also concerns the improvement of interoperability for international cross-border rail services by the **implementation of ERTMS** in all corridor-related countries. ERTMS is almost completely absent except in most Dutch and some Belgian and Swiss parts of the network. The operation of **740m long freight trains** on a regular basis in Belgium, Germany, Italy and (partly) Switzerland will also enhance the rail capacity. Bottlenecks and capacity imitations in areas like e.g. Karlsruhe-Basel, Zevenaar-Emmerich-Oberhausen and Frankfurt-Mannheim have to be removed. A coordinated investment for **sidings** along all Member

States involved would require about 180M€ and increase capacity by over 20% (RFC Rhine Alpine).

For passenger transport, the adaption of rail capacity in the large agglomerations (e.g. Rhine-Ruhr-area, Rhine-Main-area and Milano area) is important for the future. An additional challenge that has to be tackled is the rising public awareness of rail noise which calls for appropriate actions along the corridor. This applies for large agglomeration areas and highly utilised rail sections (e.g. between Duisburg and Köln, where several noise reduction measures are already planned, and in the middle Rhine valley).

Furthermore, the capacity of intermodal terminals (rail-road and inland waterways) has to be increased according the market requirements.

Inland waterways offer a capacious infrastructure. Navigation reliability in particular on the Rhine, sufficient lock capacity on Neckar and Moselle, infrastructure of inland ports and the corridor-wide deployment of River Information Services are necessary to offer competitive services on the inland waterway network.

Capacity constraints on motorways in urban centres and around urban nodes especially in the peak hours are presenting a challenge for the road infrastructure. For freight transport on roads, sufficient secured parking capacity along the motorways is needed. Especially in Germany, multiple planned projects are already tackling the issue.

3. Objectives of the core network corridor

Seven main objectives are guiding the implementation approach for the Rhine-Alpine Corridor:

- Removal of infrastructure bottlenecks and bridging of missing links between modes;
- Upgrading of infrastructure quality to TEN-T level;
- Optimal integration and improved interconnection of transport modes;
- Optimal interconnection of national and European transport networks;
- Promotion of economically efficient and high-quality transport;
- Promote resource-efficient use of infrastructure;
- Reduction of congestion.

During the elaboration of the corridor work plan, these general objectives will be translated into specific objectives and measurement indicators.

4. Outlook by the European Coordinator

I see the global perspectives for this corridor as being very positive, important parts of the railway core network are already operational or under excellent progress in their achievement. Very good examples are the Betuwe railway line in The Netherlands which has been realized and is used at high intensity, and the new base tunnels in Switzerland where the Gotthard and Ceneri railway tunnels will allow for better interconnections between south and north of the Alps.

As coordinator, I see two main issues to be addressed along the Rhine-Alpine Corridor. Firstly, there are the cross-border bottlenecks (Emmerich-Oberhausen, Karlsruhe-Basel, Switzerland-Milano/Novara) in conjunction with the completion of the Alpine crossing. Secondly, the full use of the potential offered by the Rhine river basin and the optimisation of the interconnections between rail, road and inland waterways are of the highest importance for this corridor, just as the full modernisation of the infrastructure (ERTMS, ITS, rail noise protection...).

The corridor work plan that I will discuss with a variety of stakeholders and present to Member States for their approval will be based on the above mentioned measures and backed by the analysis of the technical requirements of the corridor and the outcome of the transport market study.

I intend to pave the way for an effective and well-identified use of the resources that will initiate the effective implementation of key projects, starting from Community sources (Cohesion Policy, being defined in the second half of 2014 for the whole 2014-2020 programming period, Connecting Europe Facility, financing from EIB).

On the multilateral and intergovernmental level, the cross-border cooperation between Member States, e.g. on Zevenaar-Emmerich-Oberhausen or on Karlsruhe-Basel and the links between Switzerland/Novara/Milano, will have to be intensified. I would be keen to put forward a proposal to include the Commission also formally in an observer status, given that the EU, as from 2014, contributes 40% of the financial resources to these cross-border projects.

Finally, I will seek synergies with the North Sea-Baltic, North Sea-Mediterranean and the Rhine-Danube Corridors, notably in addressing the administrative and operational barriers on the historic lines, especially on sections where new cross-border projects are being developed.

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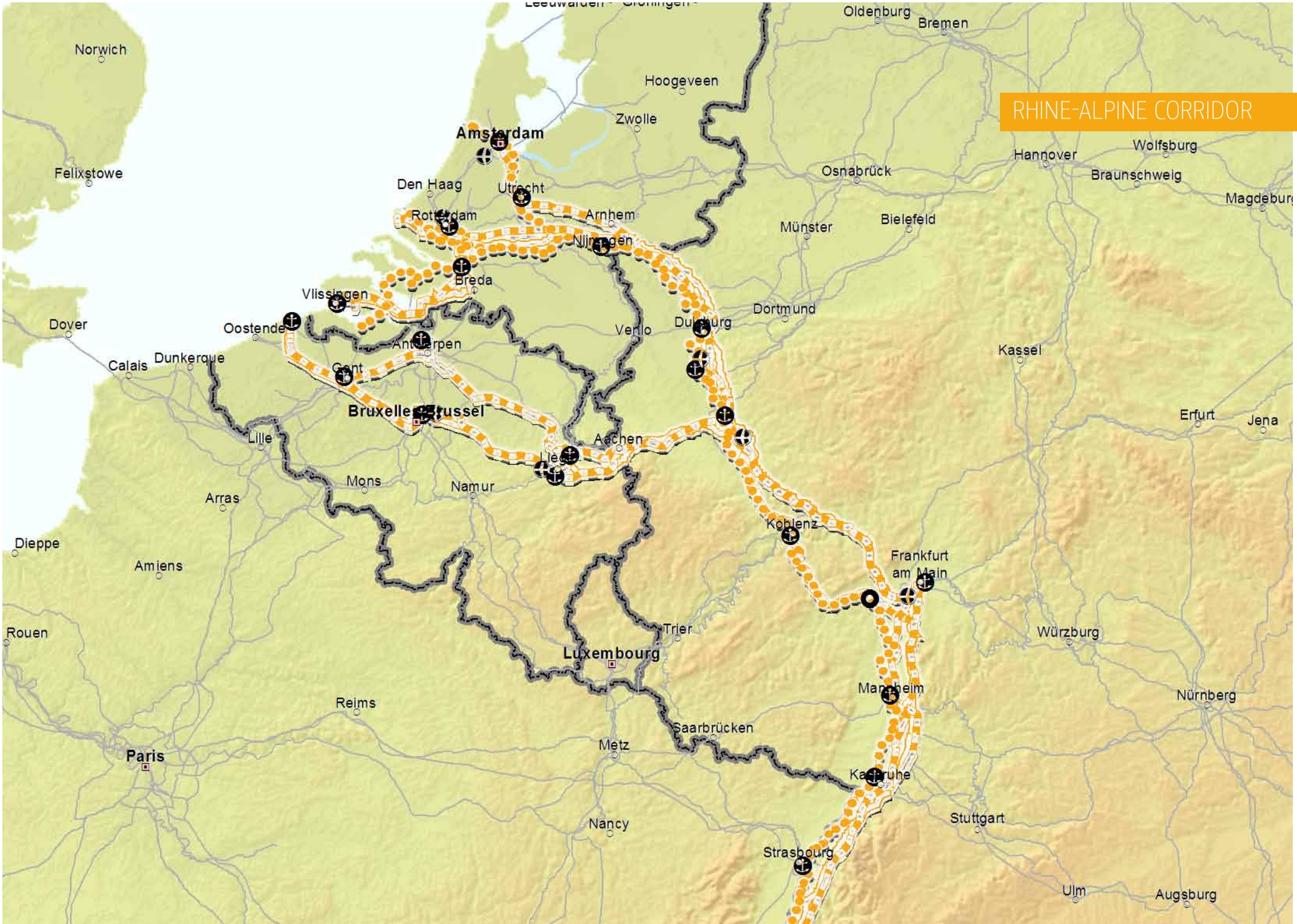
Website:
http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/rhine-alp_en.htm


RHINE-ALPINE CORRIDOR
Norwich
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Dover
Calais
Dunkerque
Dieppe
Amiens
Rouen
Arras
Lille
Reims
Paris
Oldenburg
Bremen
Hoogeveen
Zwolle
Amsterdam
Den Haag
Utrecht
Rotterdam
Arnhem
Nijmegen
Breda
Vlissingen
Oostende
Antwerpen
Gent
Bruxelles - Brussel
Mons
Namur
Liège
Aachen
Venlo
Duisburg
Dortmund
Osnabrück
Münster
Bielefeld
Hannover
Wolfsburg
Braunschweig
Magdeburg
Kassel
Erfurt
Jena
Koblenz
Frankfurt am Main
Würzburg
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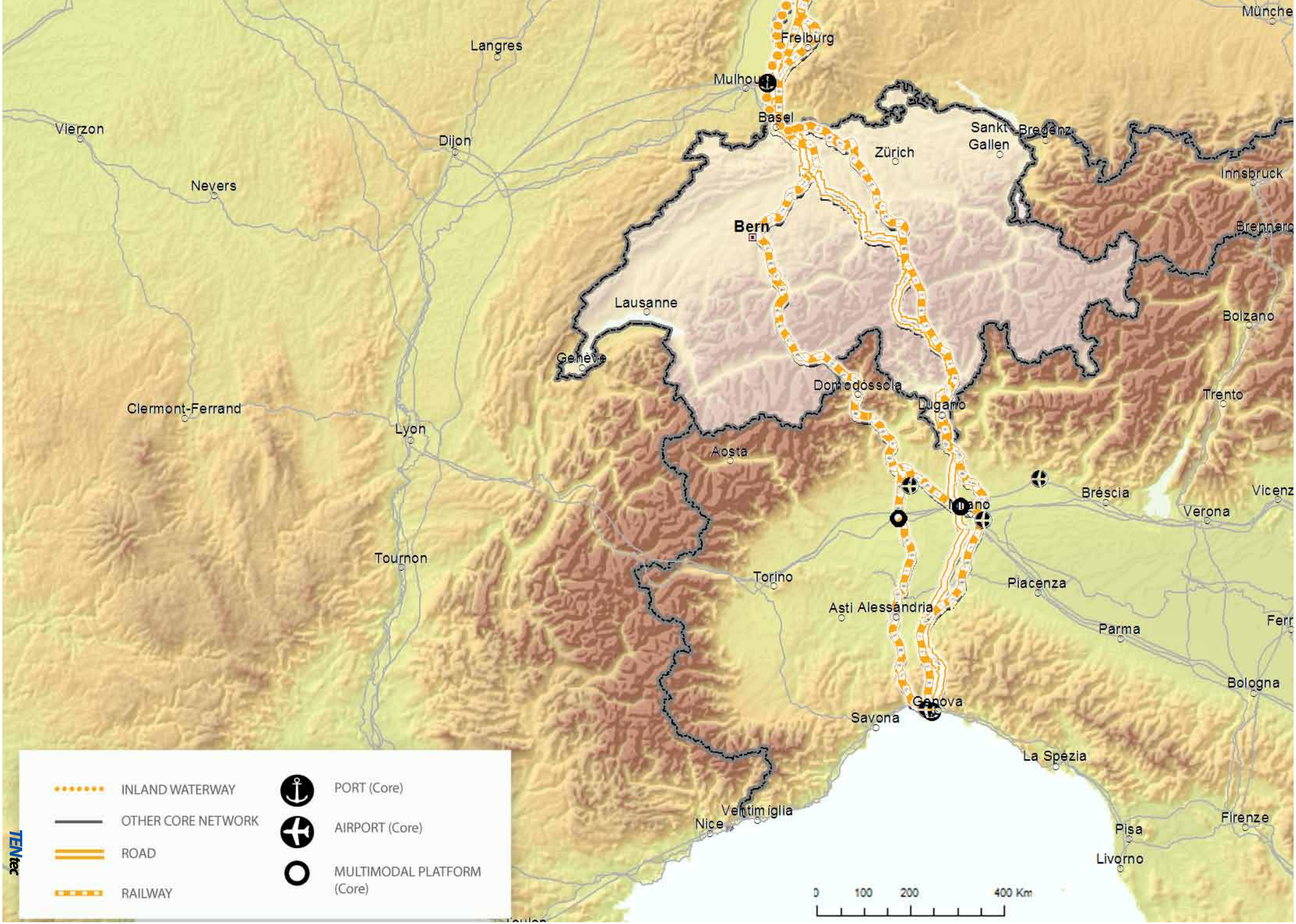
Langres
Freiburg
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Bregenz
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Innsbruck
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Lausanne
Bolzano
Geneve
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Lugano
Trento
Clermont-Ferrand
Lyon
Aosta
Brescia
Verona
Vicenz
Tournon
Torino
Piacenza
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INLAND WATERWAY
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AIRPORT (Core)
MULTIMODAL PLATFORM (Core)
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400 Km
TENtec

1. Connect the Atlantic façade to the heart of Europe – the Atlantic Corridor

The Atlantic corridor will link the Iberian Peninsula to France and Germany, with high speed rail lines and parallel conventional ones, providing for the continuity of the networks between the economic centres of Lisbon, Porto, Madrid, Valladolid, Bordeaux, Paris and Strasbourg/ Mannheim.

Largely based upon the Atlantic and Iberian branches of former Priority Project 3, this interoperable corridor aims at improving the connections between the most important urban zones of the area and at fostering a shift of traffic from the congested air and road transport to rail.

The core network corridor is fine-tuned with the Atlantic Rail Freight Corridor, formerly named Rail Freight Corridor 4, and includes the existing railway lines and planned itineraries between Sines/Setúbal/Lisbon/ Aveiro/Leixões - Algeciras/Madrid/Bilbao - Bordeaux/Paris/Le Havre/Metz, crossing the international borders of Vilar Formoso/Fuentes de Oñoro, Elvas/Badajoz and Irun/Hendaye. This shall allow to make a better use of the conventional network for freight trains by making the best use of the parallel Rail Freight Corridor.

The maritime dimension plays a crucial part in this corridor, which links and enhances the role of the westernmost core ports of continental Europe (Sines, Lisboa/Setubal, Leixoes-Porto), and is connected with the North Sea through a multimodal axis Paris-Le Havre (inland waterways, railways and roads). The route of the corridor includes also key ports of Cantabria /Biscay bay, like Bilbao and Bordeaux.

This corridor has intersections with three other corridors. In the urban nodes of Mannheim (DE) and Strasbourg (FR) it links with the Rhine-Alpine Corridor. The North Sea-Mediterranean Corridor meets the Atlantic Corridor on the section from Strasbourg to Metz and crosses again in Paris. Finally, the corridor runs in parallel with the Mediterranean Corridor from Madrid to Algeciras in Spain.

A consortium led by TIS (PT), with the participation of INECO (ES), EGIS (FR) and the support of NEA (NL – Multimodal market analysis) is providing the technical assistance to the corridor.

2. Characteristics of the core network corridor

2.1. Technical infrastructure parameters for each transport mode

Totalling more than 4,500 km of existing lines, the Atlantic Rail Freight Corridor includes heterogeneous characteristics of rail infrastructure. One of its goals is to harmonize the technical characteristics of the infrastructures and to coordinate investment to overcome the existing diversities.

Rail

- One of the major challenges and bottlenecks of the Atlantic Corridor constitute the different **track gauges**. France, Germany and the high-speed lines for Spain feature the 1435 mm standard UIC gauge, whereas the Iberian gauge 1668 mm is applied for the rest of the Iberian Peninsula along this corridor. The lack of an agreement on a coordinated deployment of UIC gauge in the Iberian component of the corridor (alternative between gauge shift using polyvalent sleepers or third rail, and deployment details) needs to be addressed as quickly as possible.
- **ERTMS-ETCS** is deployed only on high-speed lines in France and Spain.
- **Electrification** lacks on part of the Iberian peninsula (including the two cross-border sections and the line to Algeciras) and is present with four different standards: 1.5kV DC (conventional lines in France), 3kV DC (conventional lines in Spain), 25 kV AC (high-speed lines in France, Spain and the Portuguese network), 15 kV AC 16.67 Hz (Germany). With regard to Spain and Portugal, a positive element is the agreement on electrification of common rail lines at 25 kV (the most efficient EU standard, commonly diffused on the Portuguese network).
- The network in France and Germany allow the **train length** of 750 m whereas this is not given in Spain and Portugal.

Similarly to the connectivity between Spain and Portugal, the link between Spain and France also calls for an enhanced coordination, notably since the access route in France (GPSO) is at a standstill and the Inter-governmental Conference has temporarily stopped its activities (notwithstanding the operational work by the EEIG; resuming a coordinated approach focussed, on the short-to-medium term, on the upgrading and interoperability of the existing line is needed to exploit the potential of the Atlantic Rail Freight Corridor).

Road

- As far as roads are concerned, the electronic tolling systems are not interoperable yet, although Portugal and Spain are starting compatible operations along the Atlantic border.

Maritime and IWW ports

- The access to interoperable railway lines (access top railway) is present with constraints (see map in Annex 2). The availability of alternative fuels is currently planned (LNG, notably for Sea ports).

Airports

- The large core airports on the Atlantic Corridor are connected to railways. However, the capacity to make alternative fuels available is still not given.
- There are 7 core airports along the Atlantic Corridor (Lisbon, Porto, Bilbao, Madrid, Bordeaux, Paris (CDG, Orly)). Out of these airports, 4 airports (Lisbon, Madrid, Paris (CDG and Orly) have to be connected to the rail network according to the Regulation. This requirement will be assessed in the third progress report that will be discussed this October in the Corridor Forum.

2.2. Transport market study: preliminary outlook

Based on macro-economic data, transport flows and the infrastructure available, the transport market study will indicate the current situation for the corridor, notably with regard to its multimodal/ interoperability performance, how this is expected to develop based on ongoing and planned work and what efforts should be further considered for achieving the TEN-T targets.

The data collection on the macro-economic element and transport flows has been completed.

2.3. Critical issues on the corridor

The Atlantic Corridor has to be seen in the broader picture of transatlantic flows, the doubling of Panama locks, etc.. Its high potential relies on its maritime (Atlantic) external connectivity. In addition, the Motorways of the Sea provide for a flexible corridor branch for internal flows. Therefore, key horizontal elements to be assessed are:

- Motorways of the Sea, Short Sea Shipping,
- Deployment of National Maritime Single Window cooperation with Custom Single Window;

Moreover, connecting ports, IWW ports and other logistic platforms is a key priority for the Atlantic Corridor.

The corridor is endowed with a potential high capacity on most of the rail network by 2018 with the Y Basque and the Tours-Bordeaux sections expected to be completed, with few missing links and discontinuities to be addressed:

- Evora-Mérida: The main missing link on railways is represented by the cross-border connection between Lisbon and Madrid (Evora-Mérida) – a long detour on a winding single-track non-electrified line makes this connection not a possible alternative to the construction of this missing link. The state of play of this project is controversial: works are advanced on the Spanish side in Extremadura and partly in Castilla, where it connects with two existing lines (currently not electrified, in Iberian gauge), but only preliminary design has started on the Portuguese side. Details of the cross-border junction are still missing.
- The other link between the Iberian countries, along the section Porto – Valladolid (Aveiro-Salamanca) is affected by the lack of electrification on the Spanish side (works on-going).

- San Sebastian – Irun/Hendaye: Additional mismatches on mandatory parameters (difference in gauge, electrification, signalling systems and train length) affect the interoperability along the existing San Sebastian – Bordeaux section, where the new line has not reached the development consent. The need to upgrade soon the signalling system calls for an early and coordinated deployment of ERTMS, without lingering on intermediate solutions, and fully exploiting the potential of ERTMS/ETCS for train tracking and enhancing capacity.

Yet, interoperability will be crucial to enhance its performances, and notably:

- UIC deployment in the Iberian Peninsula;
- ERTMS-ETCS along the entire corridor.

Additional considerations on limiting factors notably on railway are being developed in synergy with the Atlantic Rail Freight Corridor – gradients, loading gauge, electrification, train length (in sections compatible with freight transport).

Beyond infrastructure, it has to be recalled that a major obstacle to the internal market is represented by the plethora of operational and administrative barriers, between and within transport modes (e.g. barriers in information flows to operators). The work ahead will have to identify measures needed to achieve a smooth, seamless, interoperable and integrated transport system along the corridor.

3. Objectives of the core network corridor

Six main objectives have been identified in the corridor study for the Atlantic Corridor:

- Improve the connections between the most important nodes of the area and foster a shift of traffic from the congested air and road transport;
- Fully exploit and enhance its maritime dimension;
- Address the missing links (notably cross-border) and lack of interoperability (notably rail – gauge and ERTMS);
- Favour the deployment of Motorways of the Sea and of Short Sea Shipping along the Atlantic Coast;
- Contribute to efficient logistics and modal integration, exploiting its multimodal dimension;
- Enhance and continue the progress in terms of road tolling interoperability.

During the elaboration of the corridor work plan, these general objectives will be translated into specific objectives and measurement indicators.

4. Outlook by the European Coordinator

The Atlantic Corridor is well advanced in its development. Many important sections have been realised over the past years or are currently under execution. However, it are the cross-border sections and cooperation that still need to be pushed ahead.

The advanced stage of this corridor is apparent when considering that the Atlantic Rail Freight Corridor has already provided more than 20 pre-arranged paths for international routes that have met a high demand and thus show the business case even with the current constraints in terms of technical infrastructure standards.

As European Coordinator of this corridor I see three main challenges for the Atlantic Corridor which I strive to work on in the upcoming months and years together with the relevant stakeholders, and in particular the Member States.

1) Completion of the rail dimension

On the multilateral/intergovernmental level, the cross-border cooperation benefiting from the existing structures will have to be resumed, notably on UIC-gauge deployment on the Iberian Peninsula, where a shared plan is needed, and on the interconnections Spain-France and Portugal-Spain.

In this context, it will also be of utmost importance for my work to seek synergies with the Atlantic Rail Freight Corridor, notably in addressing the administrative and operational barriers, highly present within railways, but also in any modal interconnection, that hinder the internal transport market, targeting mostly the more sustainable transport modes.

2) Development of the maritime dimension

The development of the maritime dimension is taking place through the progressive enhancement of Ports connections to railways, the deployment of the maritime single window, notably advanced in Portugal, and its evolution towards a logistic single window that will enhance the corridor performances. The deployment of LNG as a cleaner and more efficient (as well as more abundant) maritime fuel is being planned with the support of EU-backed studies. In addition, Motorways of the Sea – a real maritime branch of the corridor, are constantly evolving along the Atlantic façade with new connections due to be launched during 2014. Finally, the ports are to be integrated with inland logistic platforms also across the borders (e.g. Salamanca logistic platform with Leixões and Aveiro).

3) Finally, a big challenge which is common to all corridors and which I intend to put high on my agenda is the current lack of financial resources for the implementation of all needed investments on the corridor. It will therefore be important to trigger the development of key projects which can be realised starting from the public hand, Community sources (Cohesion Policy, Connecting Europe Facility, EIB) and private means. The Corridor will be a useful facilitator to fine-tune the actions by DG MOVE, DG REGIO, INEA and the EIB, acting as a reference.

We already dispose of a number of good practices we can share amongst Member States and regions in order to address the above challenges. For instance on railways, the most important concession (Public-Private-Partnership (PPP) with traffic risk) along the corridor on a saturated section has been launched in June 2011: with the contribution of the European Commission and the European Investment Bank (EIB), the €7.8 billion Tours-Bordeaux high speed rail line officially reached financial close. It is the first high speed rail PPP ever signed in France. The service should start by 2018. The 50-year concession contract covers the financing, design, construction, operation and maintenance of the high speed rail line between Tours and Bordeaux.

Following a prudent start-up, structured contacts with all the main stakeholders are now established and a constant flow of information is feeding the process, paving the way for a detailed and sound corridor work plan.

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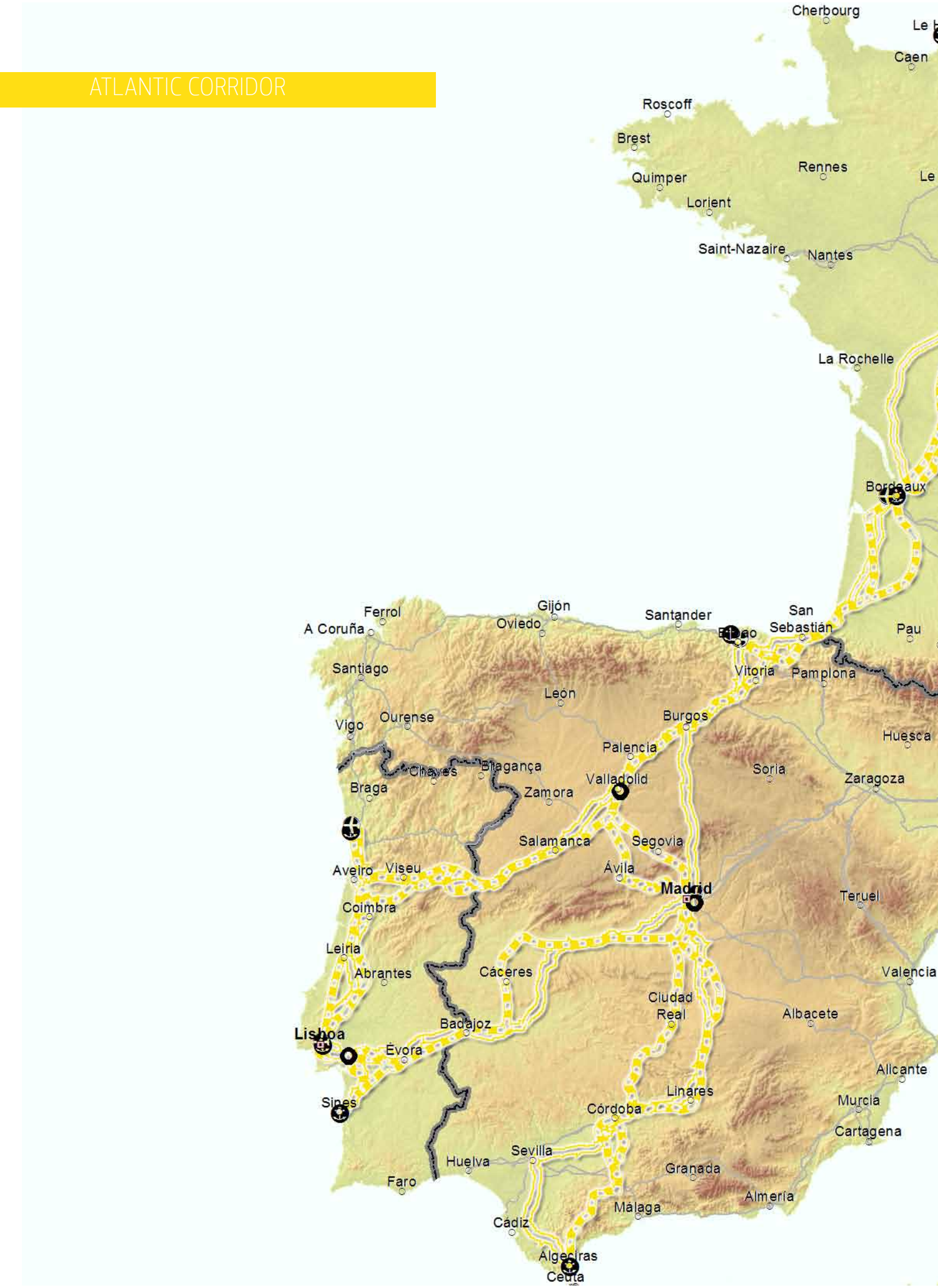
ATLANTIC CORRIDOR

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Langres
Salzburg
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Bregenz
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Dijon
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Roma
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Lleida
Barcelona
Tarragona
Porto
Tórres
Ólbia
Sássari
Palma de
Mallorca
Cágliari
Trápani
INLAND WATERWAY
OTHER CORE NETWORK
ROAD
RAILWAY
PORT (Core)
AIRPORT (Core)
MULTIMODAL PLATFORM
(Core)
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TENtec

1. From Ireland via UK through Benelux to the Port of Marseille – the North Sea - Mediterranean Corridor

The North Sea - Mediterranean core network corridor stretches from Glasgow, Edinburgh and Belfast in the North to Paris and Lille in the centre, to Marseille in the South and extends eastwards through Luxembourg, Belgium and the Netherlands towards Amsterdam. It covers six different Member States – Belgium, Ireland, France, Luxembourg, the Netherlands and the United Kingdom. It covers all modes of transport: air, sea, road, rail and inland waterways.

The corridor connects with the North Sea-Baltic and Rhine-Alpine Corridors in the East, the Atlantic corridor in the West and the Mediterranean Corridor in the South. The corridor includes a number of key infrastructure cross border bottlenecks and sea gateways to the European Union and the world. The upgrading of the inland waterway system of France, Belgium and The Netherlands, the upgrading of capacity on major locks such as Terneuzen and further development of interoperability including ERTMS on the rail system are major challenges for this corridor.

This corridor integrates the former Priority Projects 2, 9, 13, 14, 24, 26, 28, 30, ERTMS Corridor C and Rail Freight Corridor 2.

The Coordinator and the Member States in the Corridor Forum are supported by a consortium of consultancy companies contracted by the European Commission. Members of the consortium are: Panteia as leader, MDS Transmodal, Egis France, Stratec, Nestear and PriceWaterHouseCoopers.

2. Characteristics of the Core Network Corridor

2.1. Technical infrastructure parameters for each transport mode

Rail

Technical requirements for the railways within TEN-T go further in terms of setting precise specifications, than they do for road. In principle, following adoption of the standards, it will be possible for a 740m electrified freight train to be operated across the corridor without having to change locomotive due to signaling or voltage differences.

- **Train Length** – Currently France, the Netherlands and Luxemburg allow 740m trains along the North Sea - Mediterranean corridor. In Belgium, the length of freight trains is limited in principle to 750m inclusive of traction units, but the Infrastructure Manager's agreement must always be sought for any train longer than 650m. In practice trains are frequently limited to 650m during peak (daytime) hours. In the mainland UK, 775m trains are allowed on parts of the West Coast Main Line between London and the North West, and on HS1 between London and the Channel Tunnel. However, 50% of the UK corridor sections are below the 740m standard compared to 20% which are above the standard, whilst 30% are not known. In Northern Ireland (UK) all sections are below 740m. In Ireland all rail sections are below the standard too, but as an 'isolated network' (according to Article 39 of the Regulation (EU) 1315/2013) they are exempt from this requirement.

- **Track Gauge** – all corridor sections use standard 1435mm gauge, with the exception of those in the island of Ireland where 1600mm broad gauge is used. As an 'isolated network' these sections are exempted from the requirement.

- **Electrification** – the Continental branches of the rail corridor are fully electrified, although interoperability issues still arise owing to the use of different voltages. France uses 25kV mainly in the North, and 1.5kV

on most lines in the South. Luxemburg uses 25kV electrification, but in Belgium some sections of the corridor use 3kV. The Netherlands uses 1.5kV as standard, but most of the high speed (Thalys) line, and the Rotterdam port railway which are the backbone of the NSMED corridor in the Netherlands use 25kV. In the UK, around a third of the corridor network is not electrified, and a further 160km uses third rail electrification rather than an overhead power supply. In Ireland, the corridor railway is not electrified.

- **Line Speed** – all of the Member States allow line speeds of 100kph or more, for the majority of sections within the corridor. In the UK, 68% of the corridor has lines speeds over 100kph, and for the remainder, line speeds typically vary from 64 kph (40 mph) to 170 kph.

- **Axle loads** – France, Belgium, Luxemburg, Netherlands and the UK, with minor exceptions do allow axle loads of 22.5 tons (see map in Annex 2). In France, only the 16km link between Paris Nord and Gonnesse, for example, does not permit axle loads higher than 20t. In Ireland, the weight limit is 18.8 tons.

- **Signalling** - The issue which stands out in the majority of countries is the extent to which ERTMS has been implemented on the corridor. Luxemburg, the Netherlands and Belgium have implemented ERTMS in full (Luxemburg) or in part, but the UK, France and Ireland do not yet comply with ERTMS for the corridor sections. In the UK, ERTMS is being rolled-out nationally up to 2030, but the key corridor sections including HS1 and WCML, will be among the last to be converted, since they have been most recently modernised. In France, most of the rail signalling systems are not obsolete either, as they date from the 1990s. Since only minor safety gains would come from deploying ERTMS, the benefits would be limited to an increase in infrastructure capacity and interoperability. France is therefore currently drawing up a plan for ERTMS deployment taking into account system obsolescence. In Belgium, a program for the deployment of ETCS on railway lines has been planned for Belgian railways up to 2022. Ireland is exempt from this requirement.

Road

Road parameters mainly refer to safety and sustainability issues, as well as the existence of interoperable tolling schemes. In this corridor, France is the only country with a majority of toll roads in operation. Ireland, UK, Netherlands and France all have sufficient parking areas, many of which have security guards, fencing, flood-lighting and security cameras. In Belgium there are a large number of parking areas, but only two have been given IRU (International Road Union) ratings. In Luxembourg, six parking areas are listed, but none have IRU ratings.

Ports

The North Sea - Mediterranean is a maritime corridor incorporating Europe's two largest island nations, three of Europe's top five ports, and a large number of core ports handling in excess of ten million tons.

Apart from their role as gateways for European trade, the corridor ports offer short-sea connections with high capacity alternatives to land transport, and they are increasingly becoming multimodal hubs for inland transport, as well as logistical platforms.

Seaports are required to offer rail connections by 2030, and if relevant, waterway connections. In addition they should offer clean fuels, and promote Motorways of the Sea (MoS). In terms of clean fuels, several ports are developing LNG bunkering facilities. In the corridor ports these are at different stages of development. Bunkering by truck has been available at e.g. Antwerp and Rotterdam since 2011/12. Since 2013, LNG has been used for inland waterway barges at Rotterdam and Amsterdam, and a broader range of LNG bunkering facilities are available for maritime vessels from Rotterdam, Antwerp and Zeebrugge amongst others.

In France all ports of the corridor have a rail access, but only Dunkerque and Fos-sur-Mer have large waterway connections (excluding the class 1 Calais - St-Omer canal). There is however a project for the port of Dunkerque.

Inland Waterways

The four continental countries within the NSMED corridor contain core waterway networks. No core network waterway links are defined in in the TEN-T Regulation for either the UK or Ireland.

1. In the Netherlands, there is a high degree of compliance with the TEN-T (CEMT IV) standard which requires a draught of 2.5 m, and a minimum bridge clearance of 5.25m. This height restriction applies to vessels with two layers of containers. National waterways are now designed (new waterways and upgrades) to CEMT Va specification, with 3.5 m draught and clearance for four containers (9 m). On international routes, CEMT Vb, and 7 m air draft (three containers) are required as the European standard. For CEMT Vb, the air draft in the Netherlands is 9.1 m.
2. In Luxemburg the only core network connection is the CEMT V Moselle which connects to the Rhine at Koblenz and for a short distance towards Metz in France.
3. In Belgium, there are stretches of waterway in the corridor which limit vessel size below CEMT IV, and in particular there are issues relating to bridge heights and capacity.
4. In France all existing inland waterways in the corridor are either CEMT class IV (8% of the total length) or V (92% of the total length), hence complying with TEN-T standards. However, the three main waterways, the Seine/Oise, the Rhone/Saone, and the Escaut are inter-connected with CEMT II or lower grade links. Furthermore, only 64% of the corridor waterways satisfy the criterion for minimum height under bridges. In the Northern part of France, most links do have a 5.25 m height under bridges. This is the case for the Dunkerque-Valenciennes canal, the Deûle, the Haut-Escaut. On the Oise, the height under bridges is also limited to 5.25 m and in Paris, the Seine has a limited height of 5.15 m. Much of the Saône waterway is limited to 4.40 m.

Airports

There are all together 26 core airports along the North Sea - Mediterranean Corridor. Out of these 26 core airports, 15 airports (Dublin, Gatwick, Heathrow, Luton, Stansted, Birmingham, Edinburgh, Glasgow, Manchester, Bruxelles, Amsterdam, Paris CDG and Orly, Lyon and Nice) have to be connected to the rail network according to the Regulation. Out of these 15 airports, 4 are not yet complying with this requirement (Luton, Edinburgh, Glasgow and Dublin).

2.2. Results of the transport market study

The North Sea Mediterranean corridor covers a large part of the most economically active cities and regions in Europe, as well as being the location of many of Europe's largest gateway ports. Some 1.6 billion tons of port cargo are handled in the NSMED countries, almost half of the EU total.

Market analysis indicates that although headline activity indicators such as population and economic growth are at modest levels for the EU as a whole, there is substantial growth expected within the North Sea - Mediterranean Corridor, linked to the attractiveness of the major cities, and the faster-than-average growth in long-distance traffic, especially inter-continental container traffic with East Asia which naturally feeds directly into the corridor's networks. Port forecasts within the corridor typically indicate expectations of throughput increasing by 50% or even 100% by 2030, with the container sector growing the fastest. Available national forecasts suggest that corridor port throughput has the potential to increase by an additional 1bn tons, of which around 60% would be distributed inland via the hinterland networks belonging to the corridor.

This is both a threat, since most ports rely on inland road transport for over 60% of hinterland flows, and an opportunity since ports are ideal points at which to transship to rail and waterborne freight networks. If ports can achieve waterway shares similar to Rotterdam, Amsterdam and Antwerp, and rail shares similar to Zeebrugge or Hamburg, much of the expected growth can be absorbed 'off-road'. Largely this depends upon solving bottlenecks inland, raising the performance of the inland rail and waterway networks south and west of the Rhine, where non-road modal shares are still low, and developing networks of inland multimodal platforms as logistics hubs.

2.3. Critical issues on the corridor

In this corridor, issues of lack of interoperability, and barriers to multimodality are found in the following areas:

- Cross- border rail freight services; 740m freight trains can operate in France, Netherlands and Luxembourg, but in Belgium and UK there are restrictions. Signalling and electrification systems (voltages) are also not interoperable. Loading gauge is not standardised either.
- Inland waterway vessel size restrictions in Belgium.
- Gaps in the CEMT IV waterway network, resulting in French sections being cut off from links to Belgium, Netherlands and Germany.
- Lack of rail connections in airports e.g. in Ireland and Luxemburg.
- The further development of the Canal Seine-Scheldt is crucial to remove a major missing link. The new Canal Seine-Scheldt will link large centres of production and consumption by lifting one of the main bottlenecks of the European wide-gauge river system.
- The full implementation of the Rail Freight Corridor, in particular in the UK.
- Hinterland connections to the inland ports.

3. Objectives of the core network corridor

The global objective of the TEN-T Regulation explains that "the trans-European transport network shall strengthen the social, economic and territorial cohesion of the Union and contribute to the creation of a single European transport area"

On the basis of the detailed corridor analysis and of the legal framework, previous corridor studies, the former Priority Projects and feedback from Member States and other stakeholders, a number of objectives characterizes The North-Sea - Mediterranean Corridor.:
Operational objectives related to efficiency and sustainability:

- Removal of infrastructure bottlenecks and "filling" missing links as detailed under the critical issues above, especially the inland water ways canal systems of the corridor notably the Seine-Scheldt is paramount as well as bridge clearance for IWW along the canals.
- Efficient use of infrastructure, in particular access routes to the major ports both of inland waterways, roads and rail
- Further strengthening of the capacity of the ports supporting Motorways of the Sea
- Upgrading of infrastructure quality level, notably through interoperability deployment of ERTMS and other technical specifications for rail.
- Optimal integration and improved interconnection of transport modes
- Optimal interconnection of national transport networks.
- Promotion of economically efficient and high-quality transport. Efficiency must be enhanced through easy interconnection and interoperability between national transport networks, and through the optimal integration of intermodality between all transport modes for passengers, as for logistic chains.
- The development of the capacity of multimodal platforms at specific nodes is fundamental to undertake this last point.
- Transport modes must be developed on a long term purpose through sustainability and economic efficiency.
- Promote resource-efficient use of infrastructure, reduction of greenhouse gas emissions, use of low-carbon and clean transport, development of sustainable propulsion systems, to improve the fuel security, to reduce external costs (especially traffic incidents and accidents) and to protect the environment.

4. Outlook by the European Coordinator

The year 2014 is the starting point of a challenging, but very appealing exercise. The work plan to be elaborated by the end of this year and to be approved early next year by Member States will constitute the basis for the development and implementation of the corridor investments which are needed to remove important bottlenecks along the corridor. Several main issues exist on the North Sea - Mediterranean Corridor.

- the establishment of the Seine-Scheldt inland water way canal and its access routes from Le Havre/ Paris in the South and from the Netherlands and Belgium in the north;
- hinterland connections of ports and major works on several sea ports to increase capacity;
- Upgrading of various cross-border rail connections to secure competitiveness with road.

However, the North Sea - Mediterranean Corridor goes further than the mere transport infrastructure. It creates a new link between Member States and adds a clear comprehensive value to the infrastructure investments, it secures cross-border and interregional cooperation and thereby aims at coordinated approaches and implementation.

My role as European Coordinator is to foster this new framework of intermodality and multimodality as the guiding principle for the corridor by taking soundings throughout the corridor consulting ministers and senior civil servants the necessary level of communication and dialogue is being secured bearing in mind the great impact the TEN-T development has on the Member States listening to the various needs, limitations and national difficulties is imperative for my work as coordinator.

The Corridor Forum is in this context an important tool for both me as Coordinator and for the Member States constructively participating in the work. The Forum will gradually consist of an increasing number of stakeholders. In addition, working groups for ports and regions as well as rail and airports will be set up in 2015 and 2015.

I am conducting a wide range of visits during 2014 focusing on the direct face-to-face dialogue with both ministers, government, administrative and stakeholder level. I will continue these missions in 2015 where a focus will be set on the major projects along the corridor. And after the establishment of the work plan in the end of 2014 a more detailed ‘road map’ of implementation with a tentative time-table of constructing the corridor may be drafted on this basis.

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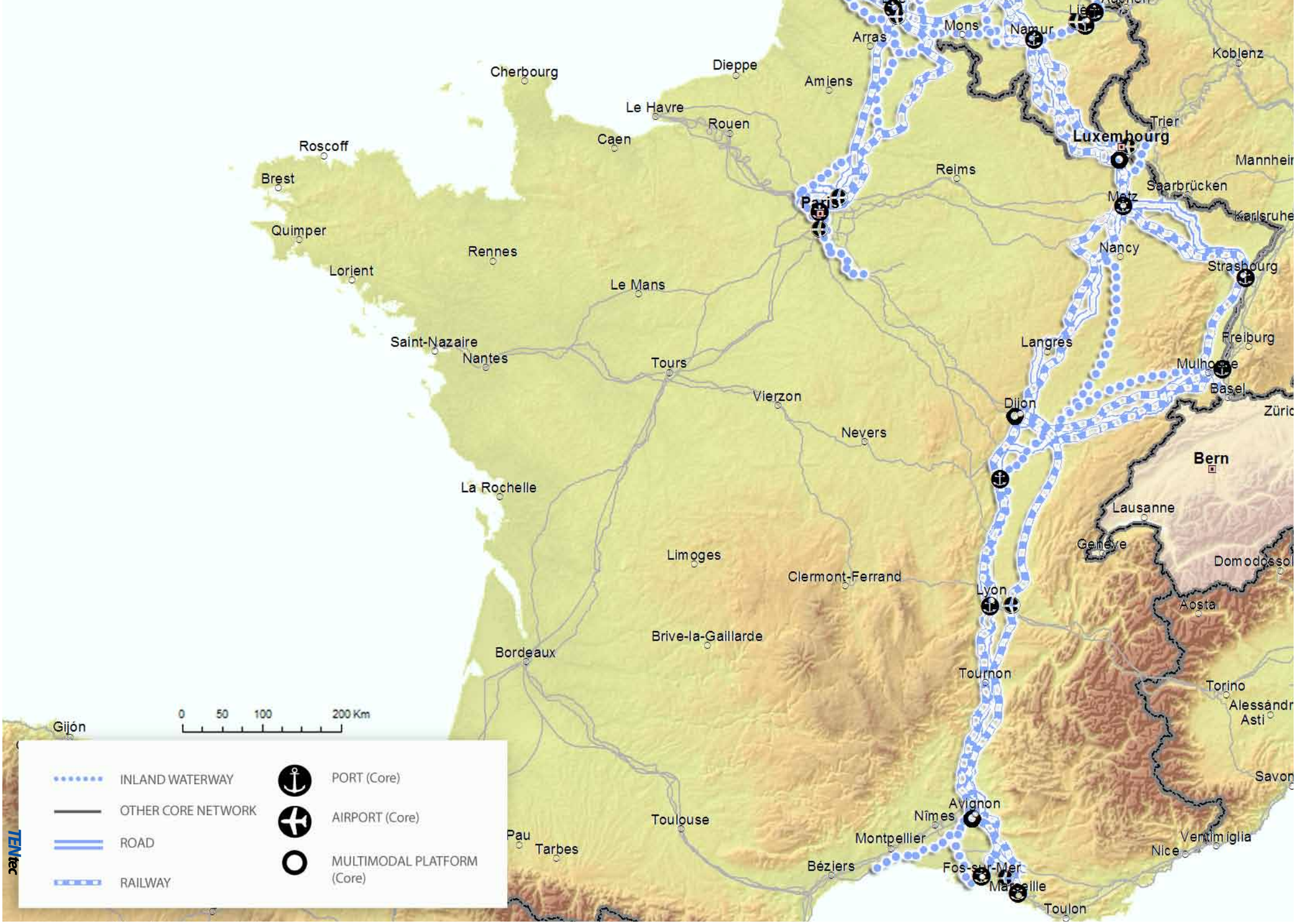
NORTH SEA-MEDITERRANEAN CORRIDOR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Lausanne
Genève
Limoges
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AIRPORT (Core)
MULTIMODAL PLATFORM (Core)
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1. From Strasbourg to the Ukrainian border and to the Black Sea – two branches of the Rhine-Danube Corridor

The Rhine-Danube core network corridor connects nine Member States. From Strasbourg it departs into two branches: the first branch runs through Germany, Czech Republic and Slovakia until the Ukrainian border and the second one along the Rhine-Main-Danube Rivers until the Black Sea. Additionally to the nine Member States, the river Danube, main backbone of the corridor, connects also Serbia, Bosnia-Herzegovina, Moldavia and Ukraine.

The length of the corridor entails that quite different geographical, economical as well as social aspects are to be taken into account, from mountainous regions to plains and from highly developed and populated areas to more sparsely populated ones.

As far as the rail connections are concerned, important upgrading are expected along the corridor, where some of the main missing links are represented by the cross-border sections between Germany and its neighbouring countries. Bottlenecks have also to be removed between Austria and Slovakia, in Slovakia, Hungary, Romania and Bulgaria.

Inland waterway navigation is an important means of transportation on the Rhine and on the Rhine-Main-Danube Canal where infrastructures offer a reliable and international level of service both for passengers and freight transportation. Instead on the Danube River, as well as on its tributaries, navigation is suffering from bottlenecks that reduce the reliability of the connections and where long periods of high or low water conditions make its navigation, mainly for freight transport purposes, a non-attractive choice despite the unspoiled capacity and lower environmental impact.

Starting from the West, the Rhine-Danube Corridor runs in parallel with the Rhine-Alpine Corridor from Strasbourg to Frankfurt. In Germany, it has three crossings and a small parallel section with the Scandinavian-Mediterranean Corridor. Further East, the corridor crosses the Baltic-Adriatic Corridor in the Czech Republic, Slovakia and Austria. Finally, it has a long section between Vienna/Bratislava to Craiova in common with the Orient/East-Med Corridor.

The **Rhine-Danube corridor study** is prepared by iC Consulenten (AT) and their Joint Venture Partners HaCon (DE), Panteia (NL), Via Donau (AT) and the University Politehnica of Bucharest (RO) and the subcontractors KombiConsult (DE) and Prodex (SR).

2. Characteristics of the core network corridor

2.1. Technical infrastructure parameters for each transport mode

Rail

The corridor for rail infrastructure can be roughly divided into two branches: the Black Sea branch and the CS branch. The Black Sea branch shows layout variants in Germany (northern route via Frankfurt/Nürnberg and southern route via Stuttgart/München/Salzburg) and in Romania (via Sebes and via Craiova).

Considerable parts of the Black Sea branch in Germany, Austria, Hungary and Romania are already completed or are planned to be finalised within the next two years. Sections with one or two electrified tracks capable of a speed of at least 100 km/h are considered complete from an infrastructure standpoint. The installation of ERTMS is also mandatory. However, other parts are not yet completed or unsecure regarding their finalisation.

The CS branch has two possible starting points (München or Nürnberg) and runs via Plzen and Praha towards Přerov in the Czech Republic. Beyond Přerov at Hranice na Morave the corridor splits into two variants: the line via Ostrava is mainly dedicated for passenger traffic whereas the direct line via Púchov and Zilina in Slovakia is manly used by freight traffic.

The vast majority of the corridor consists of conventional rail lines. Only few new rail lines in Germany (Karlsruhe-Mannheim, Stuttgart-Ulm) and Austria (Linz-Vienna) have been categorised as high-speed (allowing an operational speed of over 200km/h).

Nearly all parts of the corridor are designed for both passenger and freight traffic. The only exceptions are the high-speed line Stuttgart-Ulm (passenger only) and some small sections within Vienna node dedicated to freight trains exclusively.

The analysis of the rail infrastructure on the corridor shows areas with critical line layout and insufficient rail line equipment:

- The corridor is totally equipped with standard **gauge** (1,435 mm). However, at the connection to Ukraine (end of the CS branch), the gauge changes to 1,520 mm. More than 80% of the corridor is designed as at least double tracked. Nevertheless, all corridor countries (except France) show also some single track sections.
- The corridor is not completely **electrified**. In addition, the railway companies are using three different electric voltage systems on the corridor:
  AC 25 kV, 50 Hz in France, Czech Republic, Slovakia, Hungary and Romania;
  AC 15 kV 16 2/3 Hz in Germany and Austria;
  DC 3 kV in the Czech Republic and in Slovakia.
- The maximum configuration for a freight train is limited by differing **axle load** and **train lengths**.
- Regarding signalling systems and control & command system, seven **signalling systems** are in use on the corridor (incl. ETCS). Most widespread are PZB/LZB (Germany, Austria), CED (Romania) and LS (Czech Republic, Slovakia).

  The implementation of ERTMS is only an exceptional characteristic of the Rhine-Danube corridor, currently restricted to the regular operation of ERTMS on some line sections in Austria and Hungary; most recently, the Austrian section Wels-Passau has been put in operation in 2014; further corridor parts in Romania and the Czech Republic are currently in a testing phase.

  Further steps for equipping the corridor with ERTMS refer mostly to Romania (finalisation of the northern branch via Simeria/Brasov is foreseen until 2020) as well as to Austria and the Czech Republic. On the other side, Germany and Slovakia have no binding deadline for ERMTS implementation on the Rhine-Danube Corridor so far.

Road

The analysis of the compliance with the requirements for roads will be provided in the third progress report of the consortium before the 3rd Corridor Forum.

Ports

The only maritime port of the corridor is that of Constanta in Romania that is connected both to the rail and the road. An analysis of its development will be provided before the third corridor forum.

Investments planned for the inland waterway ports are expected to support the economic activities and growth of the Rhine-Danube corridor regions both serving the existing traffic and capturing additional demand, which makes the need for effective and efficient last mile accessibility a key focus of attention in the development of the core network corridor.

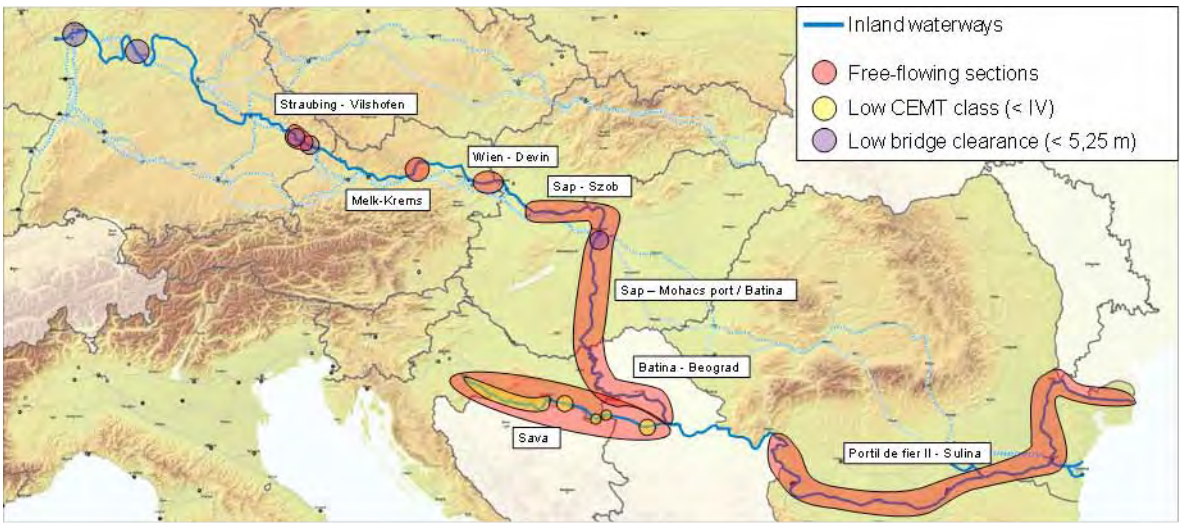
Inland Waterways

The inland waterways network included into the Rhine-Danube Corridor presents a consolidated situation for the infrastructures on the Rhine and on the Rhine-Main-Danube canal that certainly need maintenance and future upgrading. However, they do not require immediate intervention as they are providing a standard international level of service throughout the year (see map in Annex 2).

Quite different is the condition on the Danube River. Bottlenecks of different nature are present all along the river and actions have already started to tackle it.

Major bottlenecks include the navigability conditions between Straubing and Vilshofen in Bavaria, the low water conditions east of Vienna, along the overall Hungarian section, the bottleneck at the border of Croatia and Serbia, the common Bulgarian-Romanian sector and the lower part of the Danube near the Constanta canal.

Inland waterways with unfavourable infrastructure conditions



Concerning the development of inland waterways assigned to the Rhine-Danube Corridor the main issue are the consolidation and upgrading of waterway infrastructure, the insurance of proper waterway maintenance, the establishment of River Information Services, the overcoming of Administrative Barriers and the introduction of Alternative Fuels.

Airports

There are 11 core airports along the Rhine-Danube Corridor (Frankfurt, Nürnberg, Stuttgart, München, Ostrava, Praha, Wien (Schwechat), Bratislava, Budapest (Ferenc Liszt International), Timisoara, Bucuresti). Out of these airports, 6 airports (Frankfurt, Stuttgart, München, Prague, Vienna, and Budapest) have to be connected to the rail network according to the Regulation; only Frankfurt and Vienna are currently complying with this requirement.

2.2. Preliminary results of the transport market study

The review of data gathered in the transport market study will result in the current and future utilisation of the network and modal split in (freight) transport. By comparing the current capacity of the network with the expected growth in demand, consensus can be reached on prioritising projects to remove bottlenecks and increase transport capacities. Additionally when looking at expected future transport demands low utilized modes may attract flows from high utilized modes, resulting in a modal shift. The realisation of modal shift will enhance addressing (administrative, technical, operational) barriers and seeking possibilities to stimulate and increase multimodal transport along the corridor.

Areas with high rail capacity utilisation on the Rhine-Danube Corridor

2.3. Critical issues on the corridor

The most critical issues of the corridor are:

- The absence of a reliable navigability on the Danube river
- The absence of a fully interoperable rail corridor (numerous system breaks at each border crossing)
- The missing cross-border sections and national bottlenecks
- The lack of intermodality (making full use of the potential offered by inland waterways and rail)

Danube

The inland waterways of the Rhine-Danube Corridor show a large variety in nautical, hydrological and hydromorphological characteristics. While on impounded sections the conditions of the waterway are rather stable and a good navigable status is considered as secured, free-flowing sections bear particular challenges. A significant portion of the navigable waterways consists of free-flowing sections; the Sava is not regulated by barrages at all. Particularly in free-flowing sections, the transport of sediments (bed load and suspended matter) leads to continuous change in the morphology of the riverbed, either in the form of sedimentation or erosion.

In order to secure internationally harmonised fairway parameters (predominantly fairway depths and widths), integrated river engineering measures and continuous fairway maintenance efforts are necessary.

The availability of the alternative clean fuels is included in the transport infrastructure requirements for the inland waterway and maritime transport network (Article 39 of the TEN-T Guidelines) while greening of the fleet stands high on the political agenda (NAIADES II Communication, proposal for a Directive on the deployment of alternative fuels infrastructure, etc.). As regards to Alternative Fuels, LNG is seen as a promising technology for inland navigation.

Cross-border sections

The major cross-border bottlenecks on the corridor are the following:

- Kehl-Appenweier:
    - Line upgrading (continuation of new) stopped after the inauguration of the new Kehl bridge in 2010. Further planning steps are not yet defined.
    - Non-level crossing to the Rhine axis (“Karlsruher Kurve”) is missing.

- Cross-border sections Germany-Czech Republic:

  Connections to the Czech Republic are not included in the current Federal Transport Infrastructure Plan and are being analysed for the revision due in late 2015.

- München-Mühldorf-Freilassing:
  Line upgrade is delayed because of political priority setting and the limitations to the transport budget. Only isolated measures are implemented or under construction so far.

- Cross-border section Freilassing-Salzburg:

  The new bridge over the river Saalach will not be finished before 2016. The planned construction start of the work for the third track between Freilassing and Salzburg in spring 2014 will be further delayed.

- Vienna – Bratislava:

  In July 2007 the Austrian and Slovak Ministries of Transport agreed to develop the cross-border section together. On the southern alignment between Vienna and Bratislava the three neighbouring States Austria, Slovakia and Hungary want to study between 2014 and 2020 alternatives to connect the rail lines and the airports.

- Cross-border section Lökösháza (Hungary) / Curtici (Romania):

  Missing second track on Hungarian side jeopardizes the full benefits of the major works in progress between Arad and Curtici.

National bottlenecks - rail

- The most important national bottlenecks for rail are Stuttgart-Ulm, Ulm-Augsburg, Linz-Vienna. Zilina-Kosice, Budapest rail node, Arad- Buchuresti.

National bottlenecks - road

Compliance with the main parameter on type of road (motorway, express way or ordinary road) has been achieved on nearly all road sections of the Black Sea branch of the Rhine-Danube Corridor except on limited sections with unfavourable road conditions. Here, numerous projects are ongoing in all Member States, in particular in Romania, Hungary, Czech Republic and Slovakia.

3. Objectives of the core network corridor

On the basis of a detailed analysis of the legal framework, previous corridor studies, Priority Projects and feedback from stakeholders, the following objectives have been identified:

Operational objectives related to efficiency:

-Removal of infrastructure bottlenecks and "filling" missing links as detailed under the critical issues above

-Upgrading of infrastructure quality level, notably through interoperability and ITS

-Efficient use of infrastructure, in particular of inland waterways and rail

-Optimal integration and improved interconnection of transport modes

-Optimal interconnection of national transport networks.

-Promotion of economically efficient and high-quality transport

Operational objectives related to sustainability:

-Promote resource-efficient use of infrastructure

-Reduce congestion

-Improve road safety

4. Outlook by the European Coordinator

The Rhine-Danube core network corridor is quite a complex structure, starting from the fact that it develops on two branches from the very centre of the European Union until the eastern and south eastern borders.

The Czech-Slovak branch is characterised by the need of harmonising the level of service provided along the overall axis and of overcoming cross-border bottlenecks.

The Black Sea branch is very long; additionally it needs to be integrated with neighbouring countries' networks, notably for the inland navigation on the Danube and the Sava Rivers with Serbia and Bosnia-Herzegovina, besides the connections to the national transport systems of rail and road.

In such a complex environment, drafting a well-structured work plan becomes mandatory in order to provide indications concerning the most urgent measures and about their maturity in order to support the economic growth of the regions while respecting the environment.

Compared to many other corridors inland waterways transport plays a special role in the Rhine-Danube Corridor, as the name suggests: maybe because of the recent association to the Union of many of the involved countries and because of the strong identity, as the Danube River represents an important source of wealth for the local populations in terms of water management (drinking water, agriculture & irrigation) energy production, tourism and transport.

All these aspects are still very much unspoiled: the integration of its transport capacity with the other modes of transport will provide a less costly and very much needed capacity, provided that the mentioned bottlenecks will be overcome.

Although funding is always an important factor, we have already experienced that political will and public support are necessary to achieve a coherent and effective network.

Public and private stakeholders are involved through the Corridor Forum, which is an ideal communication platform for the identification of priorities and of opportunities.

As Coordinator of the Rhine-Danube Corridor, I plan to achieve concrete and significant steps during the next years in order to prepare a coherent development of the corridor in its different aspects: solving gaps in the Czech-Slovak and Black Sea branches by creating a Danube corridor based on all surface modes, with a special attention to navigation.

A first important step has already been taken with the agreement signed last June by Bulgarian and Romanian authorities for the governance and the structuring of interventions to ensure navigability conditions on the common Bulgarian-Romanian sector of the Danube River. In a similar way I plan to discuss with all countries representatives and stakeholders in a way to overcome cross-border bottlenecks.

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http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/rhine-dan_en.htm

RHINE-DANUBE CORRIDOR


Lublin
Okopy
Hrebenne
Krakow
Bielsko-Biala
Przemysl
Barwinek
Presov
Kosice
Bar
Miskolc
Nyiregyhaza
Halmeu
Satu Mare
Siret
Suceava
Debrecen
Szolnok
Oradea
Iasi
Chisinau
Kecskemét
Cluj-Napoca
Turda
Bacău
Szeged
Nadlac
Arad
Sighisoara
Sebeş
Mărăşeşti
Timişoara
Sibiu
Brasov
Galaţi
Novi Sad
Moravita
Sinaia
Tulcea
Buzău
Beograd
Piteşti
Ploieşti
Orsova
Bucuresti
Craiova
Cernavodă
Constanţa
Montana
Pleven
Nis
Veliko Tarnovo
Varna
Kalotina
Pristina
Sofia
Sliven
Stara Zagora
Bourgas
Gyueshevo
Plovdiv
Dimitrovgrad
Skopje
Edirne
0
100
200
400 Km
Tiranë
Evzoni
Niki
Kavala
Kipi
Alexandroupolis
Istanbul
TENtec

Executive summary

With this intermediate work plan for ERTMS the European Coordinator would like to highlight the **necessity to adapt the European Deployment Plan for ERTMS** defined in the European Decision for rail signalling and speed control system, (2012/88/EU). The Coordinator advises the Commission to consider that the deadlines for implementation, defined in this Commission Decision, do not reflect anymore the reality and stipulates implementation dates that are not any more feasible. Therefore this deployment plan needs to be adjusted, based on realistic and authentic information given by the Member States and other involved stakeholders. In accordance with the Regulation for TEN-T Guidelines (Regulation (EU) 1315/2013) it shall provide a **gradual implementation plan of all core network corridors with the ultimate end date of 2030**. This shall be a pragmatic approach, where all involved actors will have to make a major effort and agree on more ambitious objectives.

The **current commitment of the directly involved stakeholders needs to be adapted** as well. The pace of ERTMS implementation has been too slow over the past years. The objective is to deliver an efficient, safe, interoperable network to the users as defined in the White Paper for Transport. The main actors (railway undertakings, infrastructure managers, railway industry and the national safety authorities) need to **focus on a limited number of priorities in the next two years.**

In order to achieve this, the Commission needs **a clear and understandable communication both with the stakeholders and the broad public**. Not only the technical advantages of this system need to be highlighted (interoperability, safety, reliability, punctuality), but also its environmental, social and economic benefits shall be emphasised.

The final work plan intends to include a proposal for an adjusted European Deployment Plan that can be used as a decision-making tool for a realistic ERTMS deployment in the European Union.

1. Where is ERTMS today?

Five years after the adoption of the European Deployment Plan and nine years after the nomination of the European ERTMS Coordinator significant results have been achieved in Europe: almost 5000 km trackside has been in service and around 6000 locos have been equipped, technical specifications of standards have been defined, several Member Sates decided to switch completely their national system into ERTMS for their entire network in the upcoming years. ERTMS has been acknowledged and confirmed by all Member States and the rail sector as the universal signalling system in Europe. The technology has reached an acceptable level of technical stability. With all these developments we have reached the point of no return, ERTMS is and will be the interoperable rail signalling system in European Union.

Nevertheless, the deployment does not fulfil the expectations: in some Member States it is well beyond the schedule. The most frequently used arguments are: the national deployment plans of 2007 were too optimistic, the financial means have not been sufficient (in particular due to the financial crises), the price of ERTMS products is too high and not always in proportion with their added value, the lack of ERTMS expertise has been hampering the implementation, the definition of specifications is too much delayed, the existing national system in place has not reached the end of its life cycle etc.

2. Reasons for adjustment

In 2009 the European Deployment Plan was agreed on the basis of national deployment plans submitted by the Member States. At that time, the knowledge and experience with the ERTMS implementation were very limited at national and European level. The number of experts with knowledge of ERTMS (engineers, project managers, loco drivers, infrastructure managers, railway undertakings, national safety authorities, etc.) was limited and the availability of qualified experts at all levels is still a major problem today. Consequently, the national deployment plans, provided in 2007, were indeed too optimistic

3. Conditions fulfilled for adjustment

Technical stability: Baseline 2 and Baseline 3 as available specifications

In 2014 two legally binding specifications exist that are available to implement ERTMS: Baseline 2 and Baseline 3, both are defined in the Commission Decision 2012/88/EU (CCS TSI). Baseline 2 was developed in 2008. At that time this standard constituted the unique interoperable signalling system in Europe. However, following consultations with major stakeholders it appeared that this standard did not provide all the required functions and was not capable of offering a certain number of additional desirable services. Therefore the commitment was taken in 2008 by the European Railway Agency to design a stabilised technical standard for ERTMS, which became ERTMS Baseline 3. Thanks to the active participation of stakeholders (UNISIG, ERTMS Users Group etc.) in the preparation of specifications, in 2012 ERA was able to submit its final recommendations to the Commission. Subsequently, the specifications of Baseline 3 have been agreed on by the Member States and have been included in the reviewed CCS TSI.

Deployment manager team as coordinator at project level

In order to ensure an efficient, synchronised and timely implementation of ERTMS along core network corridors and to ensure the consistency with the other parts of the network, the Commission will launch an implementation support programme by a deployment management team. Deployment planning coordination, deployment monitoring, technical assistance and economic advice supporting the deployment will be the core tasks of this implementation support programme, and a business case for each core network corridor will be carried out as well. This deployment management team should be a guarantee of a coordinated ERTMS implementation in the European Union; however, the obligation to deploy will stay with the stakeholders.

Sufficient and efficient financing

The Commission provides a significant amount of contribution through the Connecting Europe Facility (CEF, up to € 1,1 billion only for ERTMS) and European Structural and Investment Funds (in total € 35 – 40 billion for transport). In addition, the CEF provides for financial instruments to promote substantial participation in infrastructure investment by private investors and financial institutions. Since studies demonstrate that public-private partnerships in the ERTMS sector can work if properly structured, stakeholders should make use of those innovative financial instruments as well.

The first CEF Call, planned for the second half of 2014, foresees, beside the "traditional" priority areas - track side and locomotive equipment –the financial support for some other needs that have been identified over the last years. One of them is aiming at simplification, facilitation and harmonisation of procedures for the placing in operation of on-board/ track-side ERTMS components. Another one could cover training sessions of ERTMS project managers, train dispatchers, drivers etc. to overcome the lack of ERTMS expertise. These measures will accelerate ERTMS implementation significantly.

The general strategy will be to use all financial means available in the most efficient way without cancelling or interrupting contracted actions.

4. The way to do it

Adjustment of the European Deployment Plan

The corridor approach has been chosen as the most adequate way to ensure the needed interoperability at the European level. After having collected sufficient and reliable data, and having consulted the involved Member States, the Commission would define the timeline of ERTMS deployment corridor by corridor. A particular attention would be given to the cross-border sections on the corridors. By tackling in priority the technical harmonisation problems at the cross border sections, most of the interoperability issues between the involved Member States will be solved (e. g.: solving the Basel interoperability problems will impact the harmonisation issues in two member states France, Germany and in Switzerland).
The final work plan for ERTMS will contain a proposal for ERTMS implementation of the core network corridors with a timeline that will provide new target dates to be refined in 2015.

Core Network Corridors*: ERTMS in operation - Current State Estimation

Core Network Corridors	Railways: Total km	ERTMS in operation		AT			BE			BG			C
				Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways
		km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km
Baltic-Adriatic	4.606	564	12	632	44	7							364
North Sea-Baltic	5.931	495	8				388	123	32				
Mediterranean	9.765	1.364	14										
Orient/East-Med.	5.717	1.370	24	144	61	42				987	433	44	791
Scandinavian-Med.	9.121	3.109	34	123	123	100							
Rhine-Alpine	2.882	268	9				514	92	18				
Atlantic	7.630	582	8										
North Sea-Med	6.553	337	5				912	186	20				
Rhine-Danube	5.575	361	6	488	187	38							672

Core Network Corridors	Railways: Total km	ERTMS in operation		FI			FR			HR			H
				Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways
		km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km
Baltic-Adriatic	4.606	564	12										
North Sea-Baltic	5.931	495	8	3	0	0							
Mediterranean	9.765	1.364	14				1.593	0	0	307	0	0	1.114
Orient/East-Med.	5.717	1.370	24										420
Scandinavian-Med.	9.121	3.109	34	502	0	0							
Rhine-Alpine	2.882	268	9										
Atlantic	7.630	582	8				3.177	294	9				
North Sea-Med	6.553	337	5				3.017	0	0				
Rhine-Danube	5.575	361	6				7	0	0	0	0	0	413

Core Network Corridors	Railways: Total km	ERTMS in operation		NL			PL			PT			R
				Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways
		km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km
Baltic-Adriatic	4.606	564	12				2.231	105	5				
North Sea-Baltic	5.931	495	8	467	350	75	1.423	22	2				
Mediterranean	9.765	1.364	14										
Orient/East-Med.	5.717	1.370	24										512
Scandinavian-Med.	9.121	3.109	34										
Rhine-Alpine	2.882	268	9	418	176	42							
Atlantic	7.630	582	8							1.607	0	0	
North Sea-Med	6.553	337	5	237	151	64							
Rhine-Danube	5.575	361	6										1.725

*According to chapter IV of TEN-T Regulation (EU) No 1315/2013 and as listed in Part I of Annex I of CEF Regulation (EU) No 1316/2013.
**ERTMS in operation: Tracks equipped

TENtec

Z		DE			DK			EE			EL			ES		
ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**	
km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km	km	%
0	0															
		1.784	0	0				424	0	0						
														4.806	1.082	23
58	7	1.688	0	0							1.065	644	60			
		3.509	0	0	538	0	0									
		1.446	0	0												
		134	0	0										2.713	288	11
0	0	1.832	0	0												

U		IE			IT			LT			LU			LV		
ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**	
km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km	km	%
					700	186	27									
								852	0	0				590	0	0
53	5				1.440	165	11									
174	41															
					3.026	2.986	99									
					504	0	0									
		371	0	0							64	0	0			
174	42															

O		SE			SK			SI			UK		
ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**		Railways	ERTMS**	
km	%	Total km	km	%	Total km	km	%	Total km	km	%	Total km	km	%
					297	154	52	383	75	20			
								505	64	13			
0	0				110	0	0						
		1.423	0	0									
											1.951	0	0
0	0				438	0	0						

Changing attitude

The main actors- including the railway undertakings, the infrastructure managers, the national safety authorities and in particular the European railway industry should take the commitment to go together for a real breakthrough in realizing an interoperable, safe and efficient rail system in the European Union. They all need to leave the comfort zone and make significant effort to find the right way out of a deadlock. In particular, the European railway industry must further develop standard and interchangeable on-board equipment which fits into the locos European wide. Loco owners must equip their fleet with those standard on-board units. The Coordinator underlines the need to develop the on- board units on the Baseline 3 specifications because it gives full flexibility for the railway undertakings to run the trains on the entire European network. The infrastructure managers must ensure and confirm that the locos equipped with the standard on-board equipment will be accepted on their network.

This approach will create the best conditions to make our railway system as competitive as possible with the other transport modes.

5. Change as an opportunity

The existing European Deployment Plan and its requirements for implementation will not be cancelled. Otherwise, it would penalize those Member States that are complying with it and may lead to an interruption of ongoing planning and works. The revised Deployment Plan will be based on Baseline 3 technology that will be characterized by stability over the long term, comparable with any other software system and will be, managed by maintenance releases when needed. The time horizon to deploy ERTMS is linked to the overall core corridor network of which the planned completion date is 2030.

To establish an adapted, realistic EDP is an ambitious short-term objective, but at the same time it is the unique opportunity to achieve our long term objective: a competitive, interoperable railway network in Europe.

6. Adequate communication as booster of implementation

ERTMS is usually dealt with in a technical context; consequently the most frequently mentioned advantages are of a technical nature: safety, better interoperability, punctuality, and reliability. The economic, social and environmental benefits are very often underestimated and badly communicated benefits. However, those are important to generate a broad consensus among the different stakeholders, the railway sector, the European and national authorities, the financing partners and last but not least the public opinion.

Therefore it is essential to have a well structured business case for ERTMS on each corridor elaborating all these aspects and to develop an adequate communication plan both with the stakeholders and the broad public.

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Executive summary

Motorways of the Sea (MoS) is a TEN-T horizontal priority which supports and integrates the development of maritime transport, ports and their hinterland connections (origin/destination) whilst promoting the deployment of infrastructure, transport technology and information systems.

Its ultimate objective is to achieve a full integration of maritime transport operations in the global logistics chain as this will allow for a seamless integration of transport operations supporting European external trade (74% of Europe's external trade is performed by maritime transport) and internal trade (40% of Europe's internal trade).

MoS builds on the core and comprehensive networks of European ports and logistics centres as well as on the TEN-T core network corridors, knitting a dense transport grid which will facilitate trade operations and cohesion thereby boosting growth.

1. Where is MoS today?

In addition to the 52 individual projects developed so far, representing 3 billion Euro of total investment supported by grants of the magnitude of 450 million Euro, a strategic development plan including a prospective view until 2030 and a detailed road map until 2020 is underway and represents the core task for the European Coordinator until 2016.

Concerning the MoS projects launched until today, they cover the majority of the European Maritime Member States (see map below – Member States in pink) enabling the TEN-T core network corridors with efficient maritime links and expanding their reach on the hinterland as well as providing supplementary maritime links which make connections more effective (see map below – maritime links and intermodal connections displayed in green segments). So far 14 of these maritime links projects have been implemented, increasing the potential of the corridors not only in terms of extended reach but also in terms of interoperability of transport and information systems. This shall also contribute to track and trace a container more easily through information systems, allowing for its safe clearance through customs, phyto-sanitary and veterinary controls, in short facilitating the trade of goods.

MoS are also developing key enablers for maritime transport such as safety, traffic management and training. 12 of these wide-benefit projects are underway, guaranteeing improved safety of operations and adequate training of the operators involved in the transport chain thereby reducing the risks related to the human element (see map below – safety, traffic management and human element projects displayed in red spots). The quality improvements resulting from this safety, traffic management and training developments irradiates to the contiguous TEN-T corridors multiplying benefits on to the other transport elements, i.e. multi-modal platforms, rail, road and inland ports.

Furthermore transport in general is confronted with crucial environmental objectives ranging from climate change to operational pollution. MoS is supporting 20 individual environmental actions targeted at meeting those objectives and particularly those dealing with the reduction of sulphur emissions which is mandatory for the North Sea and Baltic Sea (see map below – protection of the environment projects displayed in blue spots). Not only all Member States concerned by the international obligations are involved but also in the Atlantic, Mediterranean and Black Sea areas many actions were promoted in order to spur the voluntary adoption of higher environmental standards striking a delicate balance between economy and environment. Yet again the benefits to the contiguous corridors are enormous as the corridor's environmental footprint is improved through smarter and sustainable transport operations. The vast array specific solutions that have been supported, included different types of clean fuels (LNG, Methanol) as well as technological solutions (scrubbers) and different types of re-fuelling systems (barges, pipelines).

2. MoS key objectives

A dynamic maritime transport spurred by MoS will connect ports to TEN-T corridors, core ports to comprehensive ports and favour the development of a dynamic web of smaller ports, calling also the more peripheral regions and feeding trade to and from their ports.

Accordingly, MoS has focussed its actions to the achievement of three main priorities:

1 - Integration of maritime transport in the global logistics chain

2 – Protection of the environment in particular through the reduction of emissions

3 – Improvement of safety of operations, traffic management and training

3. MoS actions envisaged

Motorways of the Sea transport systems will play a key role in being the transport platforms connecting maritime transport and ports to the final destination of maritime trade in the hinterland. They will also guarantee the access of goods, produced in the hinterland, to the overseas markets (74% of Europe's external trade) or other destinations in the internal market by sea (40% of internal trade). This also explains why every TEN-T corridor starts and ends in a port. Specific objectives are the following:

- Infrastructure development in ports, notably including the development of infrastructure for direct land and sea access, hinterland connections, development in port facilities, freight terminals, logistic platforms and freight villages which are associated to the port operations.
- Development of ice-breaking capabilities.
- Development of maritime ICT systems and services addressing logistics management systems in ports, safety and security as well as administrative and customs procedures.
- The promotion of "wider benefits" of the MoS development, not linked to specific geographic areas or ports, such as services and actions to support the mobility of persons and goods, improvement of environmental performance, icebreaking and year round navigability, surveying and dredging operations, infrastructure development in ports, notably including alternative fuelling facilities as well as optimisation of processes, procedures and the human element, ICT platforms and information systems including traffic management and electronic reporting systems.
- In this context, actions aiming at the facilitation of maritime freight transport with neighbouring countries hence fostering international trade can be supported.
- Development of sea-based transport services which are open, integrated in door-to door logistic chains and concentrate flows of freight on viable, regular, frequent, high quality and reliable Short Sea Shipping links.
    - Maritime port access and basic infrastructure: actions aiming at reducing bottlenecks in maritime transport and multimodal routes, providing safer, more secure and more environmentally-friendly maritime transport services.
    - Connections to other transport modes (including to dry ports): rail, inland waterway connections or road if other hinterland connections are not an option with adequate capacity and efficiency;

- ICT platforms and information systems, in particular e-Maritime Single Window and VTMIS applications.

- A priority will be given to implementation projects, pilot projects and studies which contribute to addressing the environmental challenges faced by the maritime sector, in particular in view of the forthcoming requirements with respect to the implementation of the requirements of Annex VI of the IMO MARPOL Convention and of Directive 2012/33/EU.
    - Actions supporting the deployment of alternative fuels and emission abatement technologies, including the use of shore-side electricity and energy efficiency measures, fall under this category.
    - Actions supporting the development of reception facilities for oil and other waste, including residues from scrubbers.
    - Studies and deployment of alternative fuel infrastructure, in particular but not limited to LNG, either through publicly accessible fixed or mobile (including trucks and barges) refuelling points and related infrastructure

4. Planning MoS

The first phase of development has been reached with the final call of the financing period 2007-2013. The Connecting Europe Facility will provide the financial framework for the MoS developments between 2014 and 2020. In March 2016 the European Coordinator for Motorways of the Sea will present a road map until 2020 and a prospective view for the completion of the TEN-T comprehensive network (2030). A first outline of this road map will be available until December 2014, defining the steps that will be taken during the review period until March 2016.

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TEN-T NETWORK
Motorways of the Sea projects
and Core Network Corridors
Innovation
and Networks
Executive Agency
MoS Projects
ICT/Information systems
Knowledge network/Human element
Links/intermodal connections
Safety/Protection of the
environment/sustainable shipping
Member
States/beneficiaries
of TEN-T support
Core Network Corridors

Innovation and New Technologies in TEN-T in the frame of the new core network corridors of TEN-T and CEF

Stemming from the new legal base of the TEN-T Guidelines (2014-2030) and the Connecting Europe Facility (CEF 2014-2020) there are clear priorities for innovation and new technologies for transport infrastructure. The general policy goal is ensuring sustainable and efficient transport systems in the long run, with a view to preparing for expected future transport flows, as well as enabling all modes of transport to be decarbonised through transition to innovative low-carbon and energy-efficient transport technologies, while optimising safety.

Overall, TEN-T development must keep up with state of the art developments of new technologies and innovation. In this respect, TEN-T development for all transport modes shall complement the RTD action under the new "Horizon 2020" programme by pursuing a market-oriented approach and promoting the deployment of innovative technological and organisational solutions in accordance with the provisions of Article 33 of the new TEN-T Guidelines. In fact, the innovative projects funded under TEN-T/CEF are the perfect follow-on for research and demo projects funded under Horizon 2020.

Within this framework, the promotion of alternative fuels for transport makes a vital contribution to breaking this sector's oil dependence, thereby contributing to curbing its carbon emissions' footprint, as called for in the 2011 White Paper on Transport. The objectives of both the Commission's strategy on the deployment of alternative fuels' infrastructure and of the TEN-T – notably in the framework of the corridor approach – shall be promoted.

The specific objectives listed below apply to the entire trans-European network for transport, i.e. the core and comprehensive network.

- Measures making the decarbonisation of all transport modes possible by stimulating energy efficiency, introducing alternative propulsion systems, including electricity supply systems, and providing corresponding infrastructure. Such infrastructure may include grids and other facilities necessary for the energy supply, may take account of the infrastructure vehicle interface and may encompass telematics applications;
- Safe and sustainable transport solutions for the movement of persons and the transport of goods;
- Advanced concepts for operation, management, accessibility, interoperability, multi-modality and efficiency of the network, including through multimodal ticketing and coordination of travel timetables;
- Promotion of efficient ways to provide accessible and comprehensible information to all citizens regarding interconnections, interoperability and multi-modality;
- the promotion of measures for the reduction of external costs of transport, caused by factors such as congestion, damage to health, pollution and any kind including noise and emissions;
- measures introducing security technology and compatible identification standards on the networks;
- enhanced resilience to climate change;
- further advancement of the development and deployment of telematics applications within and between modes of transport.

There is the possibility of financial support for studies with integrated deployment (as the pilot scheme), which has already been possible with a much limited scope since 2010 under the old legislation (6 calls in total). There has been a strong increase in number and quality of projects proposed: in the first call 6 proposed and 1 funded, in the last call 36 proposed (i.e. half of all projects submitted in March 2014 to the annual TEN-T calls of December 2013) and 27 funded. In total 50 innovation projects on innovative transport infrastructure have been funded across the EU, relating mainly to decarbonisation of transport. Promoters came predominantly from the private sector, who have voiced their appreciation of this type of EC support.
Under the CEF, studies and works (for larger projects) are possible. The funding rate is normally up to 50% for studies and up to 20% for works. For Member States eligible for Cohesion Funds the rates are increased to 85% for studies and works.

However, in order to not spread the financial support too widely (i.e. no untargeted subsidies), a focus is applied to the type of projects. Conceptually, TEN-T follows a "market-oriented" instead of a "research-oriented" approach by focussing on New Technologies and Innovation ready for deployment. A real-life trial instead of a demo is requested from applicants to calls for proposals. In practise, a clearly elaborated consumer-oriented business-model should be integrated in the project, because in such cases innovation for technology should be accompanied by innovation of processes.
The annual assignment of budgets and specific objective is governed by the annual and multi-annual work programmes. In this respect, the work programmes for 2014 will make an effort to open the thematic scope as much as possible in order to allow all innovative forces to participate and strongly advance innovation and new technologies for all modes of transport in the EU. The total budget of the annual and multi-annual calls in 2014 will be €310 million, of which most will be going to the core network corridors.

In fact, based on the preparation described above, the industry is ready for an effective and efficient introduction of innovation and new technologies along the core network corridors, both (a) in form of works for roll-outs of already trialed technologies with integrated market processes (studies with pilot deployment), and (b) in the form of new studies with pilot deployment for new ideas. The following map shows how the already funded innovation projects relate to the now defined corridors with the objective to optimise their impact.

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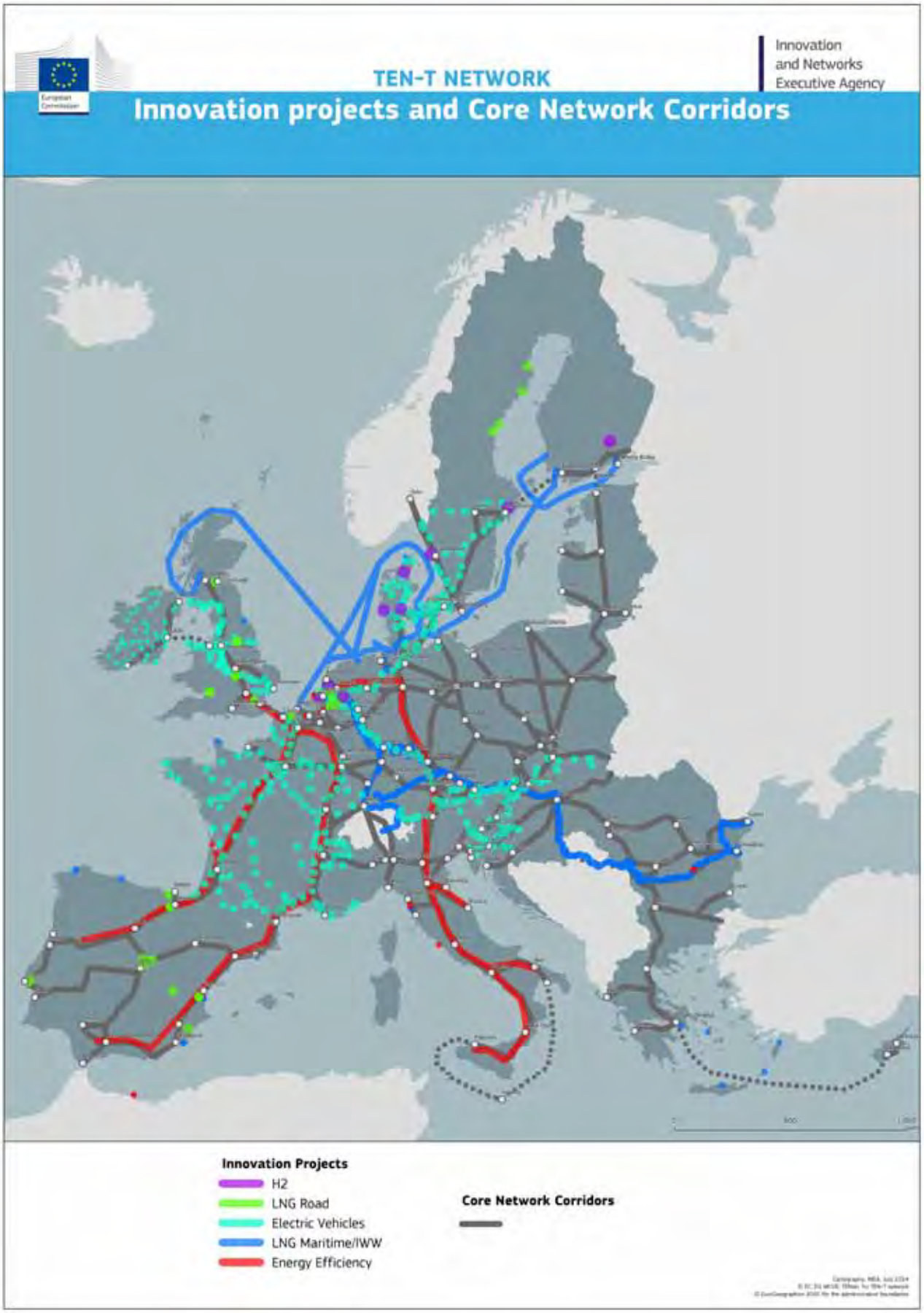
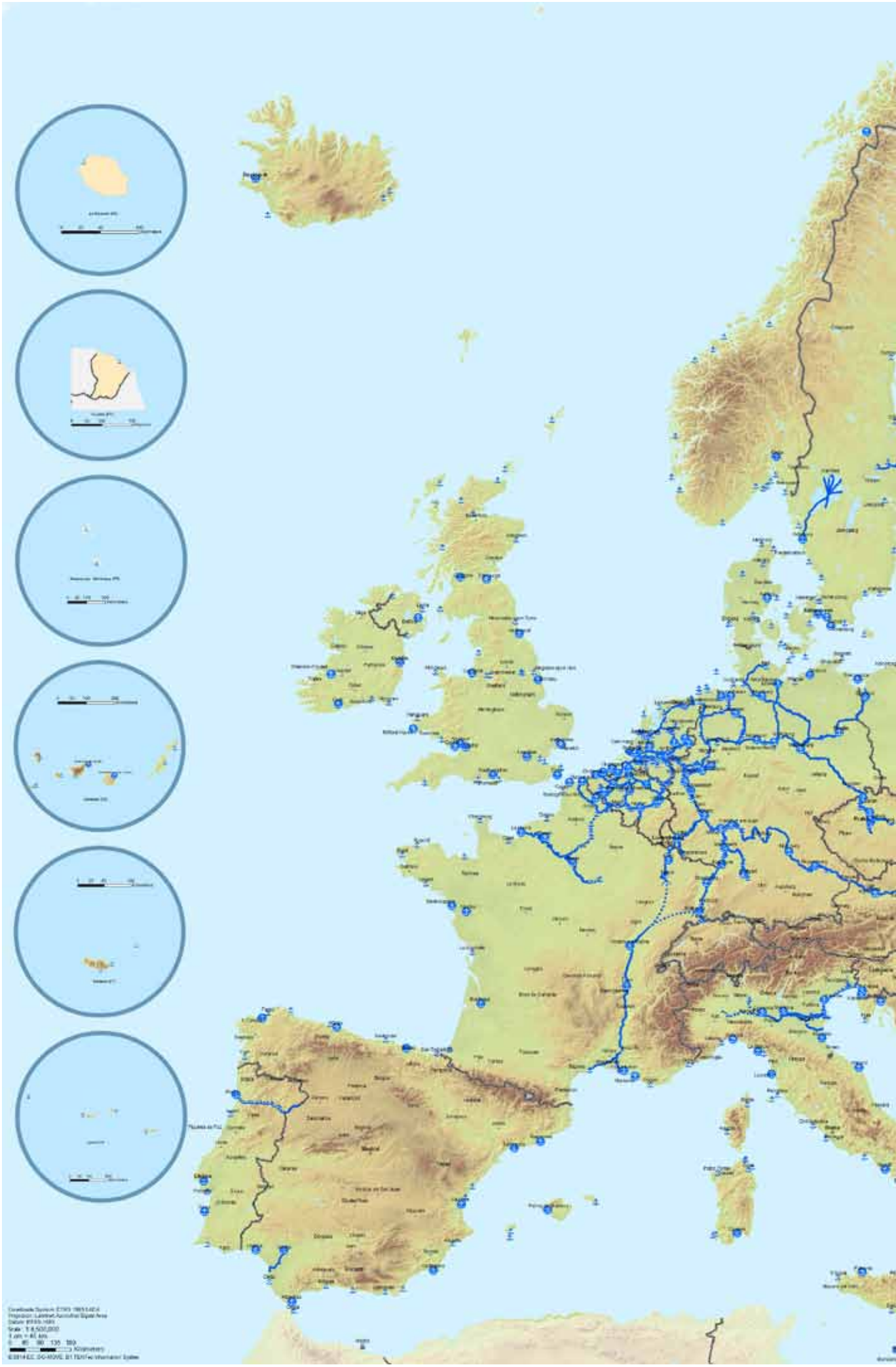
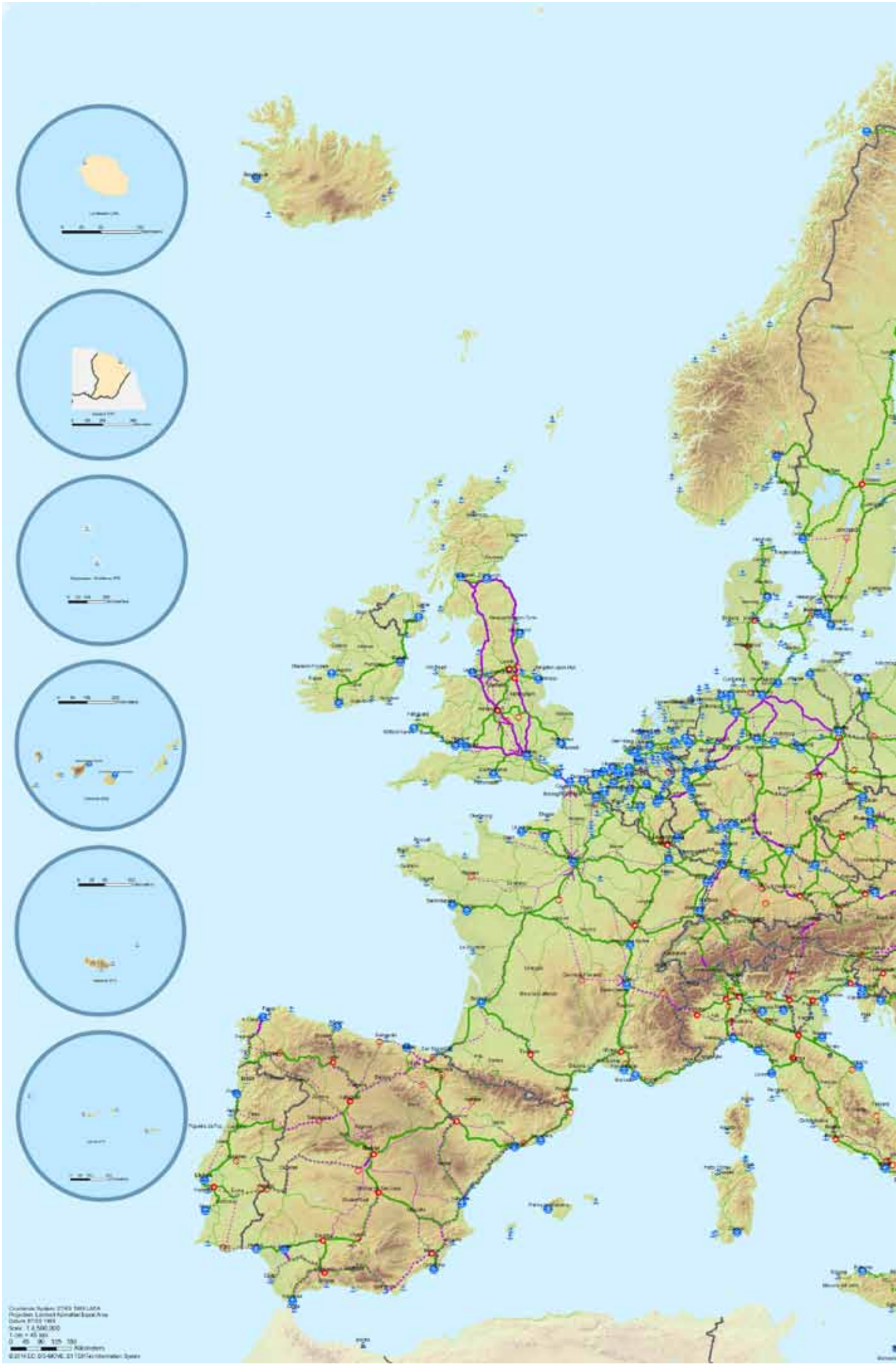
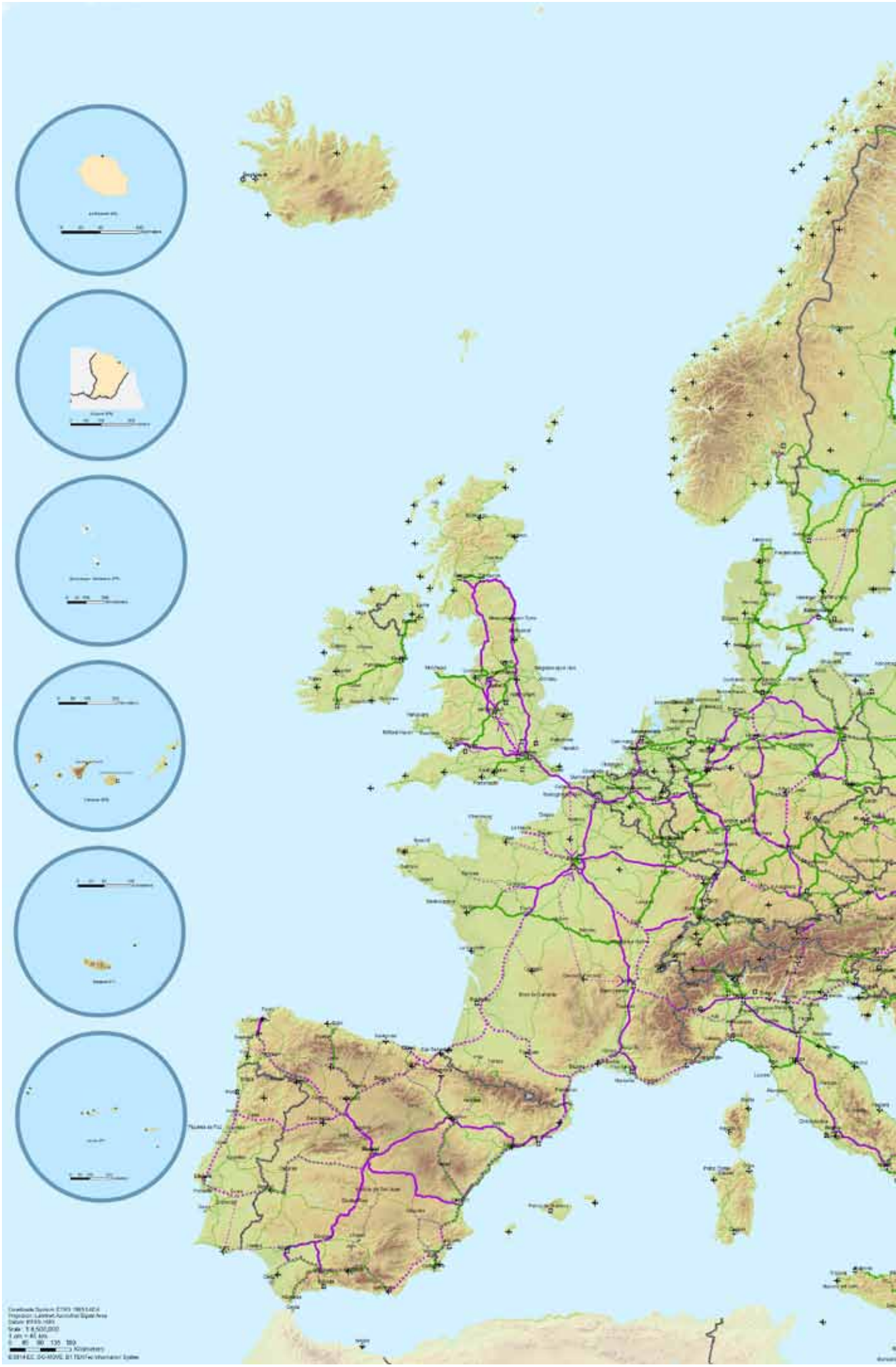

TEN-T NETWORK
Innovation projects and Core Network Corridors
Innovation and Networks Executive Agency
Innovation Projects
H2
LNG Road
Electric Vehicles
LNG Maritime/IWW
Energy Efficiency
Core Network Corridors




European Commission
TRANS - EUROPEAN TRANSPORT NETWORK
Comprehensive and Core Networks:
Inland waterways and ports
Core
Compr. + Core
Regulation (EU) No 1315/2013 O.J. L348 - 20/12/2013
TENtec




European Commission
TRANS - EUROPEAN TRANSPORT NETWORK
Comprehensive Network: Railways, ports and rail-road terminals (RRT)
Core Network: Railways (freight), ports and rail-road terminals (RRT)
Compr.
Core
Regulation (EU) No 1315/2013 O.J. L348 - 20/12/2013
TENtec




European Commission
TRANS - EUROPEAN TRANSPORT NETWORK
Comprehensive Network: Railways and airports
Core Network: Railways (passengers) and airports
Compr.
Core
Regulation (EU) No 1315/2013 O.J. L348 - 20/12/2013
TENtec


European Commission
TRANS - EUROPEAN TRANSPORT NETWORK
Comprehensive and Core Networks:
Roads, ports, rail-road terminals (RRT) and airports
Compr.
Core
Regulation (EU) No 1315/2013 O.J. L348 - 20/12/2013
TENtec

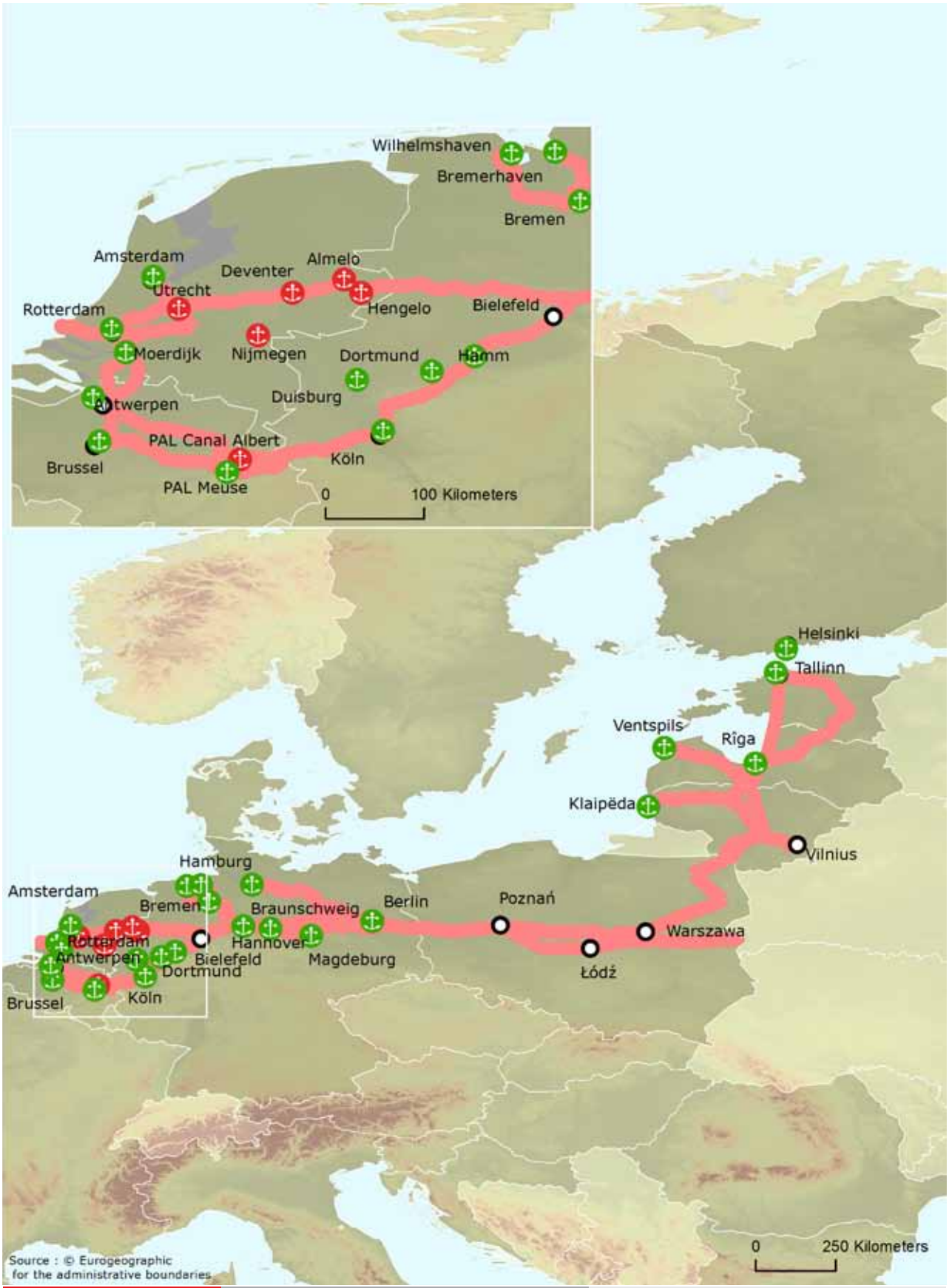
TENtec Reporting: Please note that the individual visualized corridor maps in Annex 2 show the current state of data encoding in TENtec by the contractors of each corridor study. Moreover, they do not highlight sections and nodes that are in the planning phase.

BALTIC-ADRIATIC CORRIDOR

TRANSPORT MODE: Railways
PARAMETER: Maximum Train Length (m)
YEAR: 2014

≥ 740 m:
< 740 m:

TENtec

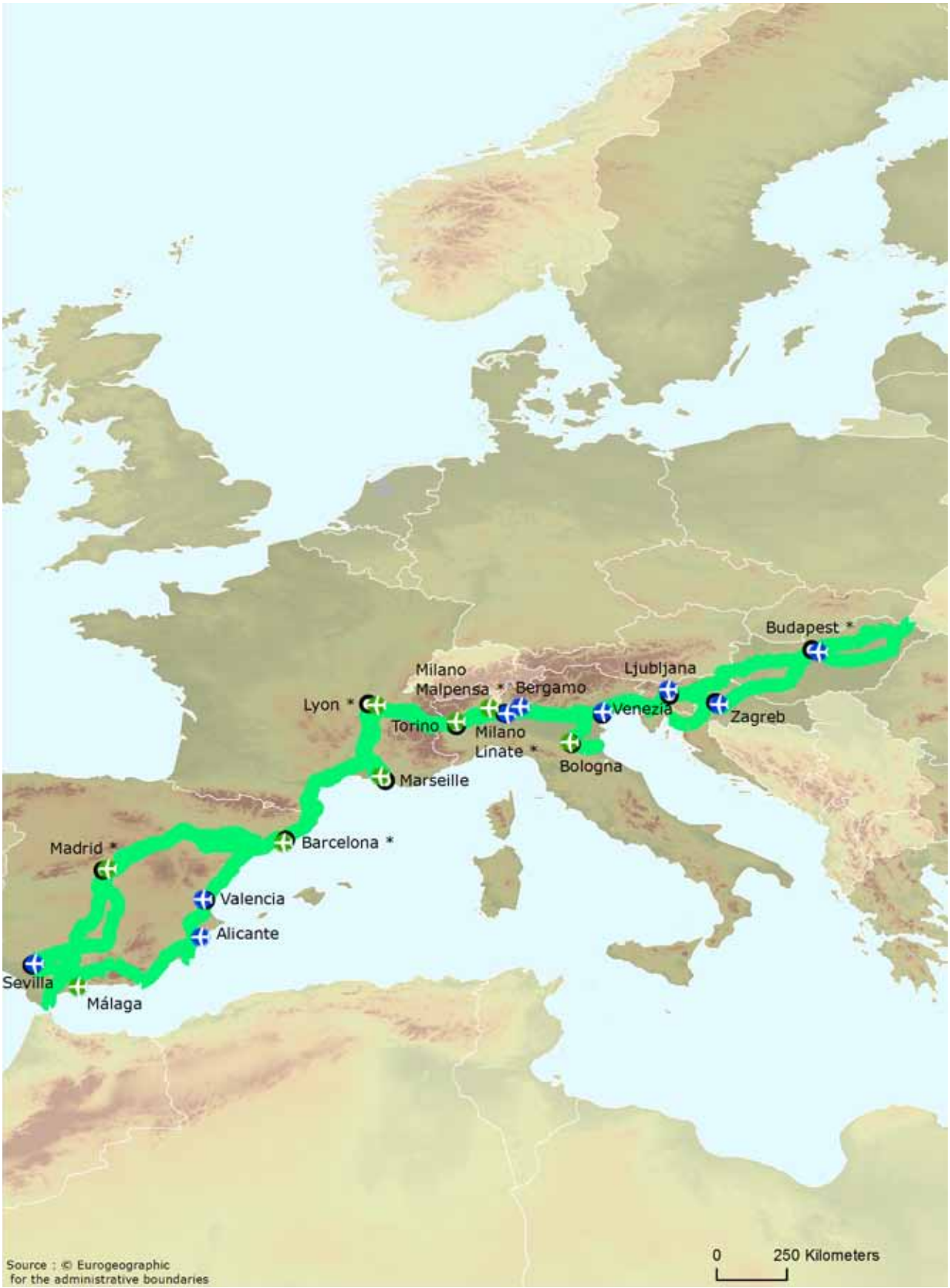


NORTH SEA-BALTIC CORRIDOR

TRANSPORT MODE: Ports
PARAMETER: Connection with Rail
YEAR: 2014

YES:
NO:

TENtec



MEDITERRANEAN CORRIDOR

TRANSPORT MODE: Airports
PARAMETER: Connection with Rail
YEAR: 2013

YES: ⊕
NO: ⊕
***** Obligation to connect to rail by 2050

ORIENT/EAST-MED CORRIDOR

TRANSPORT MODE: Railways
PARAMETER: Traction
YEAR: 2013

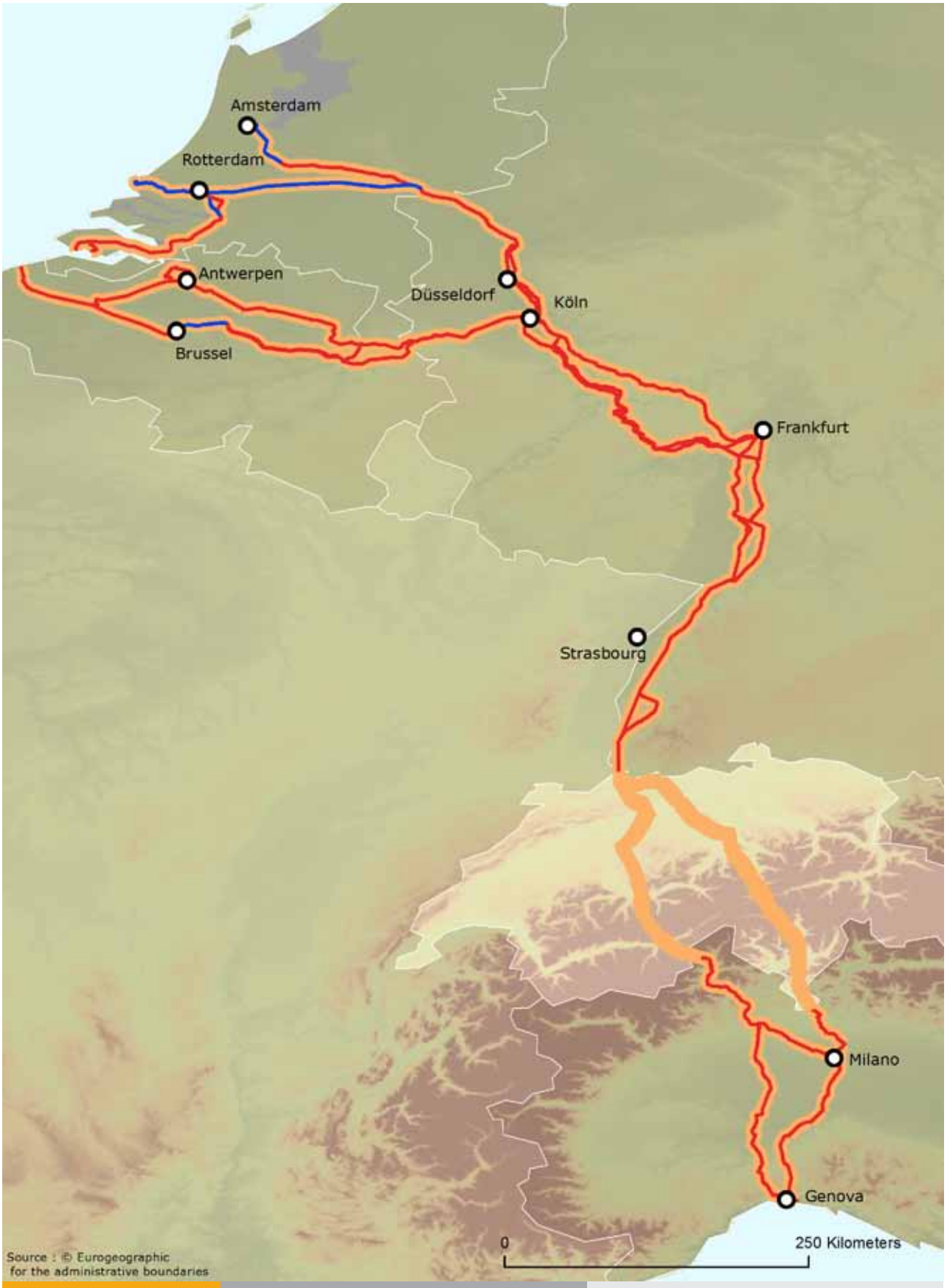
Diesel:
Electrified:
N/A:

TENtec

SCANDINAVIAN MEDITERRANEAN CORRIDOR

TRANSPORT MODE: Ports
PARAMETER: Road Connection (no. of lanes)
YEAR: 2013

0-2:
3-4:
5-6:
7-30:



RHINE-ALPINE CORRIDOR

TRANSPORT MODE: Railways
PARAMETER: ERTMS on Operation
YEAR: 2014

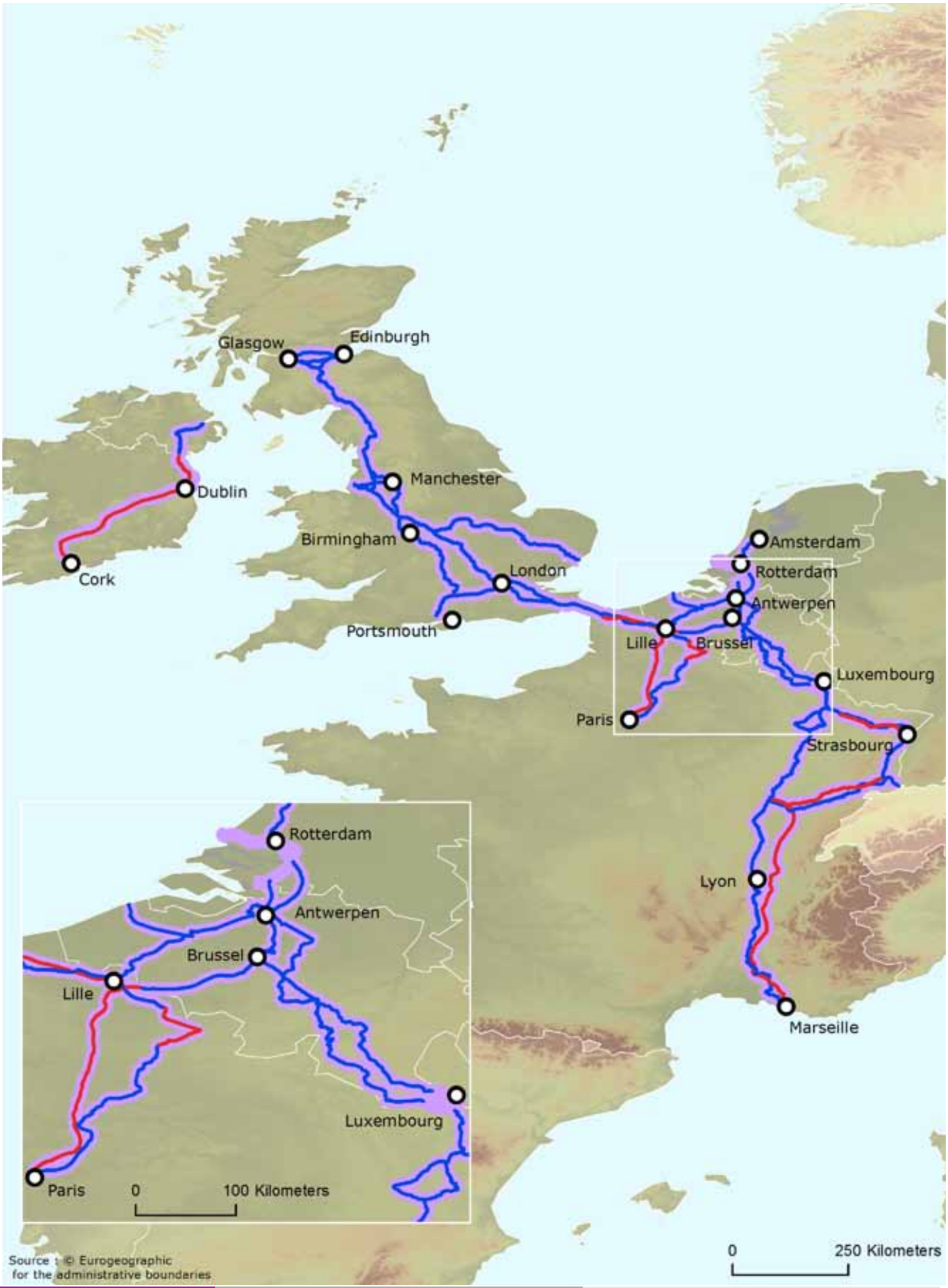
Operation NO:
Operation YES:

TENtec

ATLANTIC CORRIDOR

TRANSPORT MODE: Ports
PARAMETER: Connection with Rail
YEAR: 2013

YES:
NO:



NORTH SEA MEDITERRANEAN CORRIDOR

TRANSPORT MODE: Railways
PARAMETER: Max Axle load (tons)
YEAR: 2014

≥ 22.50 tons:
< 22.50 tons:

TENtec

RHINE-DANUBE CORRIDOR

TRANSPORT MODE: Inland Waterways
PARAMETER: CEMT Class
YEAR: 2014

IV: **Vla; Vlb; Vlc:**
Vb: **VII:**

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