European Commission

Atlantic

Work Plan of the European Coordinator

Carlo Secchi

Transport

MAY 2015

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

1. Towards the Atlantic corridor work plan

The Atlantic corridor[1] connects

- the Iberian Peninsula,

- the Atlantic façade of the continent, and

- the centre of the EU through western France to Paris and Normandy and further east to Strasbourg/Mannheim.

A large part of the corridor's EU added value stems from the access it ensures to the Core Ports of the Atlantic façade from Gibraltar Strait to the Seine river (namely, Algeciras, Sines, Lisbon, Leixões (Porto), Bilbao, Bordeaux, Le Havre, Rouen), and the inland ports of Paris, Mannheim and Strasbourg.

The maritime connectivity along the Atlantic Coastline of Europe is a key component of the corridor.

The corridor provides both inland and maritime connections between the Iberian Peninsula with France and Germany and more broadly with central Europe. Motorways of the Sea among the corridor's ports (and feeder ports) linking Spain and Portugal to France and beyond (towards Belgium, the Netherlands, United Kingdom, Ireland up to the Baltic Sea) are already developed, but their potential is still largely untapped.

The inland backbone of the corridor delivering transport efficiency and sustainability is constituted by the Atlantic Rail Freight Corridor (former Rail Freight Corridor n. 4, enlarged to Germany), still endowed with large capacity on various sections.

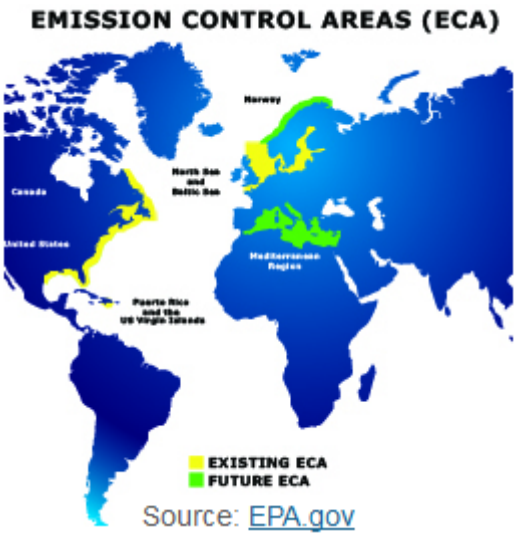
[1] as identified in the Regulations (EU) 1315/2013 on TEN-T guidelines and 1316/2013 establishing the Connecting Europe Facility.

It is worth recalling that a key factor for the Atlantic corridor to succeed is to ensure efficient crossing for both freight and passengers of two core urban nodes of high complexity it passes through, i.e.: Paris and Madrid.

The corridor has an outstanding external dimension of its maritime connectivity in the world-wide scenario, being linked to the main intercontinental routes with Africa, America and the far East through Gibraltar (Far East – Suez – Gibraltar – Atlantic / (Far East -) Panama – Europe / America (N/S) - Europe / North/West Africa – Europe). These flows are connected directly to its 7 core ports and through the Atlantic coastline as a whole.

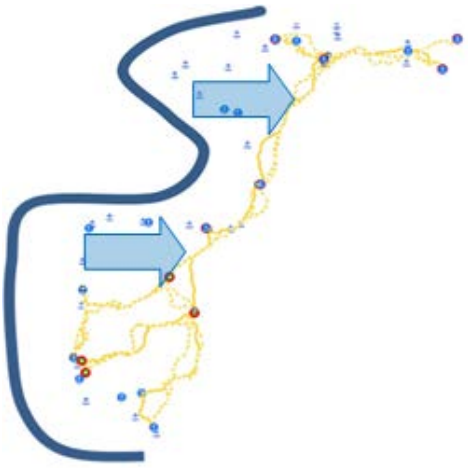
Two key elements should be considered for the future development of the Atlantic corridor:

1) The Atlantic coastline is directly connected to the two Emission Control Area (ECA) set by the MARPOL convention: the North Sea-Baltic and North America's East coast, both in vigour in 2015.



According to the convention, a strong limitation on sulphur content in fuels must be respected in maritime fuels. This factor, as well as long-term security of supply will lead to a massive Liquefied Natural Gas (LNG) deployment in these areas. Therefore, a contingency plan for LNG deployment ought to be prepared for the Atlantic Corridor, based on the pilot cases already present

2) The maritime dimension of the Atlantic corridor will be affected by the widening of the Panama Canal, providing an alternative route to the pacific coast of the American continent and the Far East and therefore to new shipping services. The growth of the polar route between the Far East and the North Sea shall also be considered, as well as the increase on the average size of ships and the growth of containerization will continue to have an impact on ports, requesting an increase in capacity and adequate multimodal connections with inland terminals. These set of factors call for enhanced capacity on Ports (to be developed following a sustainable financial plan, via access to credit), but also ensuring adequate inland connections for long-range transport, to the rail freight corridor, and to inland waterways, where available.



Beyond exploiting the two parallel mono-modal routes (Motorways of the Sea and Rail Freight Corridor), the Atlantic corridor, in line with TEN-T objectives, aims at better connecting transport modes, and therefore to link these two

components, through an enhanced modal integration.

Accordingly, the Atlantic coastline and all its Core and Comprehensive ports and logistic platforms ought to be seen as feeding / served by the corridor.

With regard to passenger routes, flows between neighbouring countries along the corridor are dominated by roads (due also to the lack of a direct fast connection Madrid-Lisbon and interoperability mismatches), while between other countries of the corridor (DE-ES/PT, PT-FR/DE), air transport is largely prevailing.

The Atlantic corridor goals

TEN-T, as a component of the Common Transport Policy, has to deliver in terms of Energy/Climate package (reduction of GHG emissions, increased energy efficiency and decreased dependency), and in contributing to the Internal Market, delivering efficiency as a component of the Single Transport Area. Besides, core network corridors (CNC) enhance territorial cohesion (specific TEN-T objective) with a Europe-making effect which is one of their intrinsic objectives.

The strategic goals for the Atlantic corridor, considering its specificity, can be summed up as:

- Enhancing multimodality and rebalancing the modal shift – therefore connecting different modes in order to shift traffic from (air) and road transport to rail and maritime for internal and external flows.

- Deploying interoperability (in the wide sense, connecting different national networks (missing links, etc.) and providing rail interoperability, notably on rail gauge and ERTMS and compatibility of e-tolling systems;

- Exploiting the external dimension, notably boosting the maritime potential, as highly efficient transport mode – also through innovation, simplification and cleaner fuels.

Activities to launch the Atlantic Corridor

Contracting technical support

The European Coordinator and the Member States in the corridor forum have been supported by a consortium of consultancy companies contracted by the European Commission, whose members are TIS.pt SA (Portugal), as lead partner, INECO S.A. (Spain), EGIS (France) Panteia B.V. (The Netherlands), as subcontractor for the transport model.

Identification of stakeholders

Corridor stakeholders fall into four main categories:

- Member States (MS) – Transport Ministries

- Infrastructure Managers (IM) – for each mode of transport

- Corridor Regions (CR) – equivalent to either NUTS1 or NUTS2 regions.

- Rail Freight Corridor n4 (to be Atlantic Rail Freight Corridor).

Revision of studies

Previous studies relevant to the corridor have been reviewed (to be found in the Consultant report's annexes), to take stock of the existing know-how.

The following studies stand out as reference, notably with regard to demand analysis:

- The reports issued by cross border transport Observatories France – Spain and Spain-Portugal, providing freight and passenger flows on annual basis per mode and with O/D.
- Rail Freight Corridor 4 reports, in particular the "Transport Market Study, 2013" and "Implementation Plan, 2015"

Multimodal transport market study

A transport market study has been carried out considering rail, road, and inland waterway transport, plus external maritime flows, based on macro-economic assumptions – the study, and a short appraisal of its result and limitations are presented in Section 3.

Corridor fora and working groups

Four corridor Fora have been successfully held. As foreseen the participants in the corridor forum have been progressively enlarged:

- The first forum held in Brussels on the 3rd April 2014, was attended by Member States representatives and focused on the planning of activities and identification of stakeholders.

- In the second forum, that took place on June 19th, in addition to MS representatives the infrastructure managers from rail, ports (both maritime and inland) and inland waterways, as well as the Rail Freight Corridor, took part to it, discussing in details the infrastructure belonging to the corridor and the outlook by the consultants.

- In the third forum, on October 1st, road and airport infrastructure managers and regional authorities have been involved. An ad hoc working group on ports and inland waterways met on previous day and counted on the valuable contribution by the Motorways of the Sea coordinator, Mr Brian Simpson.

- The fourth forum, held on November 19th with the same stakeholders, supported by a working group of regions; the horizontal themes of Innovation, ERTMS, and ITS have been debated, together with the UIC gauge deployment in the Iberian Peninsula.

In order to ensure a harmonised launch of the corridor, several coordination meetings have taken place, as well as international events, bilateral with Member States (with missions to Paris, Madrid and Lisbon) and joint meeting with key stakeholders.

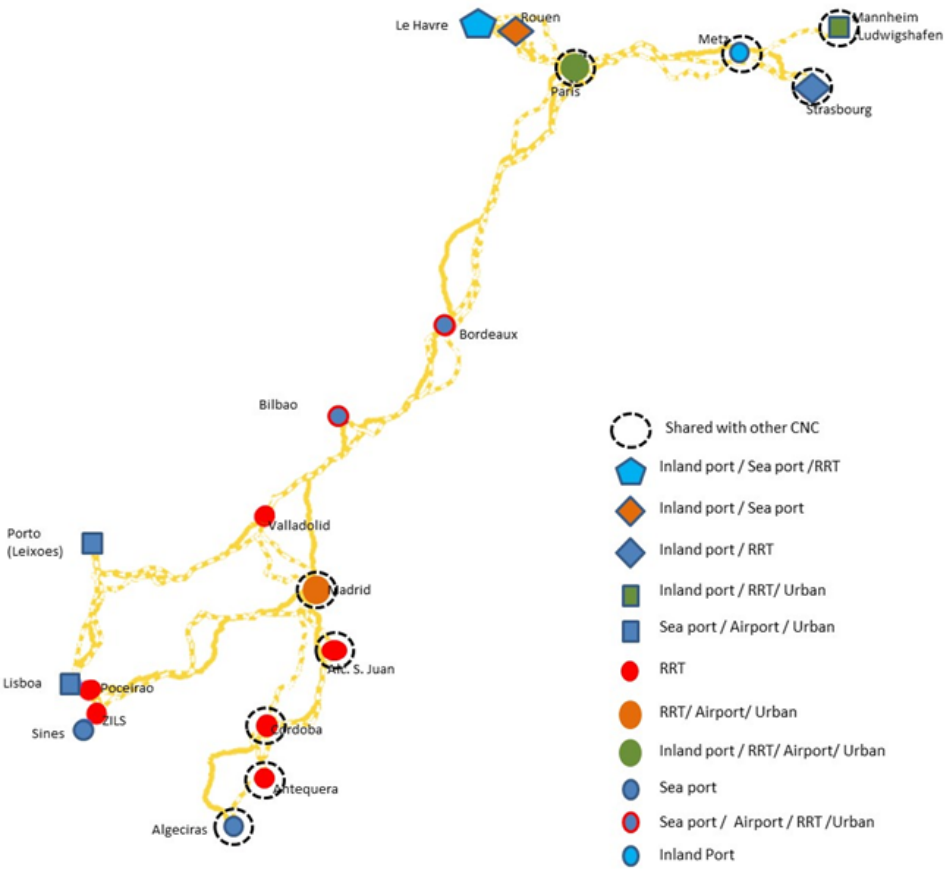
Following a joint coordinators event, the mid-September informal Transport Council in Milan had a session on core network corridors, and on the specific topic of financing and speeding up large transport projects, on the basis of presentations by the Coordinator, Prof. Bodewig, and former Vice-President Christophersen.

2. Characteristics of the Atlantic corridor

Corridor alignment

The corridor alignment is defined by Regulation 1316/2013 in its annex as follows:

- Algeciras – Bobadilla – Madrid
- Sines / Lisboa – Madrid – Valladolid
- Lisbon – Aveiro – Leixões/Porto
- Aveiro – Valladolid – Vitoria – Bergara – Bilbao/Bordeaux – Paris – Le Havre/Metz – Mannheim / Strasbourg



The Atlantic Corridor and its nodes

The Paris – Rouen - Le Havre branch is three-modal, involving Rail, road, and the Seine – IWW; the connection links the North Sea to the Corridor

The Atlantic Corridor has 4 cross border section:

- DE-FR: Metz – Mannheim (Forbach-Saarbrucken)
- ES-FR: Vitoria-Dax (San Sebastian – Bayonne)
- PT-ES: Évora-Mérida
- PT-ES: Aveiro-Salamanca

The corridor does not have a road component in Germany.

Inland waterways component

The Seine River, comprising the whole sections Le Havre – Paris, is the only inland waterway integrating the Atlantic Corridor.

North of Paris, the Corridor is linked with the planned Canal Seine-Scheldt, included in the North Sea – Mediterranean Corridor.

This section includes three core network ports; Le Havre, Rouen (which are both Sea and IWW ports) and Paris.

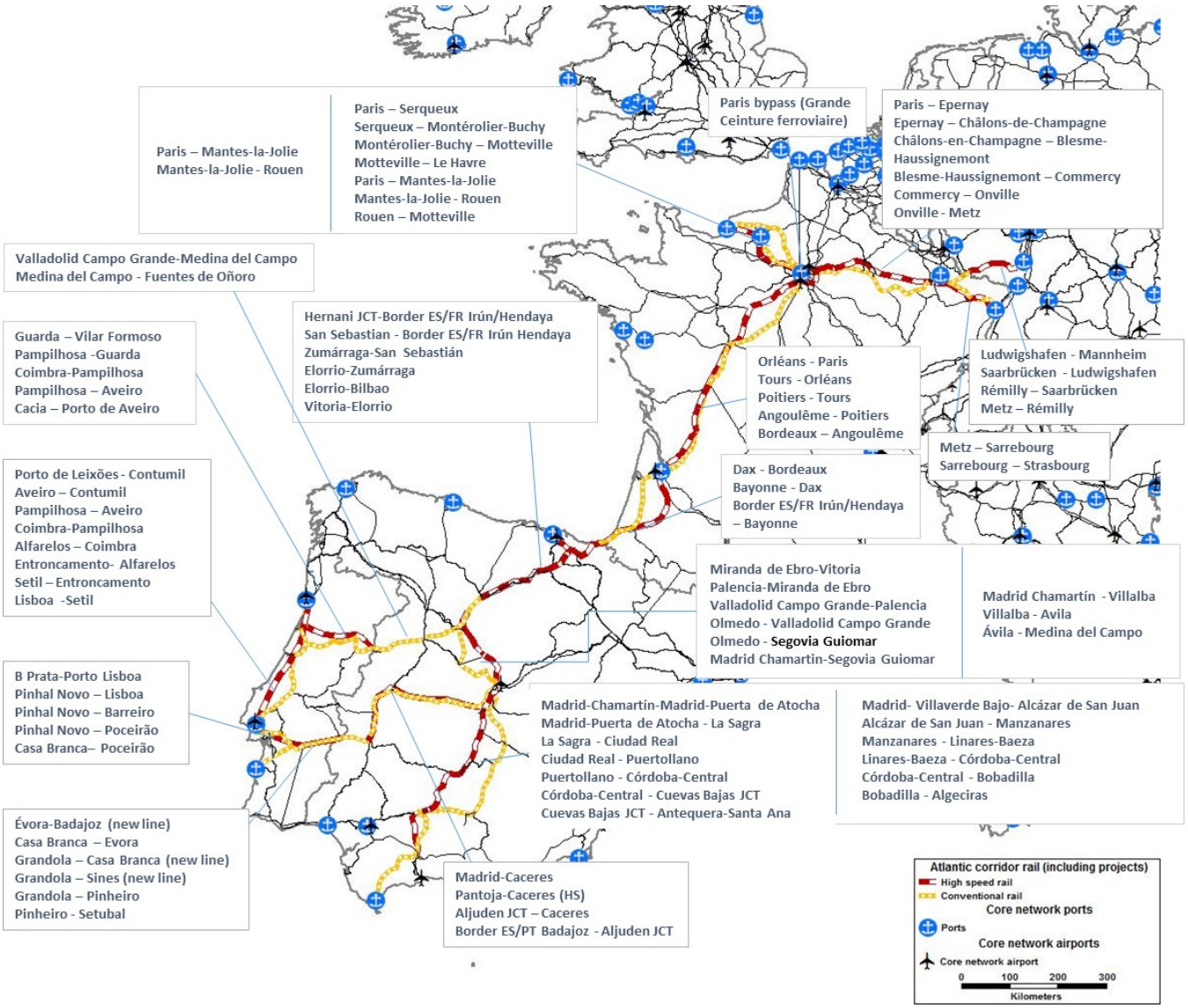
Atlantic corridor core ports and flows[2]

Core Ports	Bulks	RoRo	Other General Cargo	Total	Container Units	Passengers
		000T	000T	000T	TEU	
Algeciras	25779	5739	54339	85857	4349755	5173919
Bilbao	20183	887	8531	29601	606827	141979
Bordeaux	7429	0	763	8192	63285	56945
Le Havre[1]	40868	1457	24848	67172	2485660	756709
Rouen	19184	78	1898	21160	127528	38647
Leixões	9920	75	7184	17179	625480	46620
Lisbon	6459	20	5513	11991	547047	559434
Sines	24321	0	12192	36514	931036	
Total	**154142**	**8256.0**	**115265**	**277665.0**	**9 736 617**	**6 774 253**

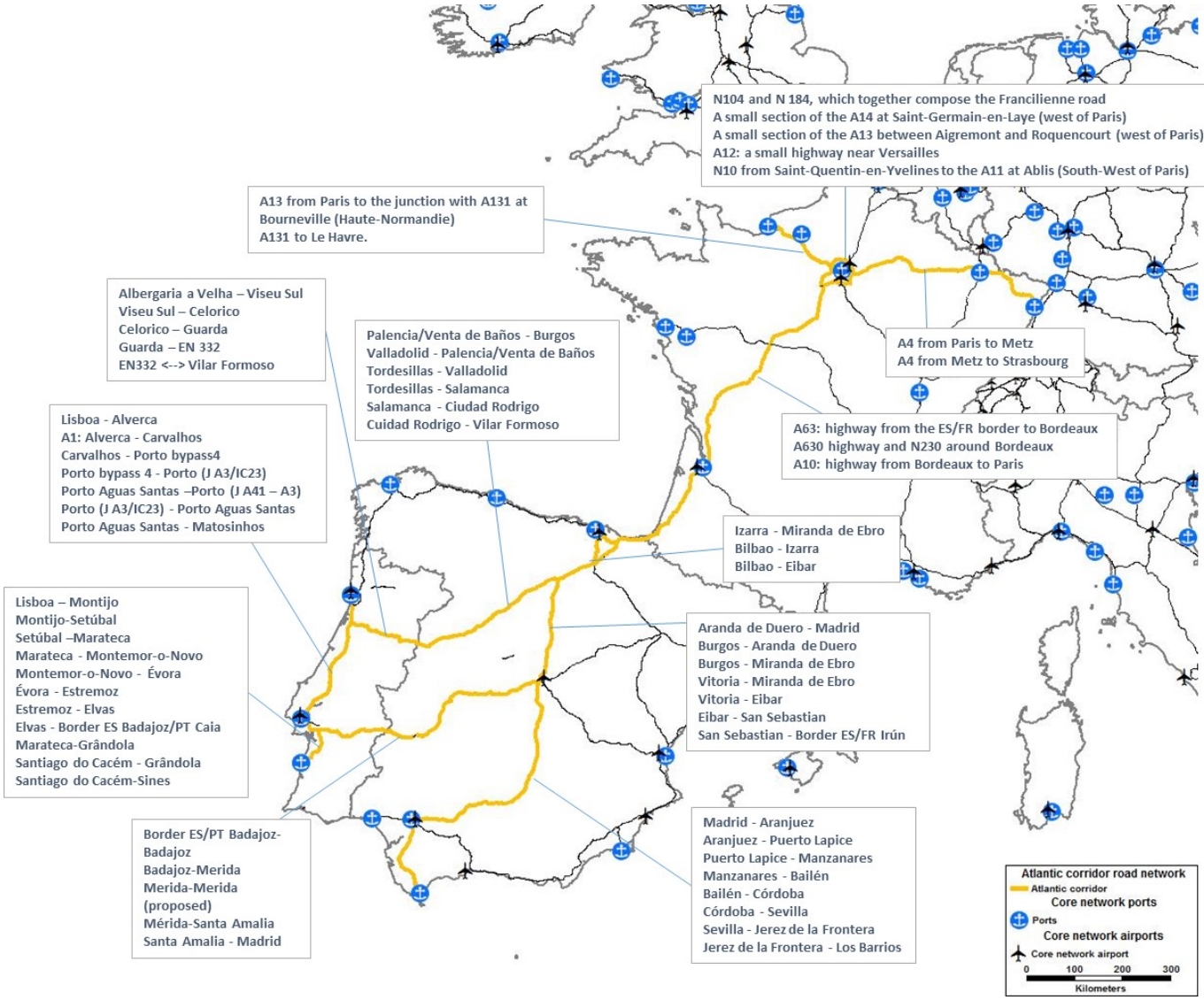
[2] Sources: EC based on data by TIS et al. (2014) Study on the Atlantic corridor

The rail and road components of the corridor, together with the core ports and airports, are listed indicatively in the following schemes:

Atlantic corridor rail sections with TEN-T Core Ports



Atlantic corridor road sections with TEN-T Core Ports



With regard to passenger transport, the role of Airports and High-Speed is outstanding, therefore their connectivity to other modes will prove crucial for the efficiency of transport and the attractiveness of Regions. The following components play a key role for passengers:

1) The Spanish and French High-speed network also belong to the corridor main lines, and notably Madrid-Cordoba, Madrid-Valladolid-Venta de Baños, the Y Basque (under construction), GPSO (planned), Tours-Bordeaux (under construction), Tours-Paris-LGV Est.

2) Seven core airports are located along the corridor, ensuring international and intra-European connectivity. Four are considered main airport, notably Madrid, Paris–Orly, Paris Charles de Gaulle (Second EU Airport) and Lisbon, subject to the provisions of Art 41(3) of Reg. 1315/2013. Bordeaux, Porto and Bilbao are other core airports on the corridor. Besides, it is worth recalling that for Spain and Portugal, the vast majority of journey takes part via airplane.

Core network branches connected to the corridor

In addition to the mere Atlantic corridor components, as highlighted in Section 1, many branches of the core network provide the connectivity between the corridor and the Atlantic coastline / inner Portugal / the Atlantic Ocean and the world-wide routes. There components are listed below:

- The Douro river: Douro river is a branch of the core network (Inland waterway CEMT Cat. IV or above) touching ES and flowing East-West passing by the core node of Porto, linked to Leixões core port through a small stretch of coastline (navigability by barges is already possible, further improvements are planned). Beside an important role for tourism, freight flows are likely to have a steep increase due to a large iron mine currently develop in the river's hinterland. A specific set of projects to upgrade some locks, enhance navigability, and solve a local bottleneck are at design phase. This flow would benefit notably of the maritime connection of the corridor from Leixões.
- Seine-Sud: the Seine branch South of Paris upstream to Nogent belongs to the Core Network (CEMT Class IV) and links several Inland waterways ports serving notably the Ile de France. This section, enlarging the Seine South of Paris, has to be seen in the wide picture including the Seine-Scheldt canal (belonging to the North Sea-Mediterranean corridor) and therefore an enhanced role for Inland Waterways in the region.
- Nantes – St Nazare: these two important platforms belonging to a single entity (Gran Port Maritime de Nantes-St. Nazare),included in the Core Network for their high output (above 30 M Tons), are already connected to the corridor with double track railways and highways reaching Tours, and de facto are already feeding it. It is important to ensure their adequate connectivity via ad hoc services, potentially offered by the Rail Freight Corridor, as well as with synergies with logistic terminals along the corridor. It should be highlighted that Nantes has an important role to play as a terminal for Motorways of the Sea services, and in general to attract/generate flows along the maritime component of the corridor.
- North-West Spain (Gijon/A Coruña): Galicia and Asturias coastline hosts two core ports (Gijon and A Coruña), linked to the corridor through two branches of the core network by rail and road, together with various comprehensive network ports some of which linked to the same inland connection; one of these ports (Vigo) is now branched to the corridor through a Motorway of the Sea, confirming the key role of the maritime connectivity along the Atlantic corridor.
- Canary Islands: Canary island archipelago has a double core node (S. Cruz de Tenerife and Las Palmas in Gran Canaria) with two core ports totalling more than 30 M tons transhipped. Beside a large capacity in terms of depth and terminals, two distinctive elements characterize these ports' potential added value to the corridor: 1) their location off the Northern Atlantic coast of Africa, at the Panama Canal latitude, therefore nearby the main flows between the Americas / Far East through Panama, West Africa and Europe; 2) the availability, in the short range, of LNG facilities, in synergy with North America ECA areas. To exploit this potential, however, further Atlantic connections and a synergic cooperation between the two ports, to be seen as a logistic and administrative transit point to/from the EU, have to be developed.

Compliance with the technical infrastructure parameters of the TEN-T guidelines

The assessment of compliance below presented refers to the status of infrastructure as of January 2014. Therefore, core network sections which were not yet operational have not been considered for compliance analysis.

Road network

Almost 100% of the road sections are motorways or express roads (99.9%), the most relevant exception being the cross-border stretch ES-PT through Vilar Formoso expected to be upgraded in short term.

For the remaining parameters, the key topics are

- Interoperability of Electronic Tolling Systems (EETS) – currently partially operational between Portugal and Spain (EU projects, e.g.: EASYWAY are on-going to ensure a wide-range deployment).
- Availability of Clean fuels in line with the Clean Power for Transport (Natural Gas and Electric power), generally lacking at corridor level.

The following table highlights standard compliancy on Road:

		Proportion (km %) of links reaching standard				
		DE	FR	ES	PT	Corridor
Length of all sections	km	No section belonging to CNC	1691	2043	801	4535
Express Road or Motorway	Express or Motorway		100%	99,8%	99,7%	99,8%
Sufficient Parking Areas	≥1 area / 100 km		100%	~ 61%	~ 100%	~ 87%
Availability of clean fuels	LPG		100%	100%	100%	100%
	Electric		0%	10%	44%	12%
	Hydrogen		0%	0%	0%	0%
Use of tolling system or other traffic management	Toll road km		78%	20%	88%	53%
Sections	Nr of sections		68	38	33	139

Rail network

Rail parameters establish several infrastructure-related parameters: gauge, electrification, train length, axle load and line speed as well as ERTMS in operation. Mixed lines have been considered for compliance with the whole set of freight-related parameters.

Although gradient is not included in the requirements for rail, it constitutes a limiting factor in the corridor with some sections in Portugal and Spain with 20-21‰ max gradient (i.e. Pampihosa-Guarda and Bobadilla-Algeciras). Several sections of the

corridor are single-track, potentially limiting the available capacity. These represent a quarter of the freight lines in the corridor (50% in Spain and 30% in Portugal).

		Proportion (km %) of links reaching standards				
		DE	**FR**	**ES**	**PT**	**Corridor**
Length of all sections	**Km**	149	3017	2551	804	6520
Length of freight lines[3]	Km	149	1661	1917	804	4532
Length of passenger-only lines	Km	0	1355	633	0	1989
Electrification Requirement	Electrified	100 %	98%	68%	100 %	87%
Track gauge	1435 mm	100 %	100 %	25%	0%	58%
Line speed (core freight lines)	>= 100 km/h	100 %	93%	99%	96%	96%
Axle Load (core freight lines)	22.5 t	100 %	100 %	100 %	100 %	100%
Train length (core freight lines)	min. 740 m	100 %	100 %	0%	71%	57%
ERTMS/signalling system	**Operational**	**0%**	**6%**	**11%**	**0%**	**7%**

Electrification requirement

About 87% of the corridor rail network accomplishes with the electrification criterion. Non-electrified sections correspond to:

In France

- the section Gisors - Serqueux, is not electrified and is therefore a major bottleneck for rail access to the ports of Le Havre and Rouen

In Spain,

- the conventional railway Medina del Campo – Fuentes de Oñoro (cross-border Spain/Portugal) currently being upgraded;
- the conventional railway non-electrified section Bobadilla-Algeciras;
- the conventional railway line Madrid-Badajoz (cross border Spain/Portugal).

Notwithstanding, along the corridor different types of voltage coexist, requiring rolling stock with dual voltage, triple voltage or thermal[4]:

[3] Under freight lines it is considered both only freight and lines combining passenger and freight

- 25 kV AC in Portuguese network and HS lines of Spain and northern France5;
- 3 kV DC in conventional lines in Spain;
- 1,5 kV DC in conventional lines in the South of France10; and,
- 15 kV in Germany.

Track gauge

Only 58% of the Atlantic Corridor rail network is in UIC gauge.

In France and Germany, 100% of the network is in UIC track gauge. In Spain, standard UIC gauge is only present in HS lines. The future Pantoja-Extremadura HS line and the Y Basque are currently being developed in UIC track gauge, while in Portugal, the whole network is in Iberian gauge.

The existing different track gauges creates a major bottleneck in the Spanish-French border of Irún – Hendaye requiring either axle change or train-to-train transhipment. The crossing of the railway complex Hendaye/Irun is ensured along 2 km of parallel tracks in UIC gauge electrified with 1,5 kV and in Iberian gauge electrified at 3kV.

Besides the physical bottleneck, in terms of operation, the duration of freight transfer at the border of is associated with real-time availability of consignment notes and the capacity of transhipment sites, a capacity limited to the means of production available (including the length of tracks). Concerning non-physical bottlenecks, the lack of operations of some terminals during the weekend induces congestion in weekdays.

Line speed

Line speed above 100 km/h for freight lines is accomplished on 96% of the corridor. Existing sections that doesn't accomplish with the criteria are located at:

- Motteville – Montérolier-Buchy
- Some short links in the Paris node
- Bilbao - Puerto de Bilbao
- Contumil - Porto de Leixões
- Lisboa (Braço de Prata) - Porto de Lisboa

Axle load

All core sections in the corridor comply with this criterion, since the Gisors-Serqueux section, North of Paris, was recently renovated to allow 22.5t per axle.

Train length

Train length is a strong limitation for the freight operation in Spain. The maximum freight train length in Spanish Atlantic Corridor sections is 550 m (section Medina del Campo - Fuentes de Oñoro). Maximum train length is reduced to 400-420m in several stretches, such as Badajoz-Aljucén section (400m).

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[4] RFC 4

[5] In France, the existing line is electrified at 25 kV between Le Havre/Metz and Paris (614 km) and 1,5kV DC between Paris and Hendaye (804 km)

In Portugal, train length requirement is not fulfilled for the Beira Alta line in the sections Pampilhosa – Guarda – Vilar Formoso, Lisbon (Braço de Prata- Porto de Lisbon and Contumil - Porto de Leixões line.

All core sections in corridor for France and Germany accomplish with this criterion.

ERTMS

ERTMS implementation in the corridor is very low, with just 7% of the rail network fulfilling the criteria. ERTMS is in operation for Paris-Baudrecourt (LGV Est phase 1), Madrid – Valladolid and Córdoba-Antequera HS lines.

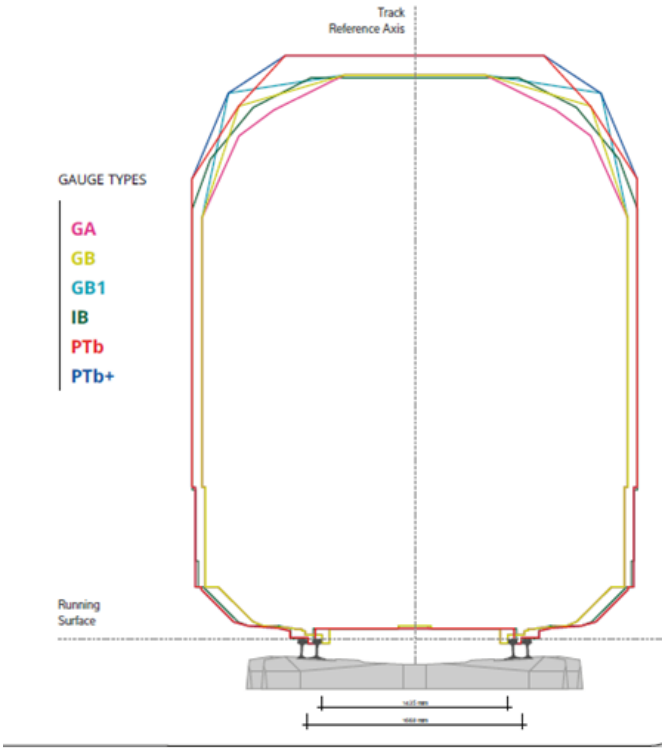
In Germany, the installation of ETCS Level 2 Baseline 3 between Saarbrucken border - km 5,483 (Strecke 3231) and Ludwigshafen/Knoten Mannheim is planned until 12/2018.

Loading gauge[6]

Loading gauges limit the size of wagons and containers that could be conveyed on the railway sections.

Along the corridor, different load gauges coexist, acting as a constraint towards harmonised rail network and impacting on rail freight performance:

- PTb+ in Portugal[7],
- Type A in Spanish freight lines,
- Three different load gauge types (A, B, B+) along the corridor freight lines in France
- A in the corridor German sections



Source: Rail Freight Corridor

[6] international loading gauges defined by UIC being A, B and B+, C.

[7] Comparison should be done against UIC standard, however as highlighted in the Technical Specifications for Interoperability, units designed to operate on the Portuguese network shall remain within the kinematic gauges PTb, PTb+, or PTc, as defined in annex I of EN 15273-2:2009

Sea ports and inland ports

- Rail connection from Algeciras is hindered by the high gradient (23 ‰) present in this section. This is further enhanced by the non-electrification of the single track line Algeciras-Bobadilla.
- Train length (400-500 m train) is the major current limitation in all the Spanish ports as well as in Leixões (also single track) and Lisbon.
- Rail access from port of Sines is still done through the comprehensive sections Sines - Ermidas – Grandola, in a single track line and 20 ‰ gradient, with the new rail line (Sines-Grandola) still to be constructed.
- Rail access to Le Havre and Rouen is hindered by heavy passenger train traffic on the Paris-Normandy line between Paris and Mantes-la-Jolie - Paris-Serqueux line is to become the main rail access to the ports of Normandy but it requires the Gisors-Serqueux link to be upgraded and electrified.
- All rail connections to Iberian ports in the Corridor are in Iberian gauge, and none of the corridor freight lines to ports is equipped with ERTMS.
- LNG deployment is taking place along the corridor, however, currently only pilot projects are running (i.e. Algeciras, Bordeaux, Bilbao).
- It is worth recalling that the missing link Évora / Caia (border) forces most of the freight trains from Sines- Lisbon - Setubal ports to a long detour to reach Spain and further north.
- Non-discriminatory access to terminals: Article 22.1.b) TEN-T Regulation highlights that ports should ensure that at least one terminal is open and there is no discriminatory access. All ports accomplish with this criteria.

Corridor airports

- Core airports are required to have connections to both TEN-T road and rail networks by 2050, with links to the high speed rail network where feasible.
- At present, among the larger airports – Paris CDG, Paris Orly and Madrid (Barajas), only the first is connected to high speed rail, together with a suburban train connection to Paris (RER B); Paris Orly is connected to Paris with suburban rail connection: the “Orlyval” links the airport to the RER B line and Madrid-Barajas airport is linked through commuter rail and metro connections.
- Lisbon and Porto have metro connections, while no rail connection exists for Bordeaux and Bilbao airports. Madrid and Lisbon airports are required to have a connection with core rail network by 2050, which is already planned through the foreseen upgrading of the current rail line to the airport in the case of Madrid.
- The compliance perspective on alternative fuel availability in the airports by 2030 is rather limited, although a feasibility study or specific information for the horizon 2030 is available.

Rail Road Terminals

Several of the core RRT in the Atlantic Corridor in the Iberian Peninsula are in planning stage and unclearness on its implementation still persists.

Country	Core RRT	Terminal	Type
DE	Ludwigshafen	Ludwigshafen Kaiserworthhafen	Trimodal
		Ludwigshafen KTL	Rail-road
	Mannheim	Mannheim Muhlauhafen	Trimodal
		Mannheim-Handelshafen	Rail –road
		Mannheim MCT	Trimodal
FR	Bordeaux	Hourcade	Rail –road
	Le Havre	Le Havre port terminals	Rail –road
		Le Havre Terminal Trimodal (under construction)	Trimodal
	Paris	Valenton	Rail-road
		Bonneuil-sur-Marne	Trimodal
		Noisy-le-Sec	Rail-road
		Gennevilliers	Trimodal
	Strasbourg	Strasbourg CT Nord	Trimodal
		Strasbourg CT Sud	Trimodal
ES	Bilbao	Terminals of Port of Bilbao	Trimodal
	Valladolid (planned)	-	Rail road
	Madrid	Puerto Seco de Coslada	Rail road
		Vicálvaro	Rail road
		Abroñigal	Rail road
		Aranjuez	Rail road
	Alcázar de San Juan (planned)	-	Rail road
	Córdoba (operational but to be improved)	Córdoba	Rail road
	Antequera (planned)	-	Rail road
PT	Poceirão (planned)	-	Rail road
	ZILS (Sines)	ZILS (Zona Industrial e Logistica)	Rail-Road

- The total RRT capacity in the 3 main RRT located in the Paris area (Valenton, Noisy-le-Sec and Bonneuil-sur-Marne) is estimated by the consultant at 880 000 TEU per year.
- The main constraint in Spanish RRT is related with rail infrastructure, namely the lack of rail infrastructure suitable for 740 m freight trains in the Corridor. For instance in Madrid, 750 m trains need to be divided as tracks in terminal have a maximum length of 433 m.

3. Results of the transport market study

The results of the market study presented in this chapter are commented in the Work Plan in order to illustrate the traffic flows, demands and future prospects. These results are available in an integral manner in the study that has been published end of 2014[8]

Transport demand will be used and further deepened in the works undertaken in 2015-2016, when analysing the list of projects and elaborating the next generation of the Work Plan.

The transport market study has been developed by consultants through 2014 on the basis of existing trade data and recent modal market analyses, developed by different stakeholders. The study has been carried out with a macroeconomic multimodal approach and it shall be considered the first step towards an accurate estimation of the impact on transport market generated by completion of core network and the Atlantic Corridor.

Two different *scenarios* have been conceived:

- The "*baseline scenario*", based on existing forecasts on macroeconomic indicators
- The "*policy scenario*" assuming the completion of the core network (and the Atlantic Corridor) together with the implementation of EU policy regulatory measures and standards.

Concretely the study estimates international traffic flows through a model origin and destination both at national and regional level. Macroeconomic data as well as more specific data such as cross border traffic flows, modal split, details of transported goods are analysed by the model. Trade flows generated from the model includes both intra-EU flows as well international traffic flows. More details are available on the study annexed.

Table 1 Model results (billion tonne-kms)

	National Level (modelled)								Corridor Links							
	Baseline				Policy scenario				Baseline				Policy scenario			
Road MTkm	2010	2030	2050	Avg YoY %	2010	2030	2050	Avg YoY %	Road MTkm	2010	2030	2050	Avg YoY %	2010	2030	2050	Avg YoY %
PT	16 759	23 481	27 930	1,3 %	16 759	23 166	27 574	1,3 %	PT	10 212	14 613	17 512	1,4 %	10 212	14 435	17 311	1,3 %
ES	153 487	217 436	249 470	1,2 %	153 487	214 711	246 487	1,2 %	ES	24 449	35 847	42 214	1,4 %	24 449	35 348	41 667	1,3 %
FR	237 272	324 229	385 818	1,2 %	237 272	314 247	374 166	1,1 %	FR	34 720	49 084	58 840	1,3 %	34 720	47 653	57 163	1,3 %
DE	307 094	401 847	456 333	1,0 %	307 094	391 186	443 709	0,9 %	DE								
	714 611	**966 994**	**1 119 551**	1,1 %	**714 611**	**943 309**	**1 091 936**	1,1 %		**69 382**	**99 544**	**118 566**	1,3 %	**69 382**	**97 436**	**116 141**	1,3 %
Rail MTkm	2010	2030	2050	Avg YoY %	2010	2030	2050	Avg YoY %	Rail MTkm	2010	2030	2050	Avg YoY %	2010	2030	2050	Avg YoY %
PT	1 893	2 746	3 023	1,2 %	1 893	3 447	3 801	1,8 %	PT	1 420	2 052	2 123	1,0 %	1 420	2 318	2 555	1,5 %
ES	8 380	11 688	13 130	1,1 %	8 380	14 988	16 708	1,7 %	ES	3 035	4 221	4 852	1,2 %	3 035	5 106	5 827	1,6 %
FR	36 404	53 367	61 495	1,3 %	36 404	63 336	73 116	1,8 %	FR	6 303	9 293	10 727	1,3 %	6 303	11 161	12 906	1,8 %
DE	124 612	187 610	205 810	1,3 %	124 612	205 867	226 755	1,5 %	DE	528	619	644	0,5 %	528	650	679	0,6 %
	171 289	**255 411**	**283 457**	1,3 %	**171 289**	**287 639**	**320 379**	1,6 %		**11 284**	**16 185**	**18 346**	1,2 %	**11 284**	**19 235**	**21 966**	1,7 %
IWT MTkm	2010	2030	2050	Avg YoY %	2010	2030	2050	Avg YoY %	IWT MTkm	2010	2030	2050	Avg YoY %	2010	2030	2050	Avg YoY %
PT									PT								
ES									ES								
FR	8 203	12 525	14 422	1,4 %	8 203	13 926	16 056	1,7 %	FR	2 436	4 248	4 877	1,8 %	2 436	4 475	5 146	1,9 %
DE	59 744	79 919	89 049	1,0 %	59 744	81 244	90 799	1,1 %	DE								
	67 947	**92 444**	**103 471**	1,1 %	**67 947**	**95 170**	**106 855**	1,1 %		**2 436**	**4 248**	**4 877**	1,8 %	**2 436**	**4 475**	**5 146**	1,9 %

Further elaboration of the model allowed detecting the impact of maritime transport on cross border flows, where it is competing with other transport modalities, but not at national level, where maritime transport is complementary to other transport mode. The results are listed in the following table:

[8] http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/corridor-studies_en.htm

	2010	2010 Share	2050 (Scenario)	2050 Share
Rail	19 805	4.9%	41 048	6.0%
Road	233 004	57.9%	400 895	59.0%
IWT	28 306	7.0%	43 273	6.4%
Sea	121 334	30.1%	194 286	28.6%
Total	402 450	100.0%	679 502	100.0%

Some *caveat* shall be taken in consideration when assessing the results of the model, in order to set the ambitions for the Corridor potential:

- The model does not consider transport-related policy measures which are likely to affect the transit of international traffic flows. This is the case for instance of trends in maritime transport, such as the completion of Panama Canal.
- Modal competition and changes in modal split which may be generated by the early completion of certain links or by the impact of certain technologies (i.e. further growth on ships dimension or trucks) or the impact of certain policy measures, such as the promotion of intermodal transport.
- The model does not allow to fully display in the traffic assignment certain flows such the maritime or and the air nor to identify which flows are contributing more to the growth.
- In any case, the outcome of the transport market study will be monitored and reviewed as the corridor development takes place.

From the transport market studies at present, the following conclusions can be drawn:

- On the long run, the full implementation of the Atlantic Corridor together with the related policy measures such as electrification, standard UIC gauge will lead to a fast growth of railway transport, both at national (+87%) and at a corridor level (95%), while road transport will grow at a slower pace (+53%) at national and at Corridor level (67%). Effects are slightly different on 2030 perspectives but still railway transport increases at a faster pace than road both at national (68% and 32% respectively) and at corridor level (43% and 40%, respectively). The competitiveness of railway will be increased both by a reduction of relative costs and by higher quality of the services.
- The impact of the implementation of the core network and the related policy measures boast also the inland waterway transport both at national - limited to France and Germany – and at corridor level (France). By 2050 a growth of 57% is expected at national level, and even higher along the corridor, more than twice the current traffic. Without the completion of the core network and the related policy measures the potential for inland transport is much lower.
- The growth of railway and inland waterways would have been even higher, as the policy scenario does not fully consider policy measures, such as incentives or internalisation of external costs and other intermodal policies, which will lead to the development of intermodal transport as well as well-connected inland terminals. Some success case has been already proved in Germany and Switzerland, totalling a majority share of railways in spite of the difficult morphology thanks to the enforcement of the polluter pays principle.

- Cross-border maritime flows along the corridor will growth at a slower pace than other competing modes (its share will decrease from 30.1% to 28.6%). This may depends on the assumption made by the models which do not allow to fully capturing the magnitude of maritime transport.
- Predictions for ports along the Corridor show an increase of the throughput between 30% and 90%. However, among other factors, the magnitude of this growth as well as the impact on other modes depends on the implementation of effective multimodal connections to the ports.
- The presence of adequate terminals ensuring Port capacity.

4. Critical issues on the Atlantic Corridor

Critical factors hindering interoperability and seamless connection of modal networks: As highlighted below, many limiting factors reduce intra-modal efficiency along the corridor, hindering notably the most efficient transport modes for long-distance transport, therefore leading to an unbalanced modal split.

The rail network in the corridor is affected by strong infrastructure and operation limitations, notably:

- Missing link between Évora and Caia in the border Portugal-Spain, forcing majority of rail flows to travel via the Vilar Formoso border
- Different track gauges in the corridor: Iberian Gauge (1668 mm) and UIC Gauge (1435 mm), notably affecting the French-Spain connection. In addition, a shared plan for an harmonised UIC gauge deployment in Portugal and Spain is still missing.
- Lack of electrification in cross border sections: Medina del Campo-Salamanca-Fuentes de Oñoro (currently being upgraded) and Madrid-Badajoz (cross borders Spain/Portugal)
- Lack of electrification for the section Bobadilla-Algeciras (conventional railway Madrid – Andalucía), section Gisors – Serqueux (upgrade and electrification planned) and Cacia (Aveiro) – Port of Aveiro.
- Lack of priority and capacity constraints for freight trains in crossing the main urban nodes, namely Paris and Madrid, where the high-speed networks are also affected by lack of continuity, thus affecting passenger flows on the Corridor.
- Restrictions to the operation of long freight trains in the rail network, rail-road terminals and port rail access in the corridor in Iberian Peninsula, particularly in Spain but also in Portuguese ports. The need to run shorter freight trains decreases the efficiency of rail and maritime transport and limits their competitiveness against other modes of transport (road).
- Presence of different types of electrification: 25 kV AC in Portuguese network, HS lines of Spain and northern France; 3 kV DC on conventional lines in Spain; 1,5 kV DC in conventional lines in large parts of Southern France and 15 kV AC 16.67 Hz in Germany, requiring rolling stock able to cope with multiple voltage
- Very limited implementation of ERTMS: only high speed lines are equipped in Spain and France and no lines are equipped with ERTMS signalling in Portugal

- Presence of sections with maximum gradient above 20 ‰ (i.e. Bobadilla-Algeciras line with 23 ‰) in single track sections
- Non-harmonised loading gauge along corridor, meaning that not all routes permit the same vertical clearance, thus limiting the interoperability of trains carrying intermodal units.

Roads

- The Atlantic Corridor is characterised by the high quality of the existing road network, 99,5% fulfilling the TEN-T class requirements (motorways or express roads). The exception to this accomplishment is the cross border section PT-ES (few km on each side) that are to be upgraded to motorway. A few barriers or bottlenecks are present.
- Only partial interoperability exists for road tolling systems amongst corridor countries: i.e., for example, the Spanish Via-T system can be used in all Portuguese tolls and in the cross border with France but in the reverse situation (the Portuguese Via Verde) is only interoperable on selected Spanish roads, none of which are in the core network.

Inland Waterways

- The Seine river section included in the Atlantic Corridor already reaches higher standards than the minimum established by the Regulation (EU) 1315/2013. In spite of this, several local bottlenecks were identified, notably on locks and port access, and a set of measures were planned to address those critical issues. It is worth recalling that the broader TEN-T includes, within the NSMED corridor, the navigable waterway from Paris via the Seine/Oise and Scheldt rivers to connect to the Benelux countries. This is expected to substantially increase waterborne freight traffic related to Paris and the River Seine. Co-ordination between the work plans of the Atlantic and NSMED corridors is therefore necessary in this case.

Multimodality: the interconnecting nodes are also affected by limitations, thus artificially broadening the role and market share of roads.

Ports

- Improvements in land access and last mile connections to ports are needed, with the majority of existing bottlenecks related to rail. Although all core ports in the corridor are connected to rail, both in Portugal and Spain the upgrade of rail connections and rail freight terminals to allow 750m trains to access the ports is critical, as well as the electrification of the railway line connecting to the port of Algeciras and Le Havre, the largest seaports by volume in the corridor.
- The maritime / riverside access to Ports / port terminals is constrained in several cases along the Seine, in Le Havre, Bordeaux, the current terminals in Lisbon.
- Beside the infrastructural and structural limiting factors, the deployment of the National Maritime Single Window and limited integration with the inland logistic chain, still limit the role of most corridor ports. Lack of LNG availability at Ports might limit the role of some Atlantic corridor ports in the near future, if a proper plan is not rolled out.

Airports

- Airport infrastructure on the Corridor is extremely important: air passenger transport is the preferred mode for long distance passenger between corridor countries. Connectivity with TEN-T rail is however limited to Paris CDG (Roissy), which complies completely with the requirement to be connected to TEN-T rail network being inserted in the French high-speed network on the international line to Belgium/Netherland. Madrid Barajas and Paris Orly are connected to suburban railway and metro. Lisbon and Porto airports are connected with urban rail (metro) while Bilbao and Bordeaux does not offer any rail connection. By 2050, Madrid and Lisbon airport should be connected to TEN-T rail, which is already planned through the foreseen upgrading of the current rail line to the airport in the case of Madrid.

Inadequate / missing Rail-Road terminals

- Notably in the Iberian Peninsula, RRT are undergoing a systemic revision in planning and operation to evolve from traditional rail terminals toward modern multimodal logistic centres, interconnected with international, interoperable flows in line with TEN-T parameters.

5. Objectives for the development of the Atlantic Corridor

The specific objectives for the Atlantic Corridor contributing to its goals are listed in the table below:

Time horizon	Corridor goals		
	Enhance multimodality and rebalance the modal shift	**Deploy interoperability**	**Exploit external dimension**
Short Term	New models for Logistic platforms (RRT notably) in the Iberian Peninsula Improving port connections (PT; ES; FR – incl. Seine). Fully electrified freight route to Le Havre Port Complete the Y Basque (double track, +UIC gauge, electrified, ERTMS) Paris-Strasbourg-DE full HS Pilot phase for LNG deployment on IWW (Seine) Plans for enhanced integration Douro-Leixões	Plan for ERTMS-Interoperability RFC Atlantic Shared plan ES-PT UIC gauge Iberian Peninsula Plans for upgrading Algeciras-Bobadilla Deploy GSM-R in France along the Corridor Signalling upgrading Dax-ES border Follow-up Easyway on Road tolling interoperability	Port capacity development National Maritime Single window deployment Strategy for LNG deployment along the Atlantic coast building up on the successful pilot
Medium Term	Upgrading Algeciras Bobadilla Upgrading Saarbrucken/FR border - Mannheim Missing link Evora-Mérida Continue improving port connections (PT; ES; FR – incl. Seine). France-Madrid and beyond for Passengers (HS) Upgrading Logistic platforms (RRT notably) in the Iberian Peninsula	ERTMS deployment to Aveiro/Leixões & Evora-Caia] ERTMS implementation in Spain according to future ERTMS *Breakthrough Programme.* Seine Port access and locks upgrading Operations in Iberian Gauge along Evora-Mérida Interoperable services [Porto (Leixoes)-] Aveiro-Salamanca (starting from electrification)…	Enhance corridor visibility vis-à-vis northern American Ports & North Sea Maritime LNG deployment in synergy with MARPOL settlement
By 2030	Enhancing Port connectivity by expanding the deployment of TEN-T parameters towards Sines and Algeciras	FR-Madrid for Freight in UIC gauge PT-DE interoperable connection	Enhance Corridors port access to the WW flows

Accordingly, the following KPIs have been proposed by the Consultants in their report, the first set referring to the compliance of the infrastructure vis-à-vis TEN-T parameters, the second more "performance-oriented":

Infrastructure-related indicators (most relevant ones, excluding indicators where the baseline and the objective coincide e.g.: 100%), with baselines:

- [Road]: availability of clean fuels, (12%)
- [Road]: Interoperable Electronic Tolling System (EETS) – (40%)
- [Rail]: Electrification (87%), UIC gauge (58%),
- [Rail]: ERTMS (7%), Max train length 740 m or more (57%)
- [IWW] RIS implementation (75%)
- [Ports] availability of LNG (13%)
- [Airports] TEN-T Rail connection (13%)

Additional result-related KPIs proposed by the Consultants, but not quantified.

Indicator	**KPI**
Use of infrastructure	Nr of passengers, ton, TEU, vehicles
	Annual number of prearranged freight paths /freight path.km (RFC4)
	Annual number of paths reserved and not used (RFC4)
	Utilisation rates (flows vs. capacity)
Intermodal performance	Modal split
	Border time (waiting times in borders)
	Share of rail transport to/from ports
Maritime dimension	Time for goods clearance
	Turnaround time
	Time waiting for cargo transfer
Sustainability	GHG emissions / Pollutant
	Modal share of rail , sea and IWW
	Safety (nr of accidents in CNC)
Cohesion	Long distance flows /short distance
	Cross border flows (passengers and freight)
	Urban nodes connection to rail

These indicators have been presented and discussed during the Corridor Fora with Member States Representatives, which highlighted the need to further refine the indicators set vis-à-vis their meta-structure and, notably, the constant availability of sound statistical data, not to induce additional burden.

Rail Freight Corridors have a harmonised set of KPIs – the ones for the Atlantic corridor, valued, as listed below:

i.	Annual number of prearranged freight paths (p)
ii.	Annual number of prearranged freight paths.km (pkm)
iii.	Punctuality at different points of measure (on the origin and destination of trains at best, as well as on border crossing)
iv.	Average speed of trains [km/h], excluding freight transhipment time at the border between France and Spain.
v.	Number of requests of prearranged paths:
-	.....

vi.	Number of paths allocated by the one-stop shop: - ……
vii.	Annual number of paths reserved and not used [n]
viii.	Response time in days to the paths on demand [d]

Among the above-listed indicators, the most relevant KPIs for the corridor to assess its achievements and development are listed below:

1) output indicators infrastructure-related)

Interoperable lines (km & Share) – fully interoperable and declined in its components • Equipped with ERTMS • UIC gauge • Electrified • Suitable for 750-m long trains • Availability of Tracking and tracing systems (Km, % of the Corridor lines)
Annual number of prearranged freight paths.km (pkm)
LNG availability in Core Ports / Corridor Ports
Share of ports with Rail connections compliant with TEN-T parameters……
N of Multimodal platforms linked to interoperable (TEN-T compliant) rail lines Of which linked with IWW

2) transport-related (result) indicators:

Modal rebalance Modal split for international transport (%) Share of rail transport to/from ports Regular Motorways of the Sea (N / day, N x Km / day) Average time for good clearance in the Atlantic Corridor Ports…… Share of multimodal transport along the corridor Number of structured cooperation agreements between Ports and RRT / Ports and IWW
Interoperability Border time (waiting times in borders) Annual number of prearranged freight paths produced (Capacity) (p) Annual number of prearranged freight paths x Km allocated (p x Km) Annual number of prearranged freight paths x Km allocated in UIC gauge (p x Km) Average speed of trains [km/h] Km of highways equipped with EETS
External dimension Number of calls for LNG vessels Total extra EU (in/out) tonnage through Corridor Ports Coverage with National Maritime Single windows (Ports, %)

This proposed initial subset of “performance indicators” has to be properly quantified and tested following an ad hoc analysis starting from 2015, to define their exact structure and the availability of reliable and homogeneous data sources. Therefore any comment / suggestion by Member States / other stakeholders is welcome, in order to have a reference framework to assess over time the achievement of the goals of the corridor.

6. Recommendations and outlook by the European Coordinator

The Transport White Paper objectives, TEN-T objectives and requirements, as stated by Regulation 1315/2013, need to be applied to the context of the Atlantic Corridor, and should be the basis for defining and prioritising measures and projects. The strategic goals for the Atlantic Corridor, as highlighted in section 1, are to:

- **Deploy interoperability**:
    - Address the missing links and lack of interoperability in the rail sector, notably rail gauge and ERTMS;
    - Enhance and continue progress in terms of road tolling interoperability;
- **Enhance multimodality and rebalance the modal shift**:
    - Contribute to efficient logistics and modal integration, exploiting its multimodal dimension in order to foster a traffic shift from the congested air and road transport to rail and maritime;
    - Favour the deployment of Motorways of the Sea and Short Sea Shipping along the Atlantic Coast;
- **Exploit the external dimension**:
    - Fully exploit its potential for an enhanced international maritime dimension.

Accordingly, recommendations have been regrouped under each goal, with additional sections on connecting other corridors and on developing the Corridor's knowledge base.

Deploying interoperability

This objective has to be pursued in close cooperation with the Rail Freight Corridor, which has already proven promising in this first year of the core network corridor.

In order to ensure a seamless transport, the interoperability and capacity on crossing the two core nodes of high complexity, Paris and Madrid, interlinked to other corridors and high-speed passengers and freight flows, is a priority. For Paris, the main priority is to ensure capacity on rail and inland waterways.

ERTMS

Three conditions need to be fulfilled along the corridors: sufficient infrastructure quality, harmonisation of national rules throughout Europe and introduction of ERTMS. To speed up this process and to show tangible results in the railway sector, we need to accomplish quick wins through implementing short-term and less costly projects, such as the 740m train length standard, harmonisation of operation and authorisation rules would have a direct impact on productiveness.

ERTMS implementation along the Atlantic Corridor is at an early stage: completion dates have not been defined yet at corridor level; Rail Freight Corridor is launching a study in order to draft a comprehensive plan. Still, this Corridor plays a crucial role for the Iberian Peninsula and notably for Portugal, being the only one crossing the Member State.

Therefore, it is important to define the deployment of ERTMS on the two branches (one in operation, and another in design phase) between Portugal and Spain, starting with the cross-border section. Complementarily, Spain would focus on the branch via Salamanca, Valladolid, Burgos, Vitoria towards the French border.

In a synergic approach, France shall focus on signalling for the French section of the Atlantic corridor, and, with Germany, it shall make an effort to complete their cross-border section Metz-Mannheim.

Detailed ways how to accelerate ERTMS equipment along the core network corridors will be described in a separate Work Plan by the European ERTMS Coordinator. In his report, the ERTMS Coordinator will present a so called Breakthrough programme, which has been established in close cooperation with the railway sector and consist of a limited number of objectives to be reached by 2016, including a review of the current European Deployment Plan and the identification of a strategy for ERTMS equipment by 2030, as laid down in Regulation (EU) 1315/2013.

Cross-border missing link

In the case of the Madrid-Lisbon / Sines route, closing the cross-border missing link between Evora and Caia-Badajoz starting from the civil works postponed for a long while is a precondition. The vision on the Spanish side for the phased deployment appears unchanged with what has been agreed in the framework of former Priority Project 3 - i.e.: developing the first line in Iberian gauge with polyvalent sleepers, the electrification at 25 kV, ERTMS and second line in UIC gauge waiting for the full shift to UIC gauge in the direct connection (at least on the Spanish side).

UIC-gauge deployment in the Iberian Peninsula

Beyond signalling, a special attention has to be paid to the gauge issue in the Iberian Peninsula, where delivering interoperability means agreeing on the deployment of UIC gauge along the Corridor lines, therefore going beyond the current planning and project listed.

The Porto/Leixões – Aveiro – Salamanca - Valladolid route is already operational for international traffic, in spite of steep gradients and lacking electrification on the Spanish side. Its potential is witnessed by the cooperation between Salamanca's logistic platform and Portuguese ports (Aveiro, Leixões). The infrastructure requires seamless electrification (at 25 kV), track (sleepers) upgrading, longer sidings (750-m long trains).

While for the Salamanca-Aveiro stretch shifting to UIC gauge could be considered, as a smoother and cheaper option to third rail / multiple tracks, Porto-Aveiro in the medium term has to become progressively available in dual or double –gauge, since a long-term migration strategy for the whole Lisbon-Porto line (Linea do Norte) is required before abandoning the Iberian gauge.

One of the key Corridor task will be to ensure that a harmonised deployment takes place on both sides, up to the crossing of Madrid node. Priority will be given to passengers, bridging the gaps between the different sections of the Spanish high-speed network through the Atocha-Chamartin tunnel, but also an interoperable freight route has to be identified in the medium term (within the current MFF).

Enhance multimodality and rebalance the modal shift

Multimodality – an enabler of a more balanced modal split - calls for a more active role of multimodal logistic platforms, notably in the Iberian Peninsula.

The role of logistic platforms

Building up know how, sharing best practices, involving stakeholders at local and national level From different Member States, with the ultimate goal of including logistic platforms in the Corridor trans-governance, will be a crucial element to succeed in bringing about multimodality.

This effort should aim both at creating attractive logistic platforms (From the business perspective) and to facilitate networking among them (ports and inland logistic platforms, as well as structures serving the main nodes).

A further step in this direction will be to seek cooperation with large logistics and productive zones linked to the Corridor - e.g.: Luxembourg, along the North Sea- Med corridor, or Zaragoza, on the Mediterranean one (the Atlantic RFC is a front-runner in these cases).

The role of the maritime component

The maritime connectivity along the Atlantic Coastline has to be seen as a corridor component to be enhanced: in fact Motorways of the Sea, de facto the maritime component of the Corridor, beyond being a corridor feeder, are already developed among the corridor's ports up to the EU northern coast, but are still not fully exploited as shown by market research estimating about 29 million tons of freight flows to be potentially transferred to Motorways of the Sea by 2020.

Rebalancing the modal split calls for supporting Motorways of the Sea development, in cooperation with the European Coordinator, Mr Brian Simpson, focusing primarily on investments, will prove crucial to enhance the intra-corridor and intra-EU maritime component.

These investments have to be considered in a wide range, from infrastructure (port accessibility both land-side – interoperable rail and inland waterways - and Sea-side, to terminal efficiency, and to systems and procedures to evolve e-maritime towards e-freight, increasing the efficiency of the logistic chains using maritime transport. Its environmental component, including innovative fuels deployment, ought to be taken into the picture.

On the other hand, the railway component, still underused, also in terms of actual capacity close to the borders, is interested notably by long-range flows, on average longer than 1000 km, for about 50% flowing throughout the whole corridor up to Germany.

Beyond the parallel mono-modal routes, the aim of the Atlantic Corridor, in line with TEN-T objectives, calls for a better connectivity between modes, and therefore to link these two components, through an enhanced modal integration.

Accordingly, the Atlantic coastline and all its Core and Comprehensive ports and logistic platforms ought to be seen as feeding the corridor / served by the corridor, provided the efficiency of the logistic platform previously mentioned.

Passenger transport: integrating core airports and high-speed

With regard to passenger transport, the role of airports and high-speed is prominent and already developed, therefore their connectivity to other modes (and between each other) will contribute to the efficiency of transport and the attractiveness of Regions. It must be recalled, however, that larger core airports within the Corridor already dispose of rail or light rail connection.

Exploiting the external dimension

The Corridor is directly connected to the main intercontinental routes and to Africa through Gibraltar, namely Suez – Gibraltar –North Sea, (Far East -) Panama – Europe, West Africa – EU through the Atlantic, and North/West Africa - Europe through the Gibraltar straight.

Its potential to improve the logistics chains to/from the EU in the global framework contribute to the corridor's added-value.

The interconnecting points of these flows are the Core Ports of Le Havre, Rouen, Bordeaux, Bilbao, Leixoes, Lisbon, Sines and Algeciras, as well as the ports linked to the corridor through Core Network Sections, as specified in section 2.2 of this work plan.

The corridor's added-value will therefore influenced by its potential to improve the logistics chains to/from the EU in the global framework. When assessing this potential two key elements should be considered:

1) The deployment in the next future of LNG as maritime fuel in the North Sea-Baltic and North America's East coast according to the MARPOL convention (operational in 2015).

2) The enhanced role of the Atlantic area following the opening of the new Panama lock system and, gradually, the growth of the polar route between the Far East and the North Sea.

These set of factors call for enhanced capacity on Ports (to be developed following a sustainable financial plan, via access to credit), but also ensuring adequate inland connections for long-range transport, to the rail freight corridor, and to inland waterways, where available.

It will also be important to make visible from the external perspective the corridor product, as a set of operations and destinations (from the border to the final destination / from the productive areas to extra-EU shipping) that might make it visible and attractive across the Atlantic, as well as for the large productive / logistic areas of the Union in the Corridor countries and in neighbouring nodes such as Luxembourg, thus contributing to the efficiency of the internal market.

Strong simplification of Custom and Reporting operations, reduction of lag times and inland shipping will be crucial factors for the Union to benefit from the Corridor development in the world-wide scenario.

Connecting core network corridors

The Atlantic Corridor is connected with four other core network corridors, creating the potential for network effects, one of the priorities within TEN-T. These connections consist of:

- A shared section between Algeciras – Madrid with Mediterranean Corridor (MED), where the key priority is the upgrading (electrification plus increased train length) of the Algeciras-Bobadilla stretch.
- Connections in Paris and a shared section between Metz and Strasbourg with North-Sea–Mediterranean Corridor (NSMED) – synergies ought to be sought in
    - Paris node (notably IWW and rail access and crossing),
    - the link between the Seine and the Canal Seine-Scheldt, to be seen as a whole,
    - and in serving Luxembourg logistic hub from Metz along the NSMED corridor by rail to/from the Atlantic Coastline and the Iberian Peninsula (short to medium term, in cooperation with the Atlantic RFC)
- Connections in Mannheim with Rhine–Danube (RDA) and Rhine-Alpine (RALP) Corridors ought to focalise on the interconnecting points.

Reference to the "horizontal corridors" Motorways of the Sea and ERTMS are dealt with in rebalancing modal split and interoperability section.

Building-up the knowledge base of the Corridor

The achievement of these objectives requires building-up a shared knowledge base and putting in practice trans-governance at corridor level. Starting from 2015 it will be important to start studies covering these topics at international level:

- Harmonised planning for UIC gauge deployment on the Iberian Peninsula, for which I will propose to set-up a cross-border working group.
- Overall interoperability planning for the Atlantic rail freight corridor.
- LNG deployment outlook (Considering the two operational Emission Control Areas of the MARPOL convention).
- Overall corridor analysis, including monitoring and reviewing of the market study. It will be worth highlighting notably the Corridor contribution on curbing GHG emissions (to be seen in terms of shorter routes and modal rebalance), that might be monetized to finance Corridor operations. Also the Corridor overall impact on growth and jobs ought to be identified.
- Comparative analysis on logistic platforms (primarily, but not exclusively, rail-road terminals): structure, services, competitive factors and best practices.

That all will contribute to lead to and justify shared elements of transport policy, that can pave the way for a totally different transport patters, with an enhanced role for the maritime, inland waterways and rail, thus eventually achieving a more efficient energy and emission profile. In fact the key drivers for sustainable operations are an adequate multimodal transport policy and governance, as well as the correction of the market failures (internalisation of the benefits generated by the more sustainable transport modes).

Of course a parallel process is needed to ensure that an adequate flow of financial resources is poured into the Corridor development – first and foremost identifying all the projects suitable for financing through the attraction of private capitals, rather than traditional public funding (including cases of blending funding and financing), such as the Tours-Bordeaux best practice).

One of the main targets are terminals (Ports, inland waterway ports, airports and rail-road terminals), and dedicated connections, notably on High-Speed for passengers.

For these, the role of the public to provide an adequate business environment, mitigate all risks (notably, but not only, regulatory), also through targeted guarantees (national or EU), before transparently transferring the residual risk, will prove crucial (for this reason exchange of best practices, as in the case of rail-road terminals previously mentioned, would be useful).

With regard to support for the implementation of more costly projects, not self-standing from a financial point of view, also because of market failures and distortive incentives (lack of internalisation of external costs and benefits, uneven taxation on energy, etc.), it is crucial to pool a critical mass of resources.

A positive example has been the concentration of the Cohesion Policy, and, potentially, CEF resources in Spain and Portugal, following bilateral negotiations, resulting in relatively large amounts of Cohesion Fund and ERDF allocated to the Atlantic corridor.

Core network corridors implementation can also stimulate clarifying State Aid issue, thus further reducing Regulatory risk. This could be done through notification of the whole corridor under the Important Projects of Common EU Interest (so-called “IPCEI”) rule, in order to obtain an ex ante clearance.

Last but not least, it is worth recalling the importance to improve projects financial attractiveness, e.g. increasing project revenues through internalisation of benefits generated at environmental level, cross-financing, adequate project pipeline, better procurement practices on a life-cycle basis.

Contacts

European Coordinator:

Prof. Carlo Secchi

carlo.secchi@ec.europa.eu

Advisor to the Coordinator: Carlo De Grandis – Carlo.De-Grandis@ec.europa.eu

Financial Advisor to the corridor: Raluca Mitu - Raluca-Cezara.Mitu@ec.europa.eu

INEA Advisor to the corridor: Stefano Campagnolo – Stefano.Campagnolo@ec.europa.eu

Corridor website: http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/atlantic_en.htm

Useful links or background information

(available here: http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/corridor-studies_en.html)

- Corridor Study
- List of projects
- TENtec maps

Contact details:
European Commission – Directorate General for Mobility and Transport
Directorate B – European Mobility Network
Unit B1 – Trans European Network
http://ec.europa.eu/transport/index_en.htm
email: move-info@ec.europa.eu

Offices:
Rue Demot 28
1049 Brussels Belgium

MAY 2015

Design & Layout by TENtec