FERRMED

Promotion du Grand Axe Ferroviaire de Marchandises
Scandinavie-Rhin-Rhône Méditerranée Occidentale

FERRMED Standards gradual implementation in EU Rail Core Network, the right way to develop the hinterland transport around the ports. The keys of Barcelona Ports

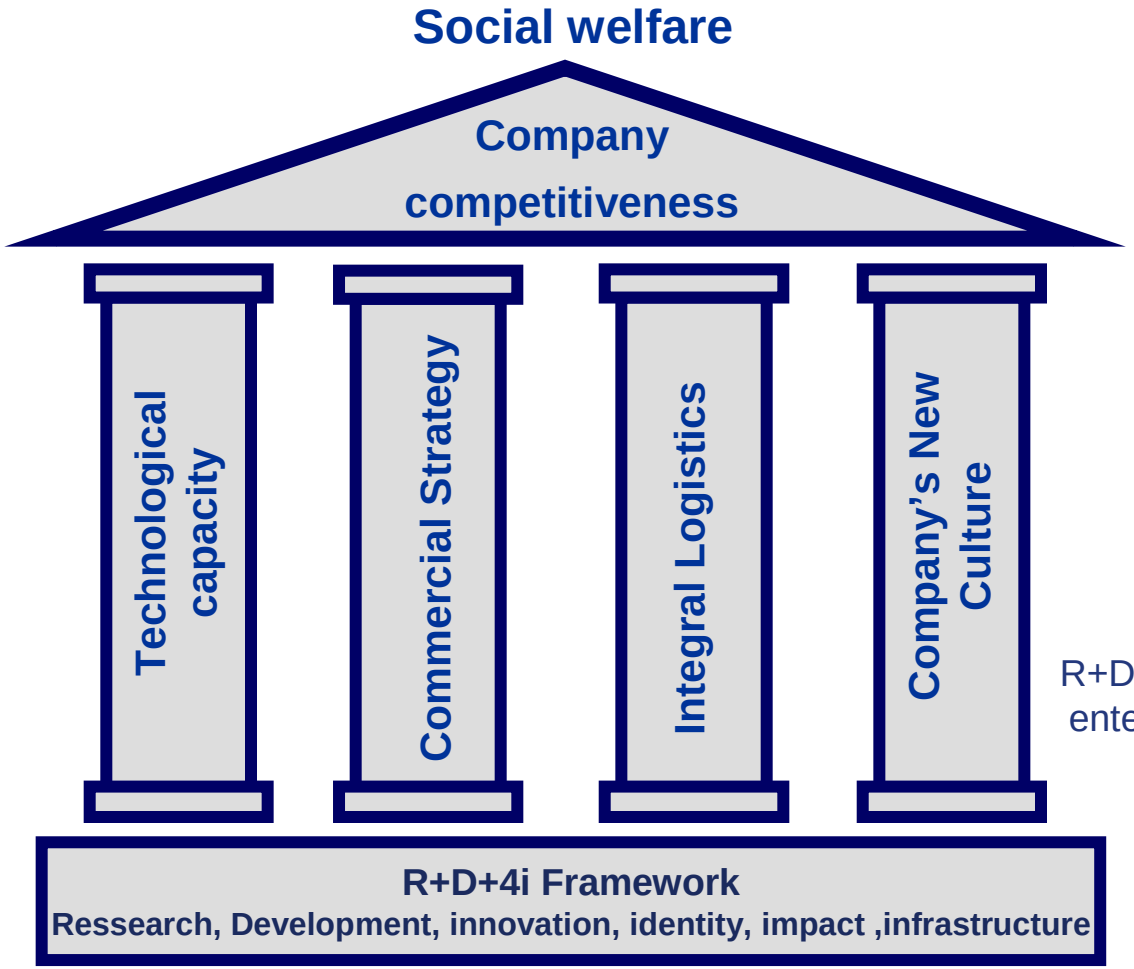
Joan Amorós
Secretary General

UIC and FIATA's Market Place Seminar

French-Iberian rail link – Fostering European Connectivity

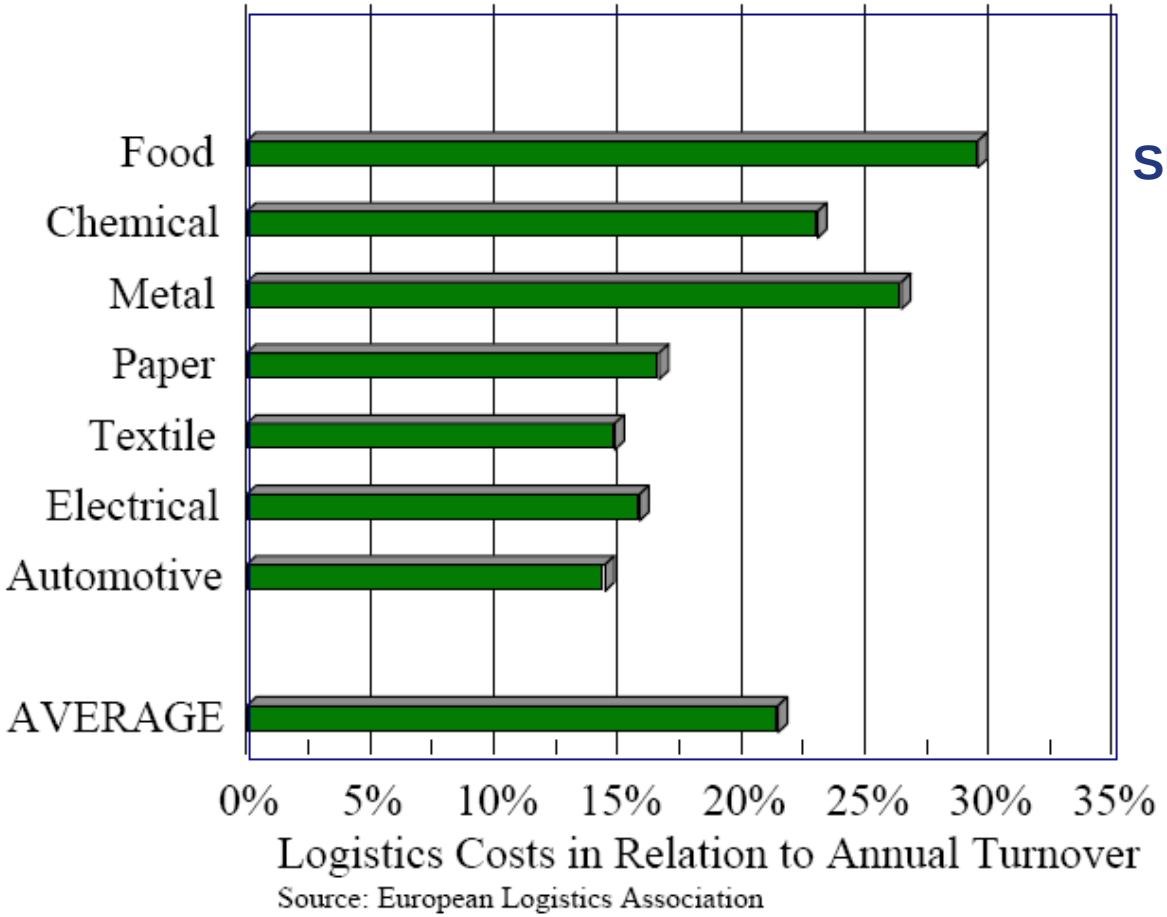
Barcelona, 2 novembre 2010

PILLARS OR THE BUSINESS COMPETITIVENESS (I)



R+D+4i factors are the base of the enterprise competitiveness pillars

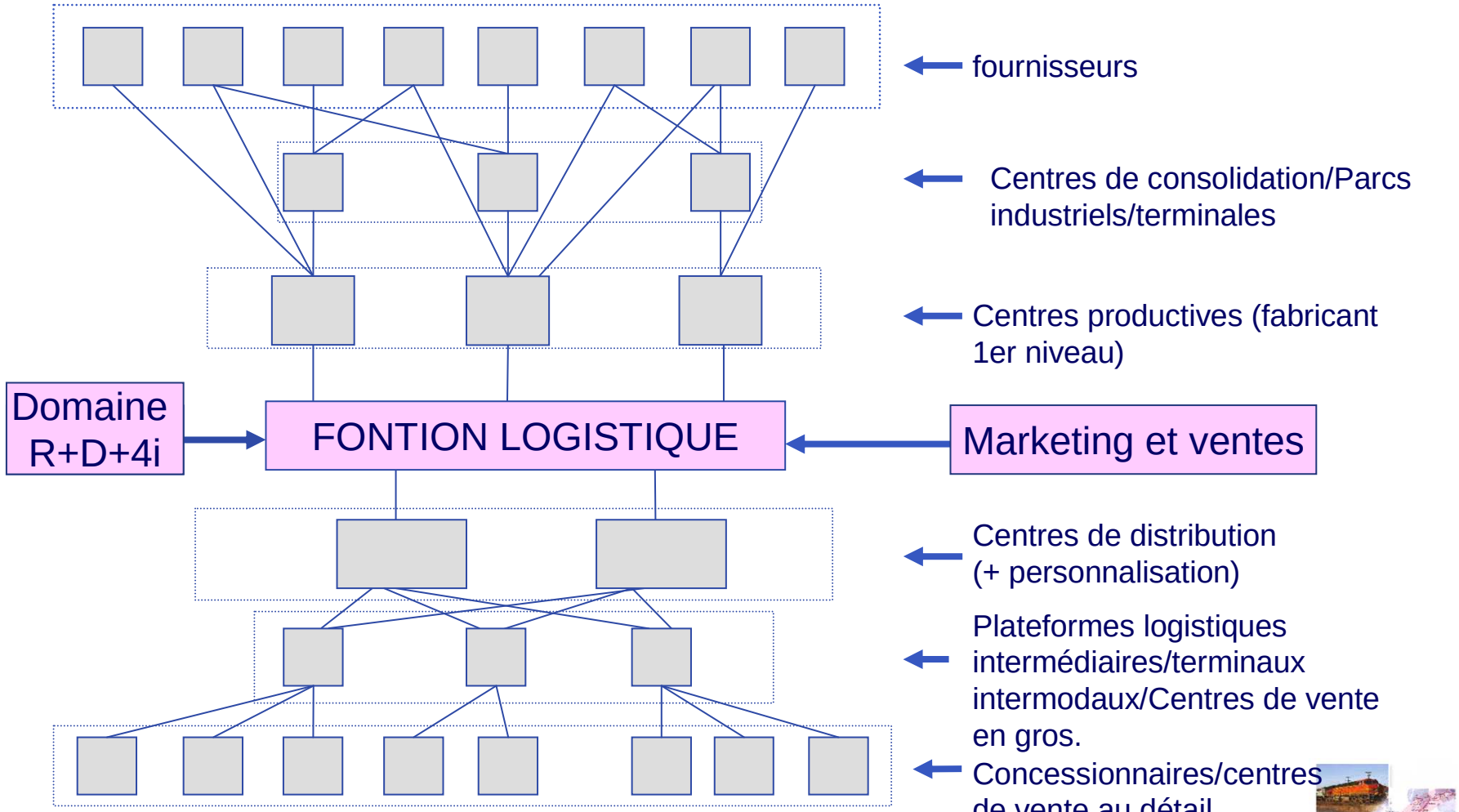
PILLARS OR THE BUSINESS COMPETITIVENESS (II)



LOGISTICS, COMPRISE A SUBSTANTIAL PROPORTION OF PRODUCT PRICES

PILLARS OF THE BUSINESS COMPETITIVENESS (III)

LA LOGISTIQUE ELEMENT CLÉ (CENTRAL) DE LA GESTION DES ENTERPRISES GLOBALISÉS



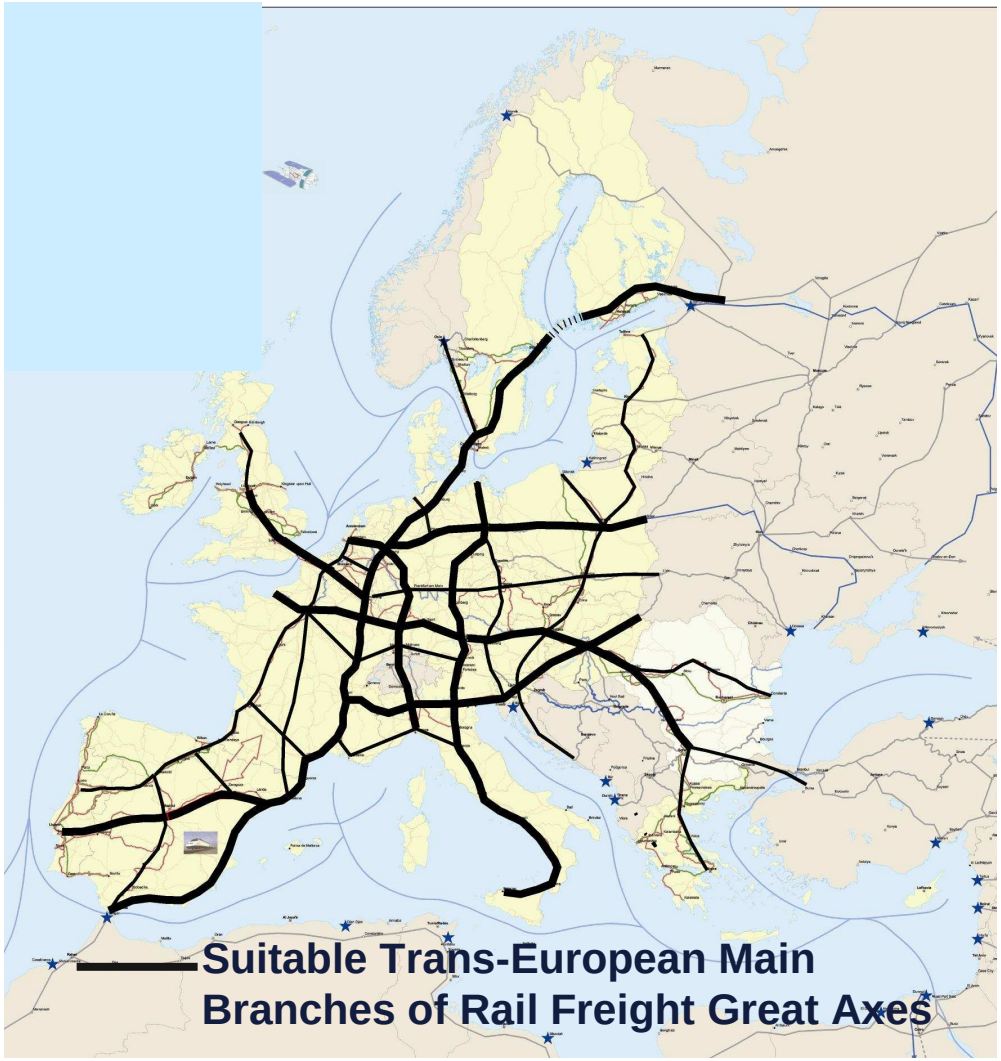
FERRMED OBJECTIVES

- To improve the **general competitiveness** of the European Union through the global chain of added value (particularly in the rail freight and multimodal transport) through the **application of the "R+D+4i"management philosophy.**
- To promote the concept of **Great Axis Rail Freight Network Scandinavia, Rhin-Rhone-Western Mediterranean**.
- To encourage the establishment of **FERRMED standards** in the rail freight transportation network in the European Union.
- To improve the **ports and airports connections** with their respective hinterlands in the European Union and neighbouring countries.
- To stimulate the **improvement of management/operational systems** and **free competition** in the rail freight transportation network in the European Union.
- To contribute to a **more sustainable development** through the **reduction of pollution and climate change emissions.**

FERRMED STANDARDS FOR THE RAIL FREIGHT GREAT AXES

- EU Reticular and polycentric network with great socio-economic and intermodal impact, with two parallel rail lines (double track each) in each main corridor :
- one for conventional trains at same priority rate for freight and passengers.
- another available for passengers and light freight (high speed trains).
- Loading gauge UIC-C, width of the tracks UIC (1435mm). Electrified lines. Maximum slope 12‰. Axle load: 22,5÷25 tonnes. Huge Cities by-passes.
- Trains length 1500 m. and 3600÷5000 tonnes.
- Locomotive and wagon new concept.
- Availability of a network of intermodal polyvalent and flexible terminals.
- Unified labour, management and operational systems.
- Free Competition.
- Favourable and homogeneous fees for the use of infrastructures.
- 30÷35% of participation of rail in long distance land transportation

RETICULAR AND POLYCENTRIC EU NETWORK



RETICULAR AND POLYCENTRIC NETWORK OF HIGH SOCIO-ECONOMIC AND INTERMODAL IMPACT

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SUPPLY/DEMAND, TECHNICAL AND SOCIOECONOMIC GLOBAL STUDY OF FERRMED GREAT AXIS RAIL NETWORK AND ITS AREA OR INFLUENCE

FERRMED STANDARDS IMPLEMENTATION

SUPPLY/ DEMAND, TECHNICAL AND SOCIO-ECONOMIC GLOBAL STUDY OF FERRMED GREAT AXIS RAIL NETWORK AND ITS ZONE OF INFLUENCE (I)

The rail freight network of the FERRMED Great Axis interconnect the most important sea and inlan harbour fronts; and the main East West axes of the EU.

FERRMED Great Axis has a direct and close influence over **250 millions Europeans** (54% of the EU-27 population and 66% of the GDP).

In addition, the axis :

- has a close influence over **60 millions inhabitants in North Africa.**
- **links with** western end of **Trans-Siberian Railway** in St. Petersburg and Finland

THE EUROPEAN MEGA-REGIONS AND FERRMED GREAT AXIS CORE NETWORK

The figures express the sequential order of economic output at wolrd wide level

ECONOMIC ACTIVITY GENERATION IN THE GREAT EUROPEAN MEGA-REGIONS based in spatial techniques and statistics as well as in light emission (LRP) (according to Richard Florida)

SELECTED CONSORTIUM

- WYG International (UK)
- DORSH Consult (Germany)
- GESTE ENGINEERING (Switzerland)
- INEXIA (France)
- NTU (Denmark)
- PROGTRANS AG (Switzerland)
- RINA INDUSTRY (Italy)
- SENER (Spain)
- SIGNIFICANCE BV (The Netherlands)
- STRATEC (Belgium)
- WSP AB (Sweden)
- WYG Consulting Group (UK)

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GLOBAL STUDY MAIN CONSIDERATIONS

- ✓DEMAND IMPACT IN FREIGHT TRANSPORTATION SYSTEMS
- ✓INTERVAL OF SUPPLY-DEMAND ANALYSIS 2005-2025
- ✓ADOPTED MODELLING: TRANS-TOOLS AND OTHERS
- ✓KMS. OF RAILWAY LINES ANALYZED 22.500
- ✓TECHNICAL ANALYSIS:
- ✓FERRMED Standards implementation
- ✓Bottlenecks detected per scenario
- ✓Large cities by-passes, new lines, ports and terminals enlargement, electrification, UIC width, UIC loading gauge, ERTMS, electric reinforcement, noise barriers,…
- ✓Rolling stock adaption (couplings and track width)
- ✓Investment cost
- ✓Maintenance cost
- ✓COST-BENEFIT ANALYSIS AND ENVIRONMENTAL ISSUES
- ✓MARKED OPINION

FERRMED GLOBAL STUDY MAIN RESULTS
RAIL FREIGHT TRANSPORTATION GROWTH

- The core network and main feeders of FERRMED Great Axis Rail Network transports in 2005 about **266 billion of tonnes.Km per year**.

- The Global Study identifies the infrastructure, technical, institutional, legislative and regulatory actions to upgrade the FERRMED Great Axis Rail Network in order that could absorb **524 billion of tonnes.Km per year by 2025.**

- To move long distance **rail freight land transportation share from 20,5% to 24,6÷28,2%.**

Proposed Investments (Full FERRMED Scenario)

Category	Cost per 2025 scenario (million € 2007)
	full
Bottlenecks	**17,131**
Bottlenecks solving	17,131
By-passes	**12,848**
By-passes of large cities	11,000
Noise barriers	**1,848**
FERRMED standards	**56,710**
Spain (1668mm)	0
Broad gauge to UIC gauge	3,841
Loading gauge	8,769
Rolling motorway	915
Axle load	164
Train length	42,425
Electrification	596
Other costs	**91,075**
ERTMS implementation	14,296
Rolling stock automatic coupling	7,365
Spanish rolling stock to UIC track width	630
Spanish New lines investments	16,360
Ports & Terminals	51,700
Electric reinforcement	724
Total	**177.764**

FERRMED SCENARIO MODELING VARIABLES

Values in comparison with Reference Scenario

Modeling variable	Full FERRMED Scenario (1st Run)
Link Speed	15% (minimum)
Line capacity	15% (minimum)
"Dummy" at borders	Eliminated
Loading capacity (reinforced couplings)	50% (minimum)
Operating costs	-25%
Market prices	-25%
Costs at freight terminals (handling, storage…)	-20%
Times at terminals	-35%

REDUCTION IN POLLUTANT AND GREENHOUSE GAS EMISSIONS 2016-2045 (TONNES)

Pollutant/ Greenhouse gas	Full FERRMED
NoX	1,004,694
NMVOC	8,281
SO2	242,682
PM	35,013
CO2	145,410,934

RESULTING BENEFITS 2016-2045 (FFS SCENARIO)

*** Savings in billion euros**:

228 in Vehicle Operation Costs

285 in travel and transport time

15 in accidents and pollutant emissions

*** CBA results:**

Scenario	Net Present Value – NPV (million Euro)	Economic Internal Rate of Return – EIRR (%)	Benefit / Cost Ratio – BCR
FFS	93,783	11.09	1.993

(*) social discount rate: 3.5%

POSSIBLE FINANCING SOURCES (II)

Possible financing sources of the FERRMED investments 2013-2025 by scenario (costs in billion € of 2007)

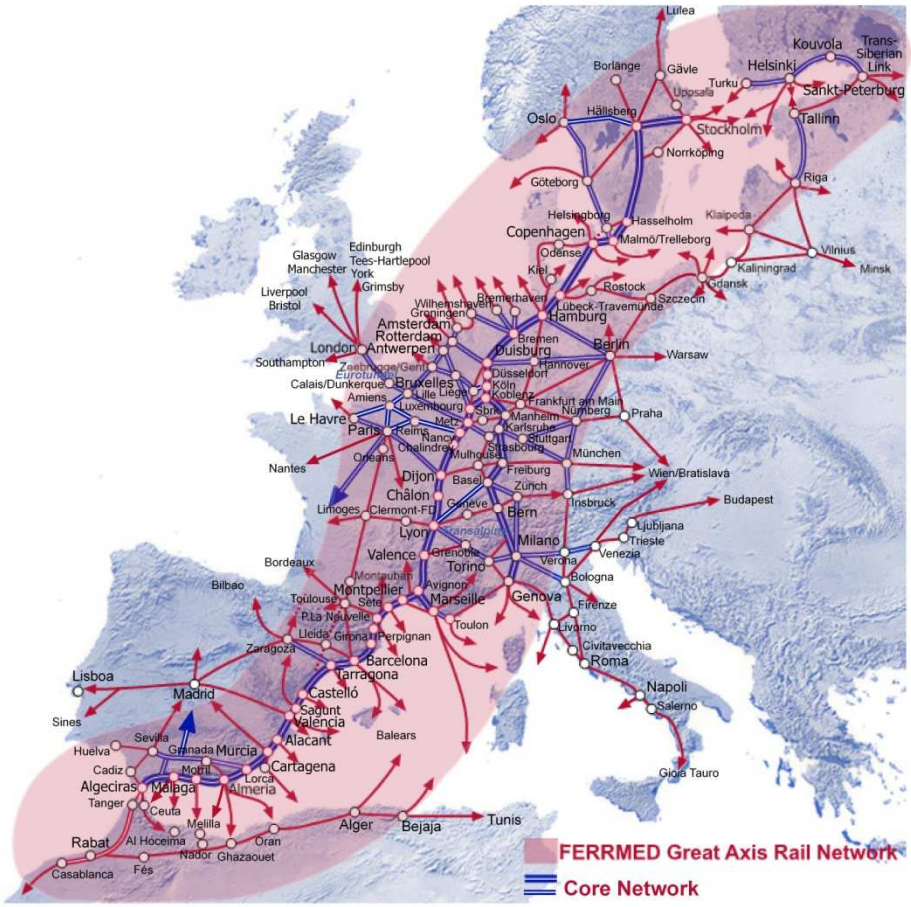
FERRMED Scenario	Total invest-ment cost	National public entities (Governm., public rail companies, regional authorities)	EC (TEN-T, Cohesion & Struct. Fund etc.)	EIB	Total EU Funds (EC + EIB)	Private PPP in-vestors	Commer cial banks
MEDIUM	**118.9**	53.2	16.6	16.3	32.9	23.2	9.5
in %	100 %	44.7 %	14.0 %	13.7 %	27.7 %	19.5 %	8.0 %
FULL	**177.8**	77.4	24.7	24.7	49.4	36.2	14.7
in %	100 %	43.5 %	13.9 %	13.9 %	27.8 %	20.4 %	8.3 %

MAIN GENERAL CONCLUSIONS

- The application of FERRMED Standards is a key issue in order to reverse the decreasing share of Railway in land transportation.
- The proposed investment and actions in the FERRMED Great Axis Rail Freight Core Network and main feeders, are feasible and sustainable from economic, financial, and environmental perspective.
- As a consequence, FERRMED Association proposes the **gradual implementation of FERRMED Standards** all over the EU and the **adoption of FERRMED Great Axis Core Network** as a part of the Trans-European Railway Core Network, recommending the approval as **Priority Projects** of all actions to be developed in the Core Network

CORE NETWORK

Taking into account that most of the railway corridors included in the FERRMED Great Axis Core Network are already declared Priority Projects, FERRMED Association proposes to add to the current list of priority projects the remaining main Core Network lines in the Red Banana that do not have this consideration



Lines to be declared as EU priority projects FERRMED PROPOSAL	
Country	Lines to be declared as EU Priority projects
Germany	• Line Hamburg-Berlin • Line Bremen-Müntser-Duisburg • Line Duisburg-Hannover-Berlin • Line Koblenz-Luxembourg/Apach
France	• Line Calais/Dunkerque-Lille-Metz-Dijon • Line Le Havre-Amiens-Reims-Dijon • Line Avignon-Marseille-Toulon
Spain (Mediterranean corridor)	• Lines Tarragona-Castelló-València-Alacant-Murcia/Cartagena-Almería-Motril-Málaga-Algeciras • Line Lorca-Granada- Antequera

FERRMED Global Study Economic Repercussion in the Mediterranean Corridor

Profits expressed in millions of euros (período 2016-2045)

Concept	Global ("Red Banana")	Spain (18,2%)	Mediterranean Corridor (70% España)
VOC	228.000	41.496	29.047,2
Time saving	285.000	51.870	36.309
Emissions	15.000	2.730	1.911
∑	528.000	96.096	67.267,2

Nota.- 1). Cálculos efectuados en función de la extensión de la red ferroviaria principal (Core Network)
2). No se tiene en cuenta la repercusión en el VAB que podría ser de 1% incremental cada año en los primeros 10 años

HIGH PRIORITY INVESTMENTS: 2.324Me

TRAFFIC IN THE MEDITERRANEAN CORRIDOR (1)

Trans-border Traffic in the Oriental Pirinees in millions of tons

YEAR 2005	YEAR 2025 (prediction)
Total: 52,7	110
Roads 50,2	71,5
Railway 2,5 (4,7% total traffic)	38,5 (35% total traffic)*

*Esta cifra equivale a 107 trenes de mil toneladas netas al día o a 53,5 trenes de dos mil toneladas netas al día.
Las líneas ferroviarias del Corredor Mediterráneo, con las acciones previstas en el Estudio Global y en las 100 propuestas de FERRMED, admiten sobradamente el 35% del tráfico terrestre total y pueden absorber además sin problemas un balance de tráfico marítimo Norte-Sur del 65÷35%

TRAFFIC IN THE MEDITERRANEAN CORRIDOR (2)

TRANS-BORDER TRAFFIC IN THE ORIENTAL PIRINEES IN NUMBER OF TRACKS AND TRAINS

	YEAR 2005	YEAR 2025 (prediction) (Full FERRMED Scenario)
Trucks	3.400.000	4.842.000
Trains of 500 net tons.	14 trains/day (In reality there are 23, what means that the averaged current charge is 300 tm. net/train)	214 trains/day (equivalent to 7.642 daily tracks)
CO_2 Emissions savings	_____	≈ 1.000.000 tm./year (average2016-2045)

Note.- In Irún, the current railway traffic is as scarce as in Portbou.

TRAFFIC IN THE MEDITERRANEAN CORRIDOR (3)

TRANS-BORDER TRAFFIC IN THE ORIENTAL PIRINEES

(Number of tracks and equivalent trains)

Concept	YEAR 2005	YEAR 2025	YEAR 2045 (extrapolation)
Trucks	3.400.000	4.842.000	8.126.434
Trains 500 Tm/net	14	214	444*
Trains 1000 tm/net	7	107	222*
Trains de 1500 tm/net	4,6	71,3	148*

* **Equivalente al 40% del tràfico terrestre**

PRIORITY INVESTMENT NEW CRITERIA (I)

In EU, we are going **towards a new socio-economic dimension**, following three **emerging main vectors** of business development:

- EULER's (FERRMED) Vector
- Mediterranean Vector
- Eurasian Vector

The growth of our socio-economic welfare has to be fully oriented to these three **"open" emerging vectors as well as to R+D+4i factors of excellence.**

The obsolete criteria of "close " radial networks has to be abandoned.

BUSINESS ORIENTED INVESTMENTS PREFERENCE

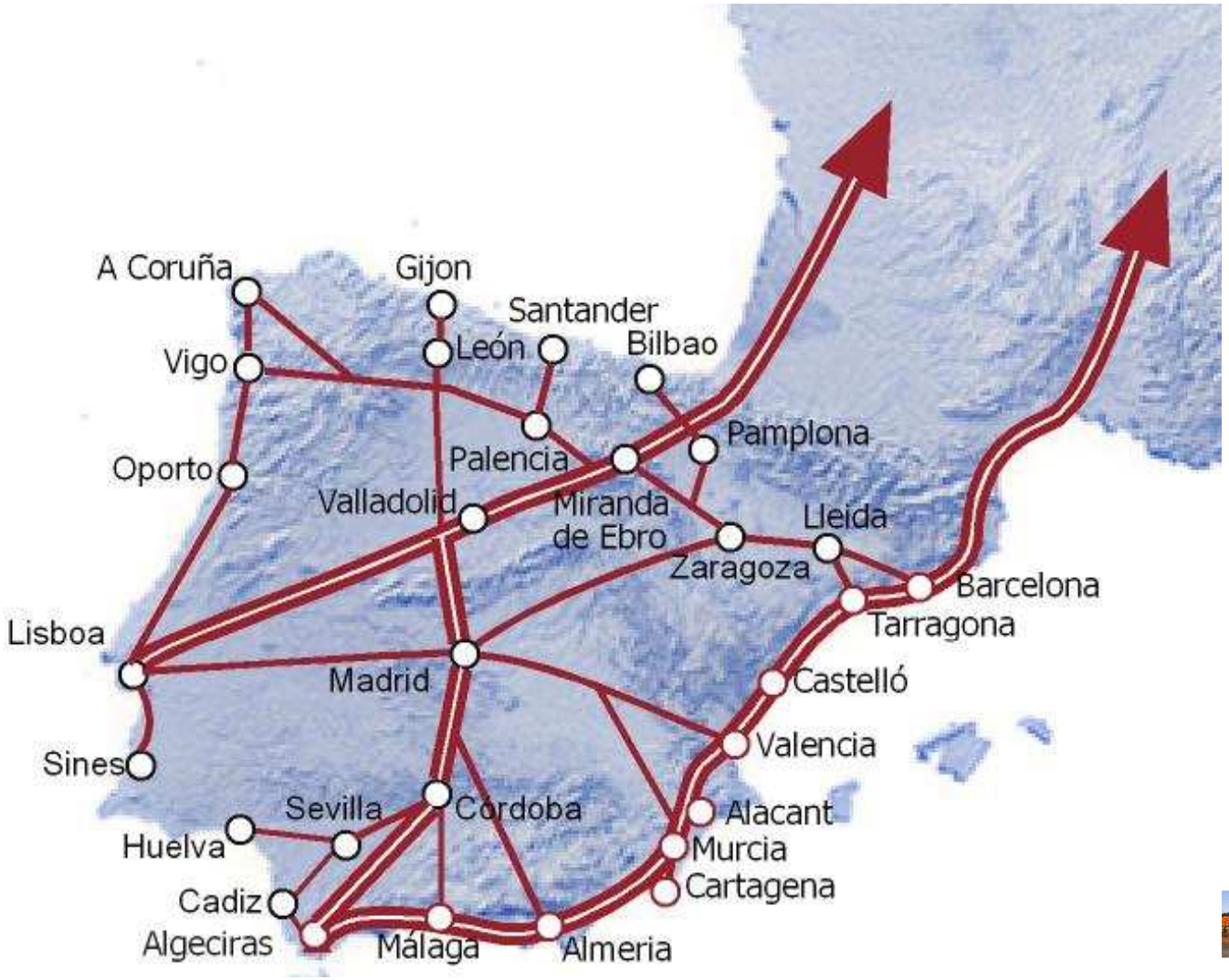
MAIN PREFERENCE

Reticular and polycentric Trans-European intermodal corridors (linked with neighbouring countries) as an EU "open" Core Network, **oriented to the emerging Megaregions and main vectors of business development.**

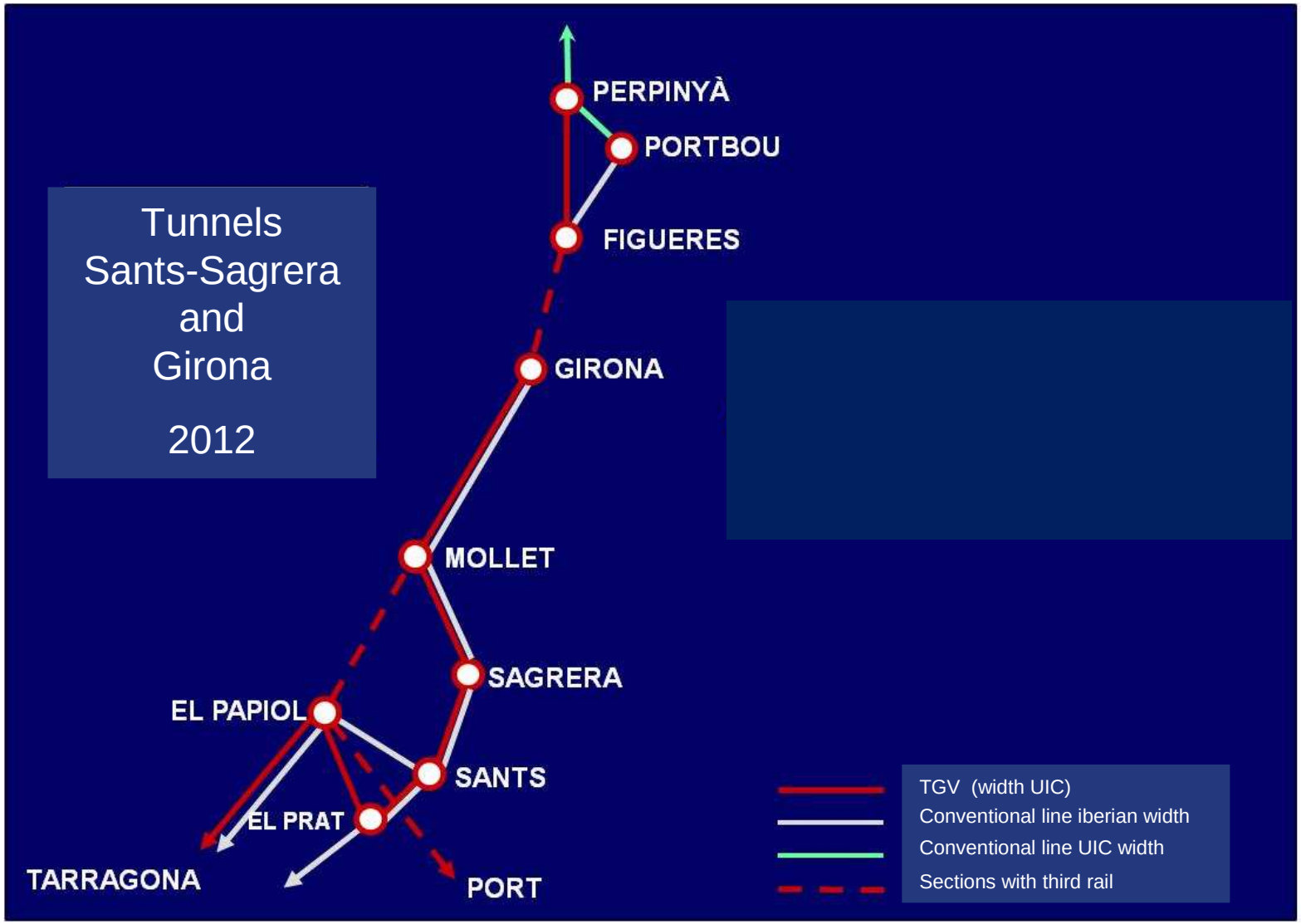
SECOND PREFERENCE

Main feeders of these Trans-European intermodal corridors.

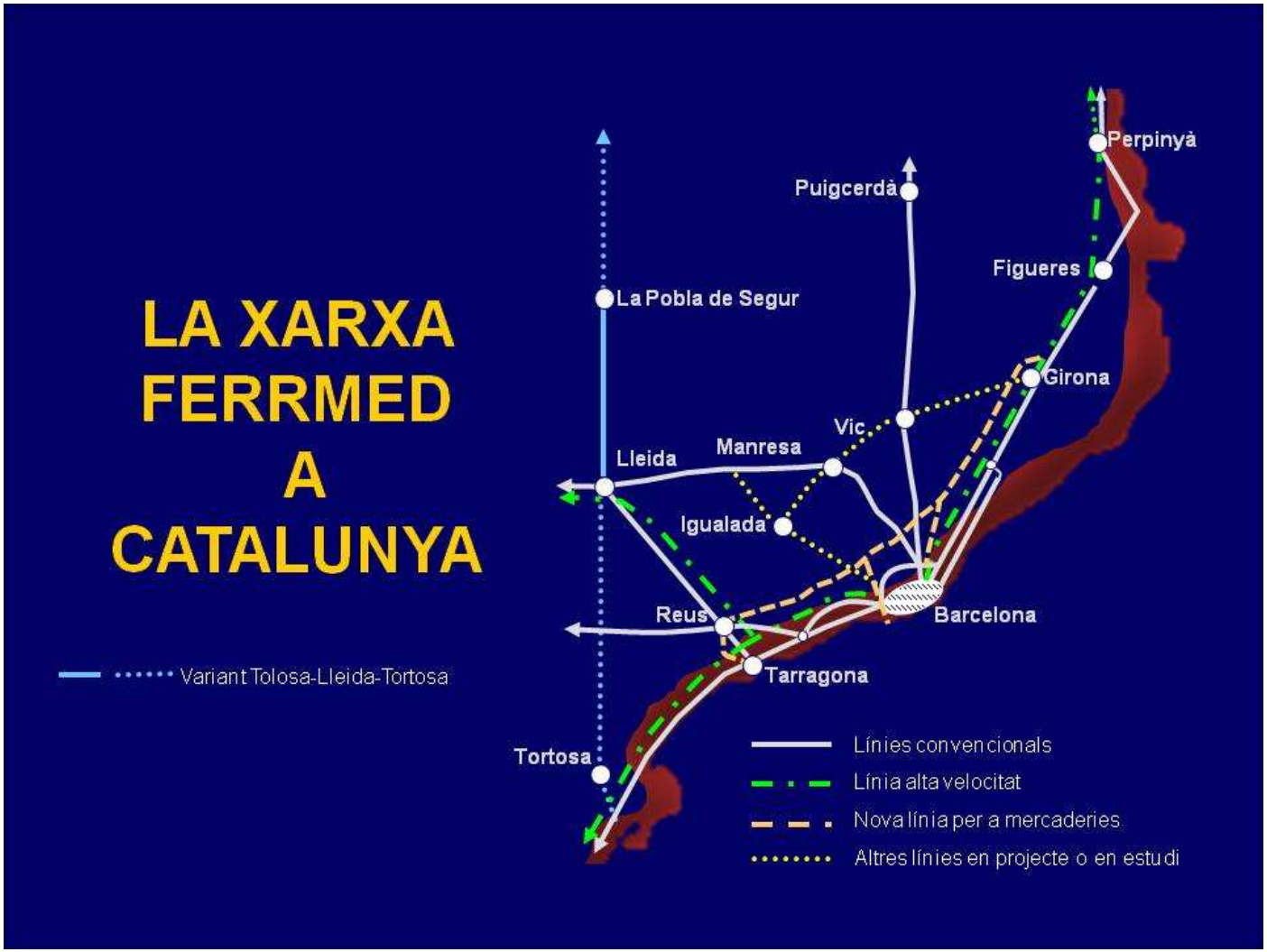
GREAT AXES TRANS-EUROPEAN AND MAIN FEEDERS IN THE IBERIC PENINSULA (Freight)



BARCELONA-PERPIGNAN CONNECTION 2010



ACTIONS IN CORE NETWORK AND FEEDER LINES IN CATALONIA (2025 and beyond)



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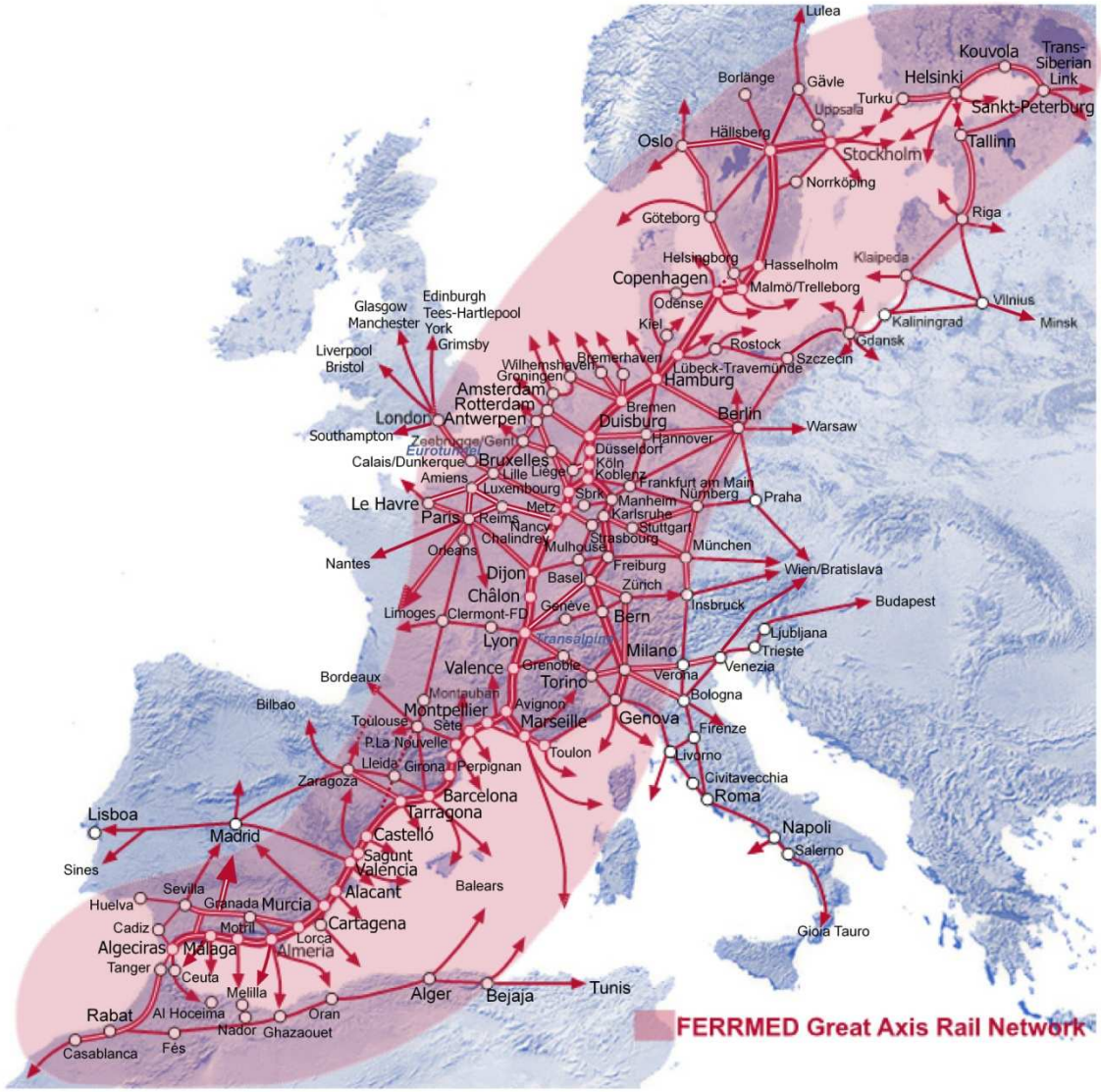

Thank you for your atenttion