FERRMED Study of Traffic and Modal Shift Optimisation in the EU

CONCLUSIONS PRINCIPALS I PRESENTACIÓ DEL SISTEMA +FIRRST

Col·legi d'Enginyers Industrials de Catalunya
Barcelona, 16 de gener de 2025

FERRMED
Promotion du Grand Axe Ferroviaire de marchandises
Scandinavie-Rhin-Rhône-Méditerranée Occidentale A.S.B.L

Enginyers
Industrials de Catalunya

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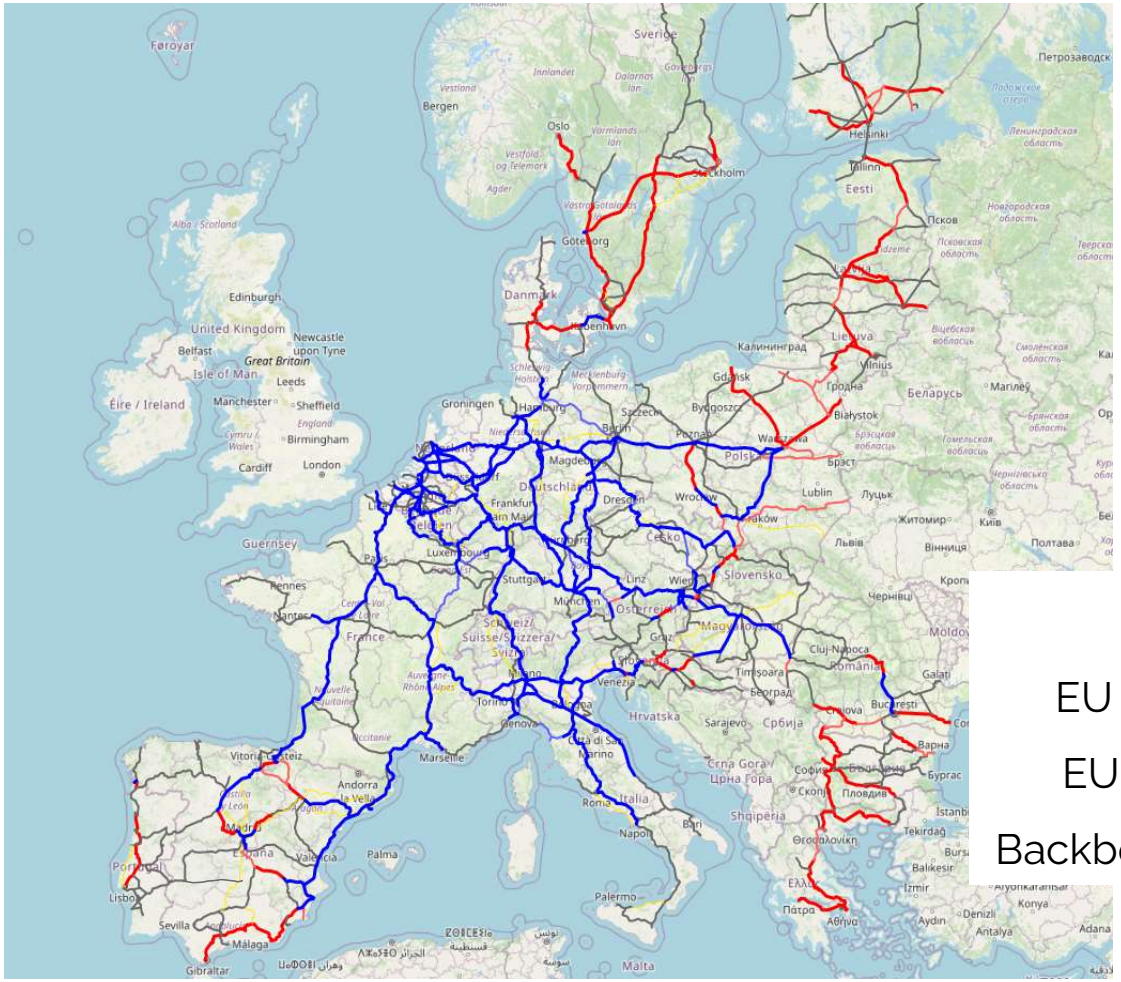
FERRMED STUDY MAIN CONCLUSIONS

FERRMED STUDY OF TRAFFIC AND MODAL SHIFT OPTIMISATION IN THE EU

OBJECTIVES:

- **To identify current total freight transport by mode** in the main corridors of the EU Core Network (EU Backbone Network);
- **To identify the main logistic hubs in the EU**
- **To define a new integrated Rail-Road system of transport for freight**
- **To propose an Action Plan to achieve the EC (2011) White Paper on Transport Policy targets by 2030** (30 % of inland freight transport over 300 km carried by rail or barge) **and "Green Deal" targets,** in the most heavily used sections of the corridors, covering 65 % of the traffic (tonne-kilometres) related to the EU Extended Core Network.

DETERMINATION OF THE EU BACKBONE NETWORK



First priority (18,040 km)

Second priority (8,500 km)

Third priority (50,700 km)

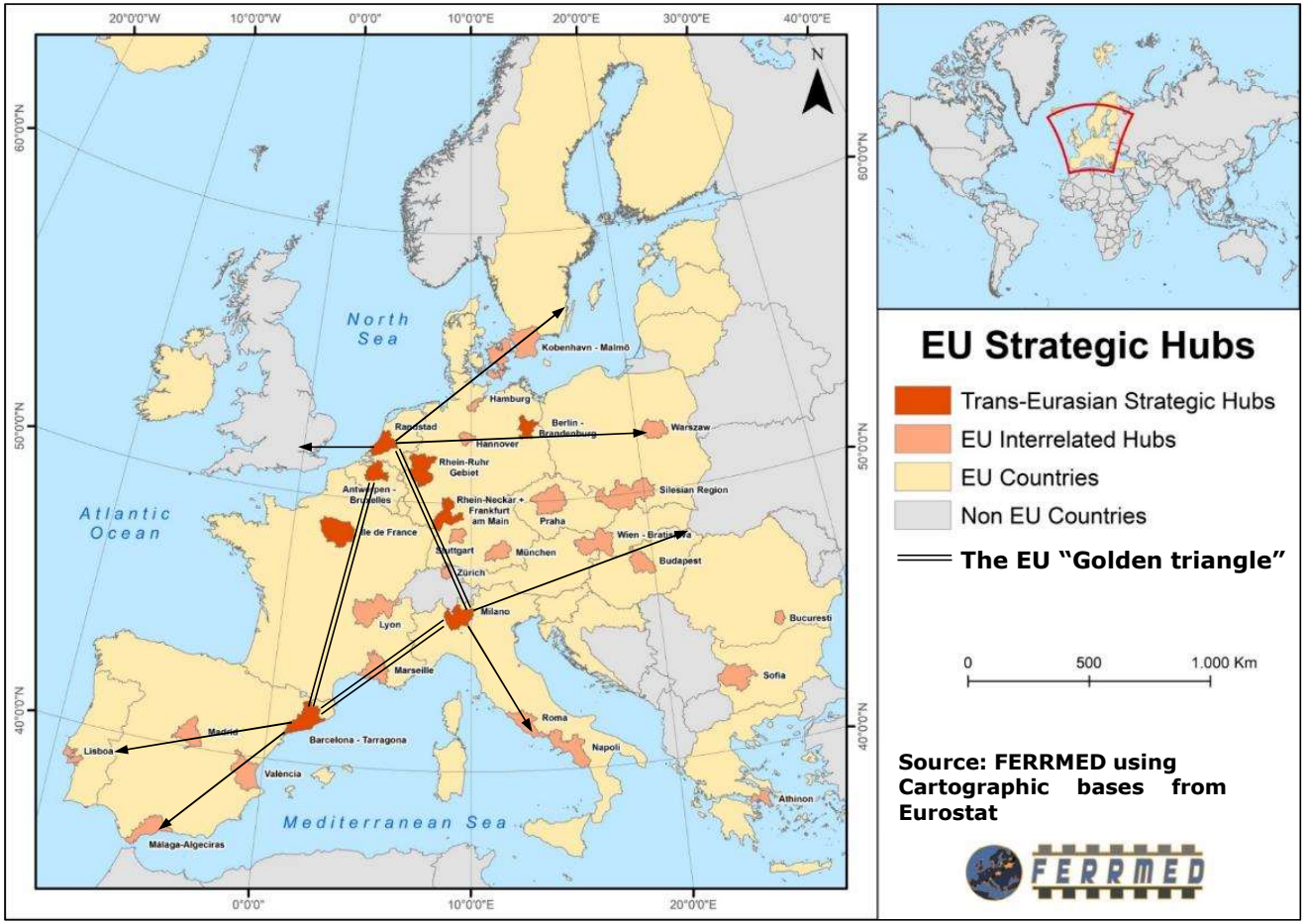
EU Core Network (aggregated): **77,240 km**

EU Central Backbone Network: **18,040 km (23,3 %)**

EU Extended Backbone Network: **8,500 km (11 %)**

Backbone Network 65 % threshold: **122,000 tonnes/day**

EU STRATEGIC SOCIO-ECONOMIC HUBS

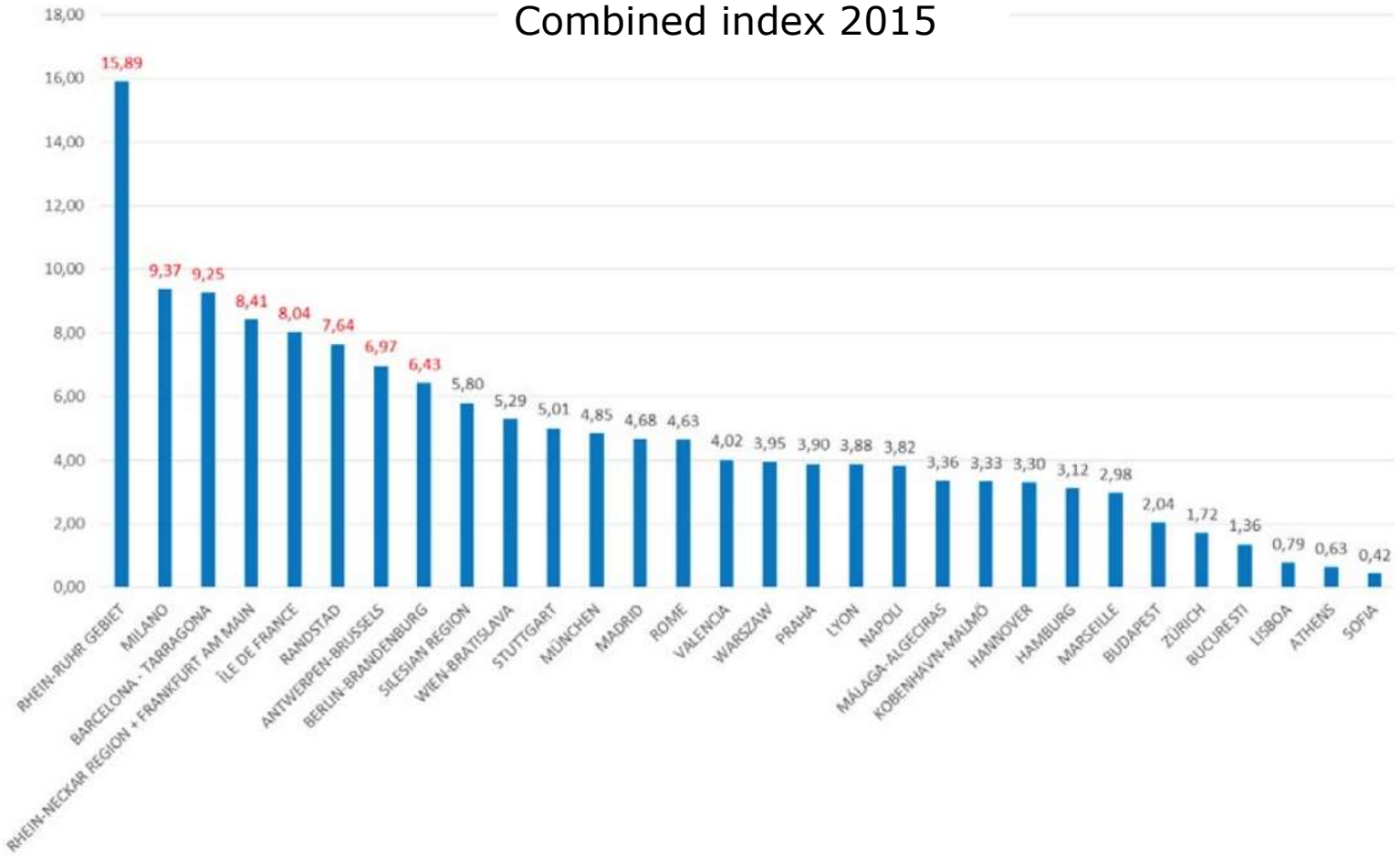


EU STRATEGIC SOCIO-ECONOMIC HUBS

Values weighting

HUB POP	GVA Ind.	INPUT-OUTPUT
1	5	10

HUB NAME	Synthetic index
RHEIN-RUHR GEBIET	15,89
MILANO	9,37
BARCELONA - TARRAGONA	9,25
RHEIN-NECKAR REGION + FRANKFURT AM MAIN	8,41
ÎLE DE FRANCE	8,04
RANDSTAD	7,64
ANTWERPEN-BRUSSELS	6,97
BERLIN-BRANDENBURG	6,43
SILESIAN REGION	5,80
WIEN-BRATISLAVA	5,29
STUTTGART	5,01
MÜNCHEN	4,85
MADRID	4,68
ROME	4,63
VALENCIA	4,02
WARSZAW	3,95
PRAHA	3,90
LYON	3,88
NAPOLI	3,82
MÁLAGA-ALGECIRAS	3,36
KOBENHAVN-MALMÖ	3,33
HANNOVER	3,30
HAMBURG	3,12
MARSEILLE	2,98
BUDAPEST	2,04
ZÜRICH	1,72
BUCURESTI	1,36
LISBOA	0,79
ATHENS	0,63
SOFIA	0,42



DATA COLLECTION OF THE EXISTING INTERMODAL TERMINALS IN THE EU

Classification of L/U		Europe	Share (%)
<250m	A	127	19.7
251 m – 500 m	B	280	43.5
501 m – 700 m	C	163	25.3
701 m – 750 m	D	47	7.3
>750 m	E	27	4.2
	Total	**644**	**100**
	Pass through	79	**12.3**
	Dead end	565	**87.7**
	Possible pass through	66	**10.2**
	C possible enlargement (750 m)	5	**0.8**

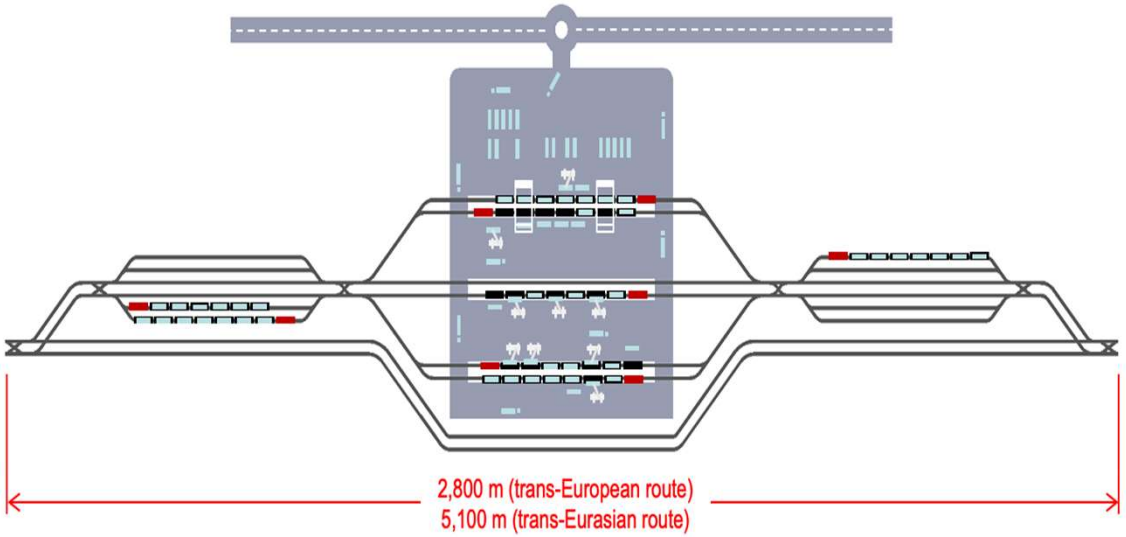
Note: Existing Intermodal terminals in continental EU + Switzerland

IMPACT OF TRAFFIC SCENARIOS IN THE INTERMODAL TERMINALS

425 additional new +FIRRST terminals are required across the EU (plus Switzerland) to accomplish a railway share of 30 % over distances of 300 km

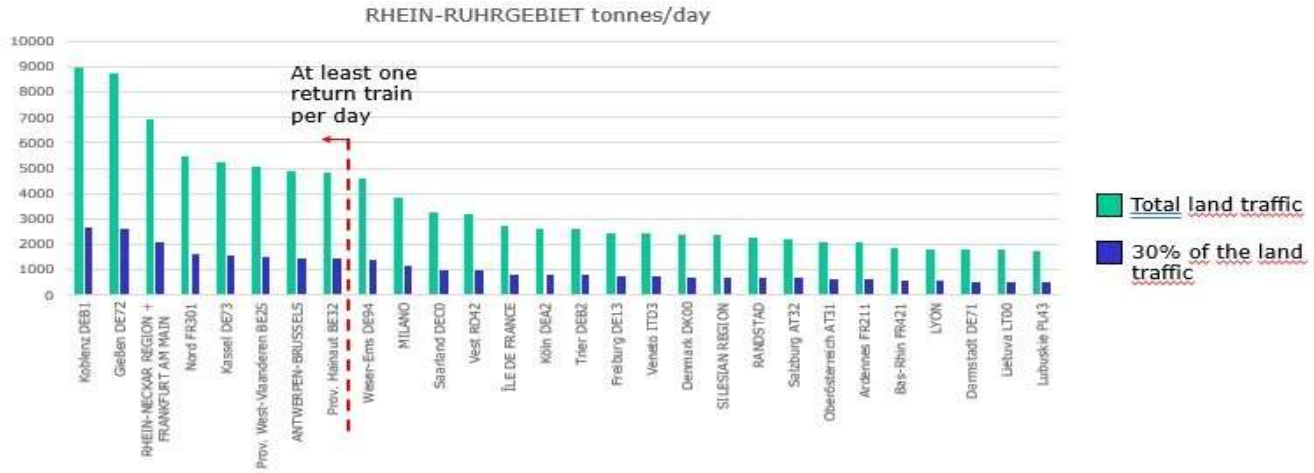
Location of 425 +FIRRST new terminals (19 in Netherlands)

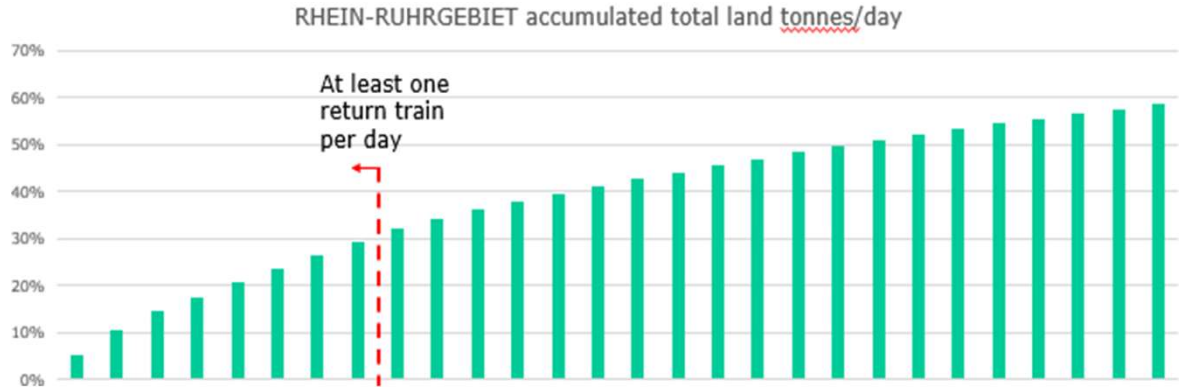
New Intermodal Terminal Concept



WHY +FIRRST?

It is not possible to capture the traffic needed to achieve 30% of rail share with daily Ptp trains:



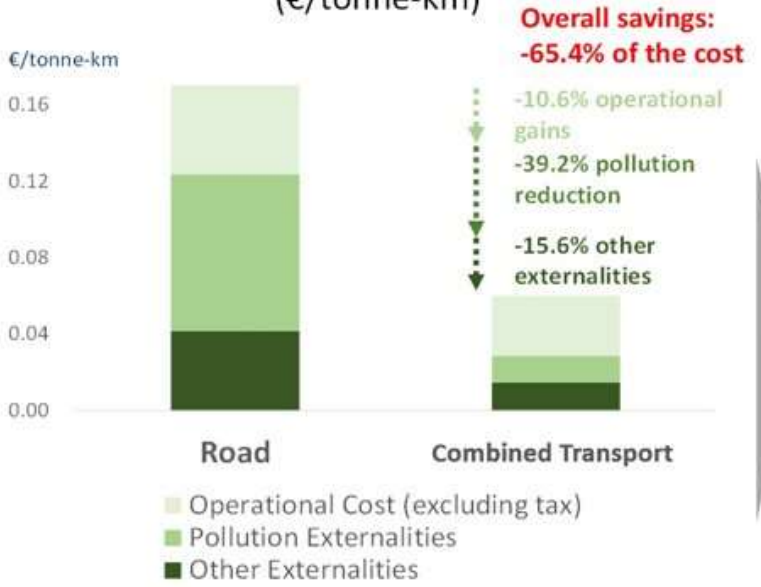


+FIRRST:
FERRMED'S FAST, FLEXIBLE, INTEGRATED RAIL-ROAD TRANSPORT SYSTEM

- **+FIRRST** will move isolated semi-trailers, containers and swap-bodies (ILUs) from/to different destinations in a **fast, flexible integrated rail-road transport system**.
- It is a novel way of **organizing intermodal rail-road transport in the form of "Mobility as a Service (MaaS).**
- Several +FIRRST trains (**Ptp, Sai** and **Sor**) will operate in a framework of a **real time rolling planning concept**, interlinking the EU Socio-Economic Strategic Hubs (+ related intermediate hubs) defined in FERRMED's Study.

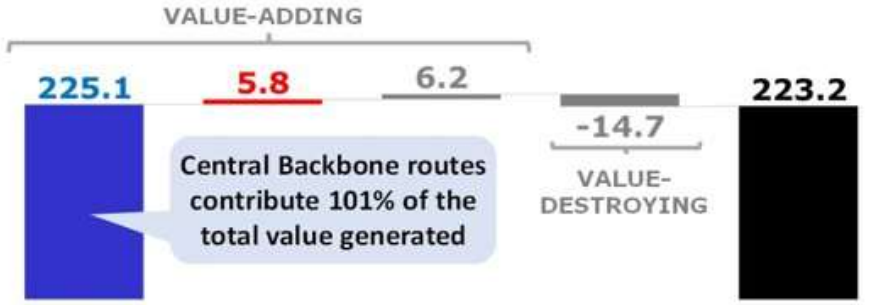
CONCLUSIONS OF THE SOCIO-ECONOMIC EVALUATION IN TERMS OF NVA

1. Marginal economic cost of transport (€/tonne-km)



- **Operational cost reduction.** Road vs +FIRRST combined transport (including taxes): **51.5%**
- **Externality reduction**. Road vs +FIRRST combined transport: **77.0%**

2. Net present value contribution (€ billion, discount rate = 4%)



	Central Backbone: Routes with more than 122,000 t/day, which add up to 65% of total European traffic	Extended Backbone: Routes that, added to those in the Central Backbone, represent 65% of each countries's traffic	Rest of Network (A): Routes located in the countries with more traffic[1] that are excluded from both Central and Extended Backbones	Rest of Network (B): Routes located in the countries with less traffic that are excluded from both Central and Extended Backbones	Total Network Analysed: *Extended Core Network* plus a few routes that, due to their relevance, had to be considered
Length	18,040 km	8,500 km	21,700 km	29,000 km	77,240 km
TEN-T investment (€ 1,000M)	248.7	100.5	45.3	87.4	481.9
FERRMED investment (€ 1,000M)	37.4	18.7	9.0	4.6	69.7

1. The countries within (A) are Austria, Belgium, Czech Republic, France, Germany, Hungary, Italy, Netherlands, Slovakia and Switzerland.

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FERRMED, FAST, FLEXIBLE, INTEGRATED RAIL-ROAD SYSTEM OF TRANSPORT (+FIRRST)

WHY +FIRRST?

As +FIRRST's main goal is to **boost the use of rail** in freight transportation, this is fully **in line** with the objectives of the **European Commission** of **decarbonizing** the transport system under the New Green Deal:

FIT FOR 55

EU's target of reducing net greenhouse gas emissions by at least 55% by 2030

Emission Trading Schemes

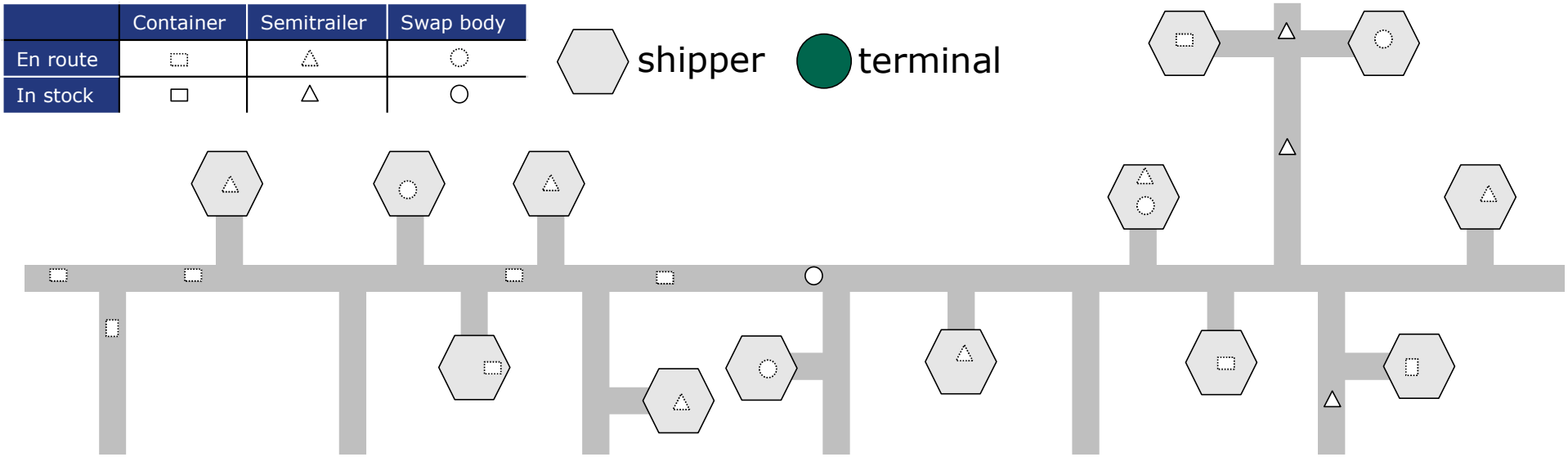
World's first major carbon market, to include road transport by 2027

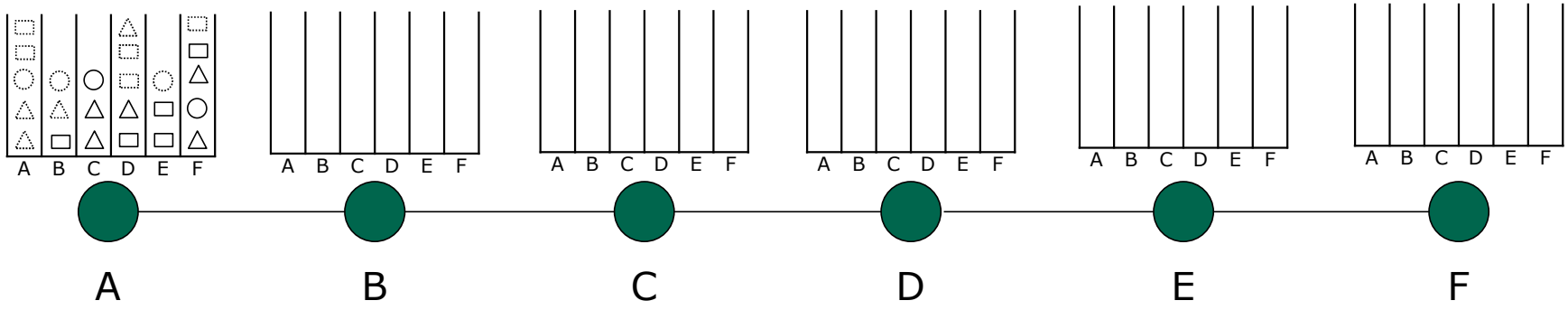
COMMON DATABASE

ORGANISING +FIRRST SERVICES

	Container	Semitrailer	Swap body
En route	□	△	○
In stock	▭	▲	●

shipper terminal

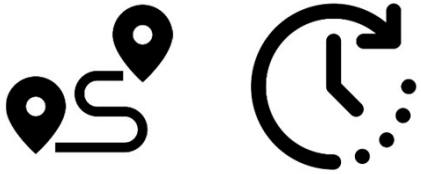




Virtual marshalling yards of ILUs at each terminal

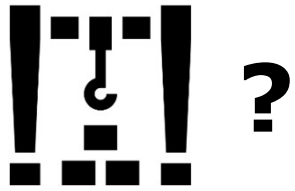
ORGANISING +FIRRST SERVICES

Shippers need to move cargo from point A to point B in a given time slot. These are the requirements that serve as input to the +FIRRST management tool.



Then the system analyzes existing transport chains and proposes the best one according to specific criteria (ETA, lead time, emissions)

The shipper might choose between different combinations of intermodal terminals to select the one with the first or fastest possible integrated transport service.



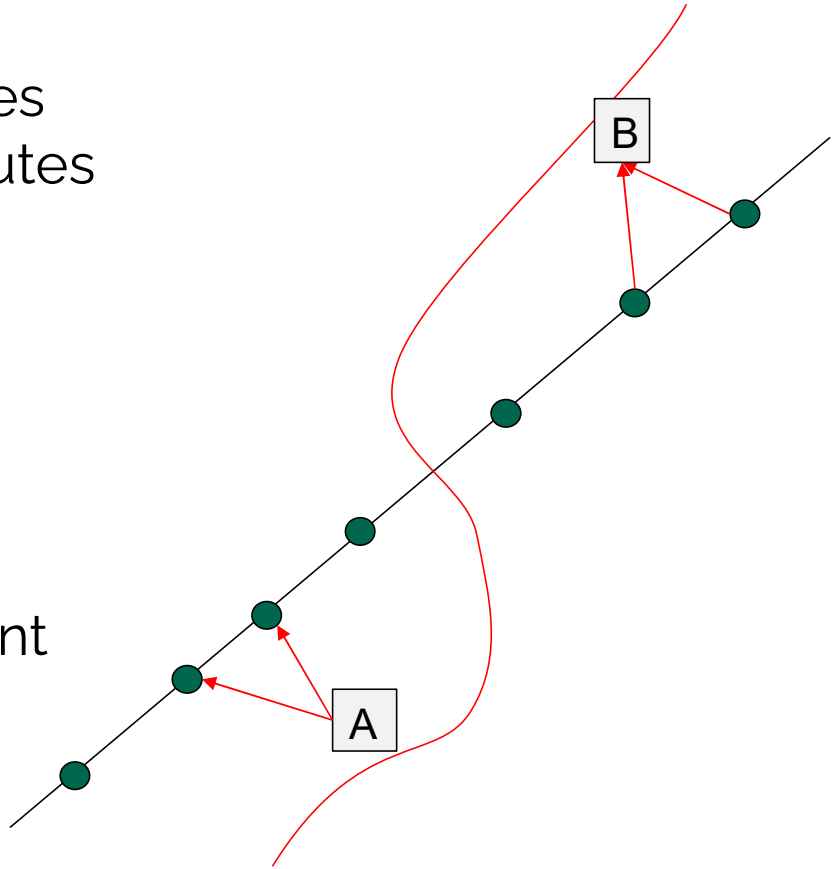
The system always informs of the CO_2 emissions and energy consumption of the chosen route (that can always be compared to other alternatives).

PROCEDURE

The management system provides the shipper different available routes combining rail services and road transport.

It allows sorting by lead time, emissions and ETA

+FIRRST trains allow transshipment between two rail services

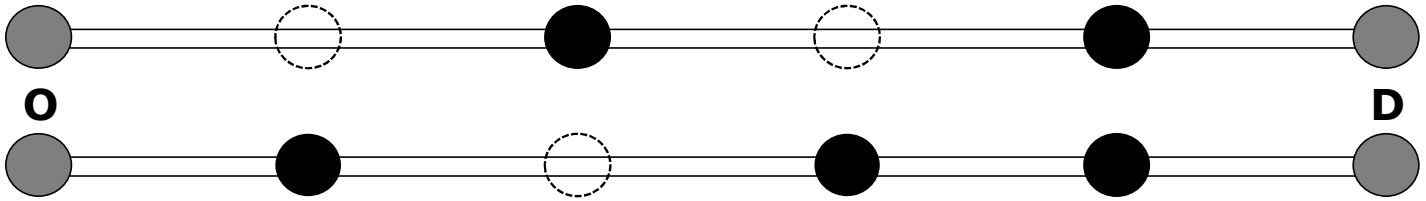


ESTIMATING THE ETA

A critical parameter to control is the Estimated Time of Arrival. +FIRRST system will provide an estimation based on the number of foreseen stops and number of ILUs to be handled.

Each train can have a different ETA even when sharing origin and destination, due to variations in intermediate stops

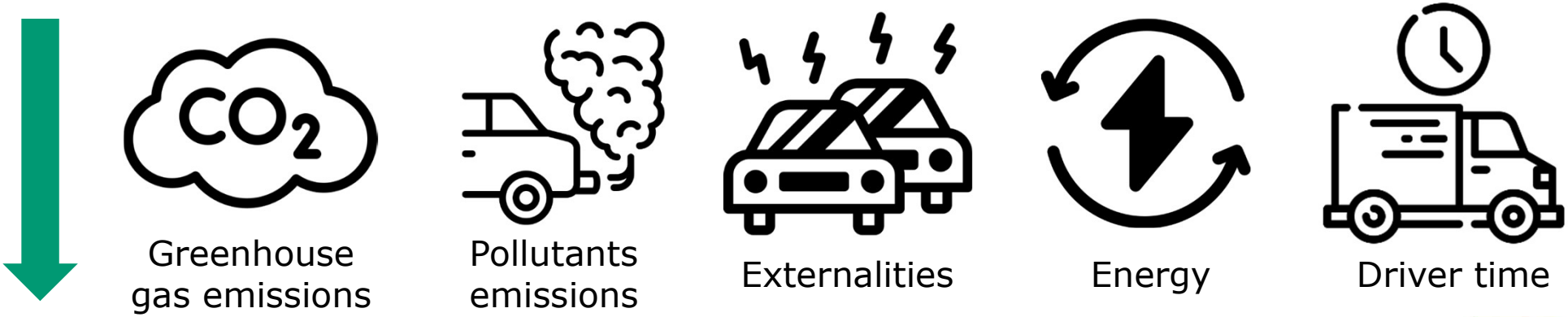
ETA



SAVINGS

For each possible transport combination, the shipper and the operator automatically receive an estimation of the savings of the proposed intermodal route.

This covers all transport segments, including truck hauling to/from intermodal terminals.

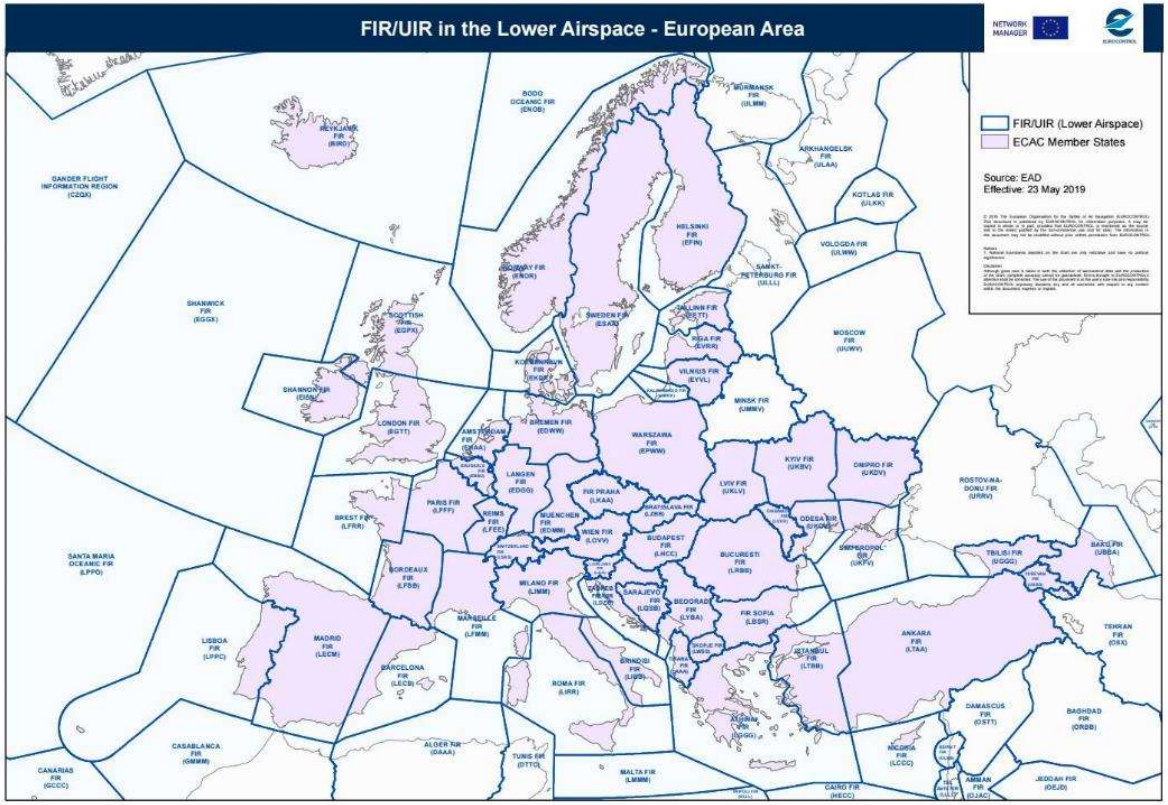


INTERNATIONAL TRAINS

Most rail services in +FIRRST will be international, so there is a need of proper **collaboration among all stakeholders** to ensure smooth operation of trains.

This will require a **centralized control space** similar to that of the air transport:

Single Rail Space



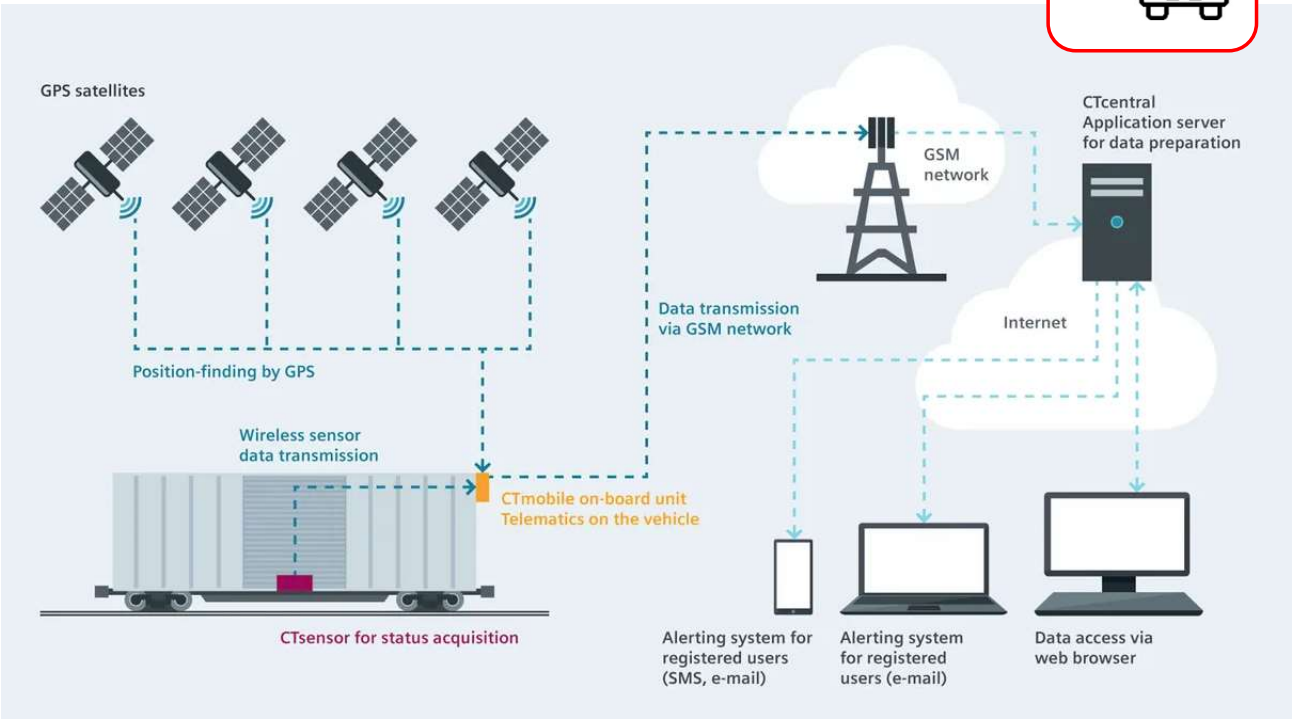
European airspace zones

CONTROL AND TRACEABILITY

The wagons in +FIRRST trains should transmit continuous information about current location and telemetry.

This monitoring needs to be included also in trucks, fully integrating rail-road transport.

Transparency will give confidence to the users of intermodal transport and encourage its use.



Siemens Controlguide CTMobile

www.mobility.siemens.com/global/en/portfolio/digital-solutions-software/infrastructure/telematic-systems.html

WHAT IS NEEDED FOR A REAL TEST?

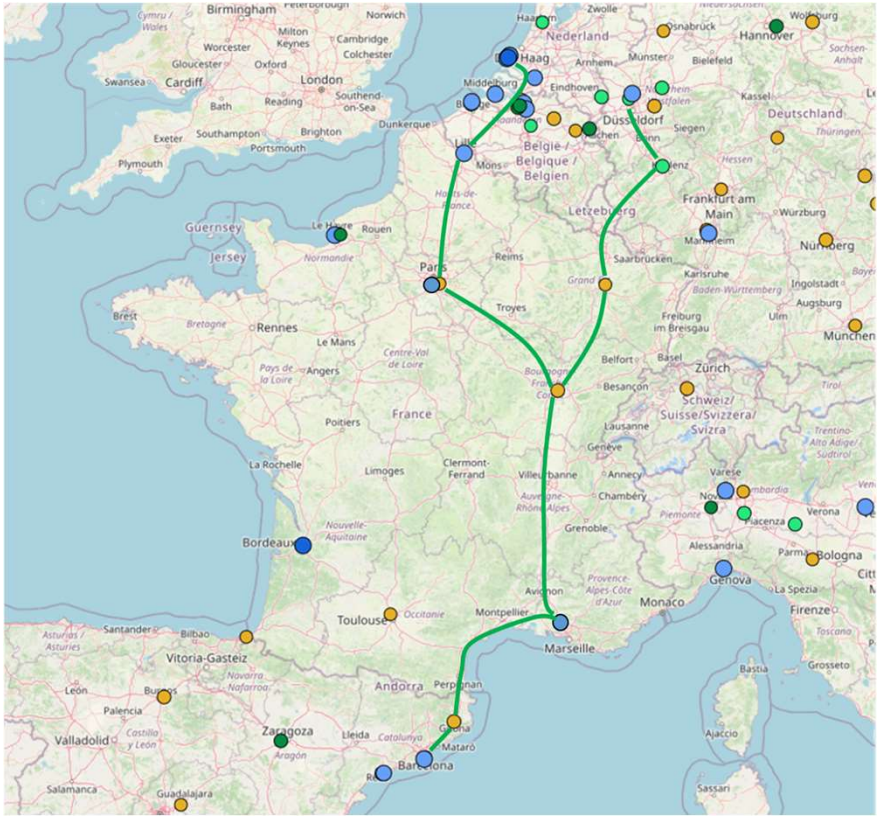
Intermodal terminals: **pass-through** and able to operate **740m long** trains → we want to avoid shunting operations. Provisionally, we can use **shorter tracks** as long as the terminal is **pass-through** (so that the train does not overrun the main track), or **dead-end** terminals with **740m** long tracks.

We need **adequate loading gauge**, ideally **P400** to allow loading semitrailers. P380 or less could be valid to transport swap bodies in a first phase.

In Spain, ADIF is still in the process of mapping the loading gauge in the network. For this reason first test trains will have to start at Barcelona

WHAT IS NEEDED FOR A REAL TEST?

Possible terminals to use in a first and second phase:



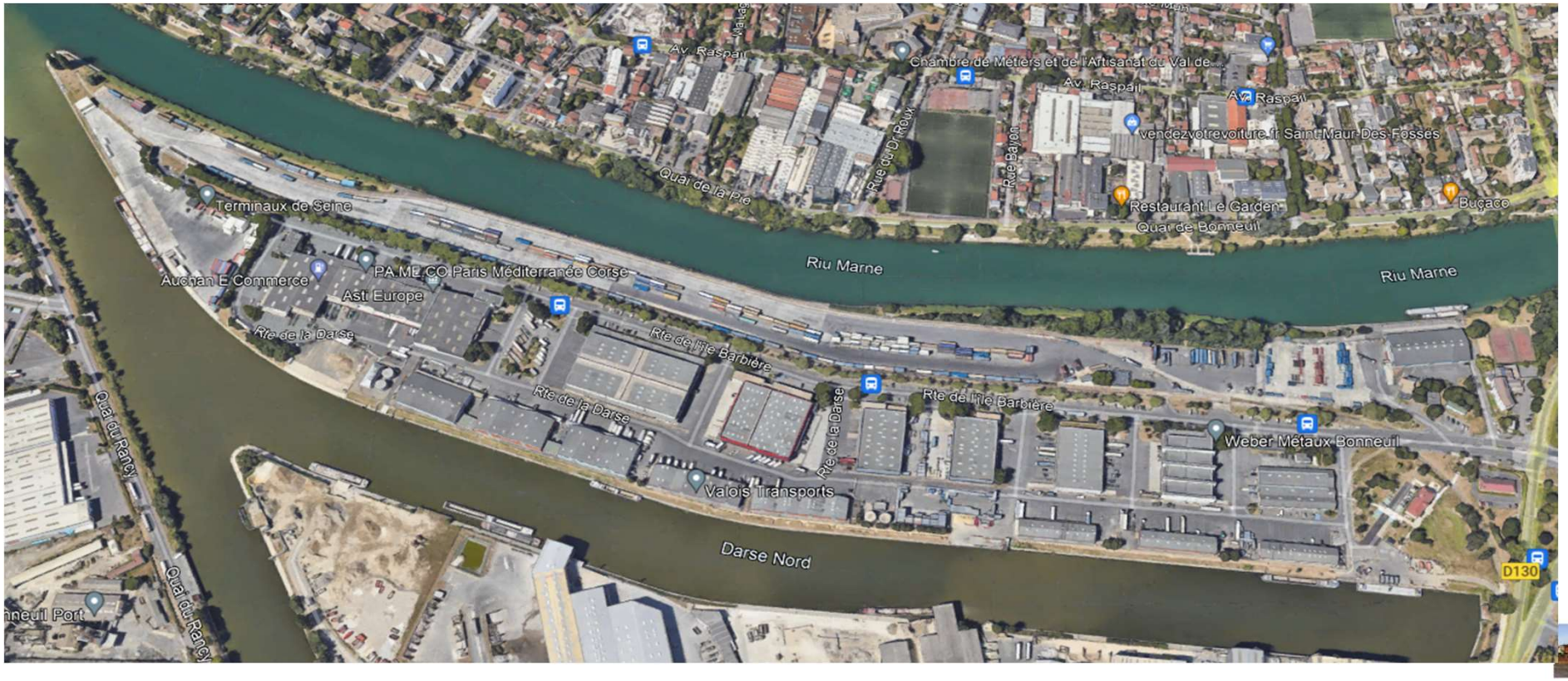
HOW MUCH TRAFFIC CAN BE EXPECTED?

According to the figures of the FERRMED study and depending on the modal share scenarios, the test corridor Rotterdam/Duisburg-Barcelona could achieve the following potential volumes (compared to a potential maximum share of around 25-30% of daily demand in main nodes with Ptp trains):

Route	Rotterdam-Paris-Barcelona
% of potential +FIRRST flows captured in phase 1	55 %
In principle, no significant investments required	-
% of potential +FIRRST flows captured in phase 2	67 %
Investment needed in terminals of phase 2	*€234 M*
% of potential +FIRRST flows captured in phase 3	~ 100 %
Investment needed in terminals of phase 3	*€709 M*

WHAT IS NEEDED FOR A REAL TEST?

Example of terminal to be used for the test: **Bonneuil-sur-Marne**



STAKEHOLDERS' ALLIANCE

This project requires a solid and comprehensive alliance of stakeholders;

- Intermodal terminals
- Infrastructure managers
- Logistics operators
- Railway operators
- Road haulers
- Shippers
- European regions
- Associations of shippers and operators (ESC, IRU, UIRR…)
- Multisectoral associations (FERRMED)
- European agencies (ERA, DGMOVE, EIB…)

Plus it is necessary to find funding: Connecting Europe Facility (CEF), Cohesion Fund (CF), European Regional Development Fund (ERDF,) European Investment Bank (EIB)…

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ROLLING STOCK

REQUISITS:

- **Locomotores elèctriques,** amb possibilitat de funcionar desconnectades de la catenària (bateries, motor dièsel, ...)
- **Locomotores capaces d'arrossegar trens de 2.000 Tones brutes**
- **Vagons polivalents,** aptes per dur semi tràilers, contenidors i swap bodies amb els menys canvis possibles.
- **Altres tipus de vagons**, d'acord amb el servei que han d'oferir.

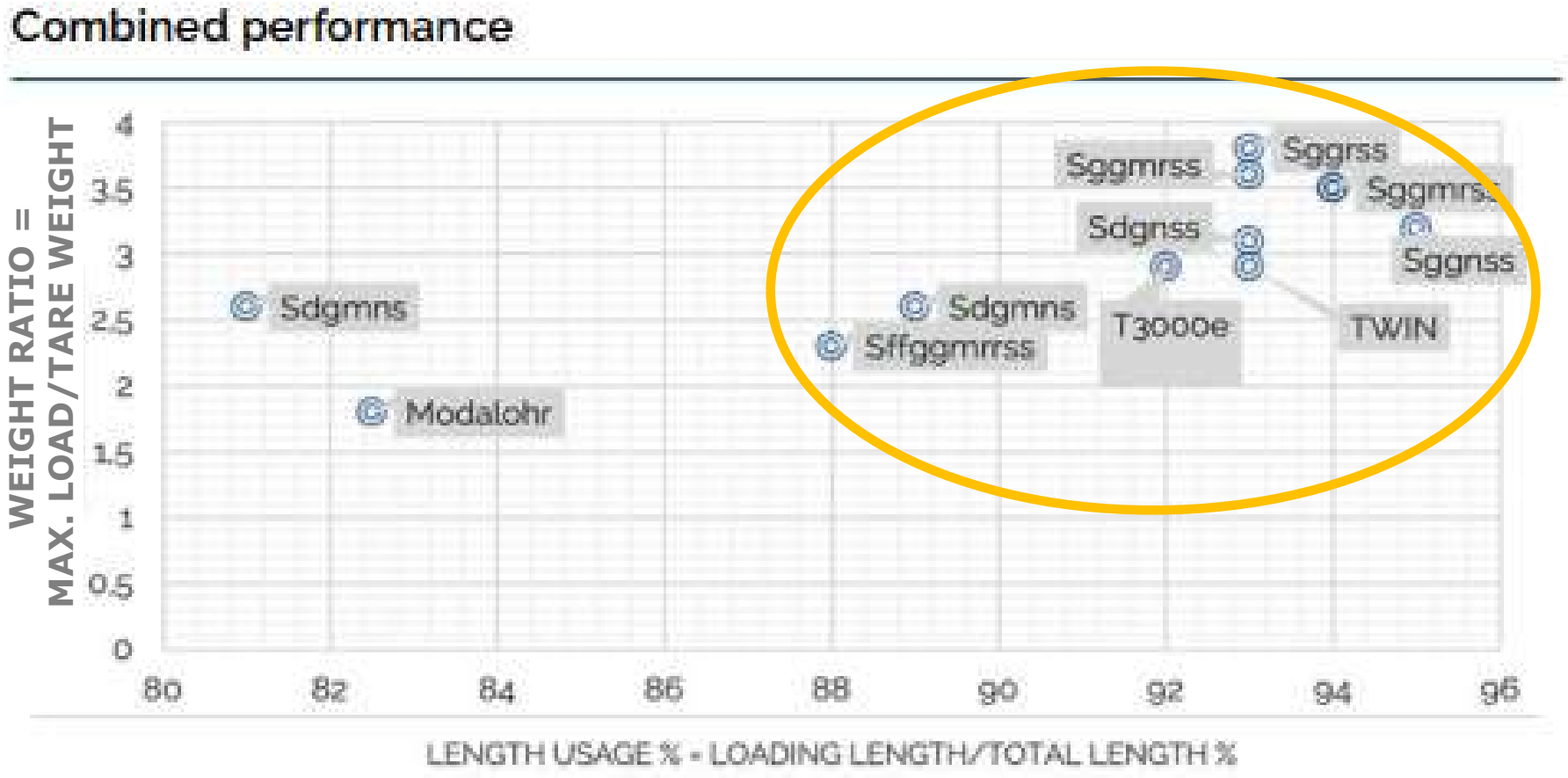
COMPOSICIÓ DELS TRENS +FIRRST: LOCOMOTORES

Locomotives for +FIRRST trains

Name	Manufacturer	Type	Electric Power (kW)	Diesel/Bat Power (kW)	N° axles	Starting Tractive Effort (kN)	Max. speed (km/h)
EURO9000	STADLER	DUAL	9,000	D 2 x 950 or B 2 x 600	6	500	160
EURODUAL	STADLER	DUAL	Up to 7,000	D 2,800	6	500	120 (Opt. 160)
VECTRON LM	SIEMENS	Last mile	6,400	D 240	4	300	160
TRAXX AC3 LM	BOMBARDIER	Last mile	5,600	D 320	4	300	160 (Diesel 50)

COMPOSICIÓ DELS TRENS +FIRRST: LOCOMOTORES

COMPOSICIÓ DELS TRENS +FIRRST: VAGONS



COMPOSICIÓ DELS TRENS +FIRRST: VAGONS

Efficiency of some freight wagons

Wagon	Type	Length over buffers (mm)	ILU	ILU length (m)	Qty	Length occupied (m)	Ratio (%)
Sdggmrss	TWIN	34.030	ST	13.6	2	27.2	79.9
			CT 20'	6.06	4	24.24	71.2
			CT 40'	12.19	2	24.38	71.6
			SB 20'	7.17-7.82	4	28.68-31.28	84.3-91.9
			SB 40'	12.20-13.72	2	24.40-27.44	71.7-80.6
Sdggmrss	T3000e	34.200	ST	13.6	2	27.2	79.5
			CT 20'	6.06	4	24.24	70.8
			CT 40'	12.19	2	24.38	71.3
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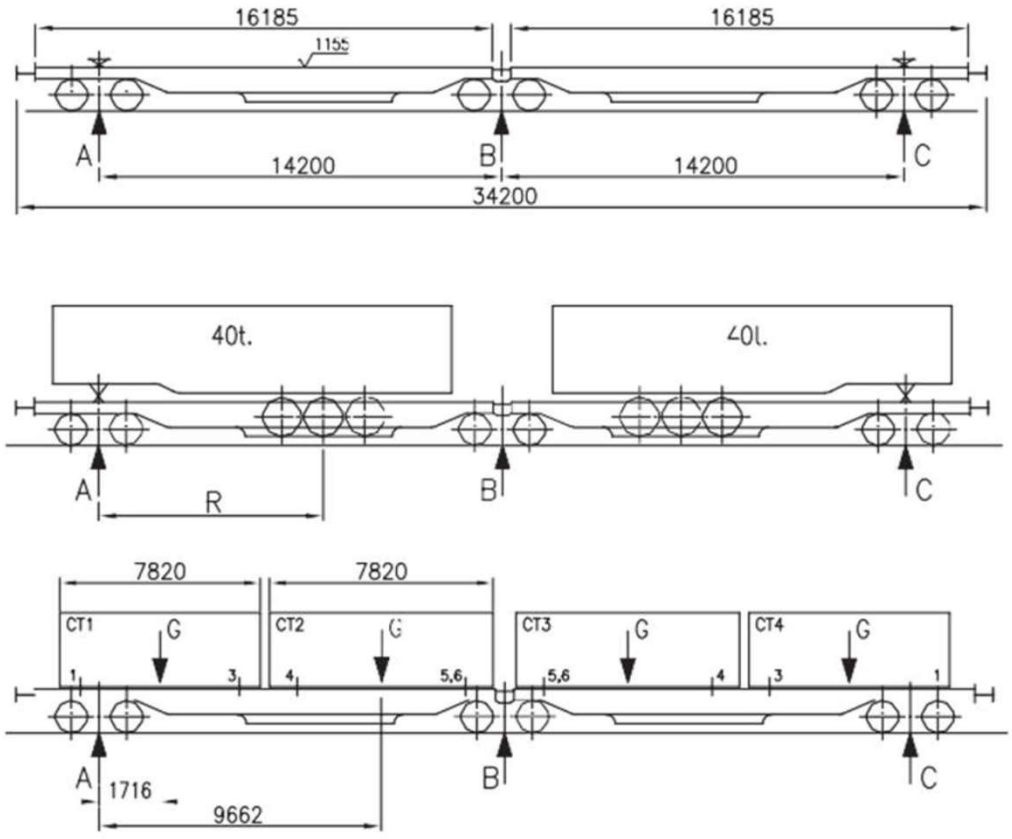
			SB 40'	12.20-13.72	2	24.40-27.44	71.3-80.2
Sdgnss	T5	20.200	ST	13.6	1	13.6	67.3
			CT 20'	6.06	2	12.12	60.0
			CT 40'	12.19	1	12.19	60.3
			SB 20'	7.17-7.82	2	14.34-15.64	71.0-77.4
			SB 40'	12.20-13.72	1	12.20-13.72	60.4-67.9
Sdgnss	743	18.340	ST	13.6	1	13.6	74.1
			CT 20'	6.06	2	12.12	66.1
			CT 40'	12.19	1	12.19	66.5
			SB 20'	7.17-7.82	2	14.34-15.64	78.2-85.3
			SB 40'	12.20-13.72	1	12.20-13.72	66.5-74.8
UIC 2	Modalohr	32.940	ST	13.6	2	27.2	82.5
			CT 40'	12.19	2	24.38	74.0
Sggnss 80'	Equiv. FERRMED wagon	25.940	CT 20'	6.06	4	24.24	93.4
			CT 40'	12.19	2	24.38	94.0

COMPOSICIÓ DELS TRENS +FIRRST: VAGONS



Vagó T3000e

COMPOSICIÓ DELS TRENS +FIRRST: VAGONS

Vagó T3000 amb trailer i dos contenidors de 20’

COMPOSICIÓ DELS TRENS +FIRRST: VAGONS

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			CT 40'	12.19	1	12.19	66.5
			SB 20'	7.17-7.82	2	14.34-15.64	78.2-85.3
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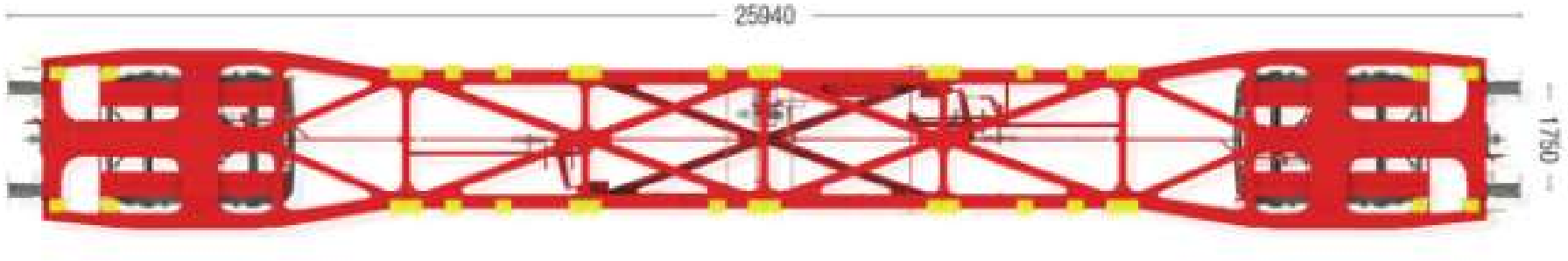
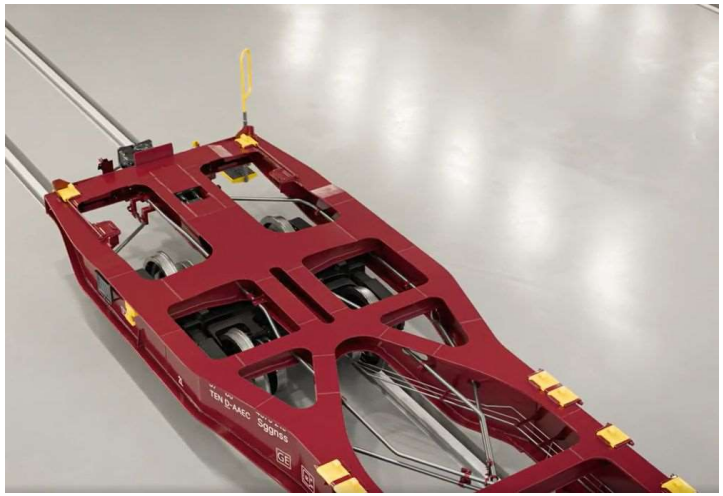
Vagó Sggnss 80’

El seu disseny està basat amb el vagó LMPW, definit per FERRMED l’any 2010. És adequat per a trens que han de prestar servei als ports, degut a que la càrrega té un gran percentatge de contenidors.



COMPOSICIÓ DELS TRENS +FIRRST: VAGONS

Vagó Sggnss 80XLs



FERRMED

Promotion du Grand Axe Ferroviaire de marchandises
Scandinavie-Rhin-Rhône-Méditerranée Occidentale A.S.B.L

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Industrials de Catalunya

DETERMINACIÓ DEL NOMBRE DE TERMINALS INTERMODALS

DATA COLLECTION OF THE EXISTING INTERMODAL TERMINALS IN THE EU

Classification of L/U		Europe	Share (%)
<250m	A	127	19.7
251 m – 500 m	B	280	43.5
501 m – 700 m	C	163	25.3
701 m – 750 m	D	47	7.3
>750 m	E	27	4.2
	Total	**644**	**100**
	Pass through	79	**12.3**
	Dead end	565	**87.7**
	Possible pass through	66	**10.2**
	C possible enlargement (750 m)	5	**0.8**

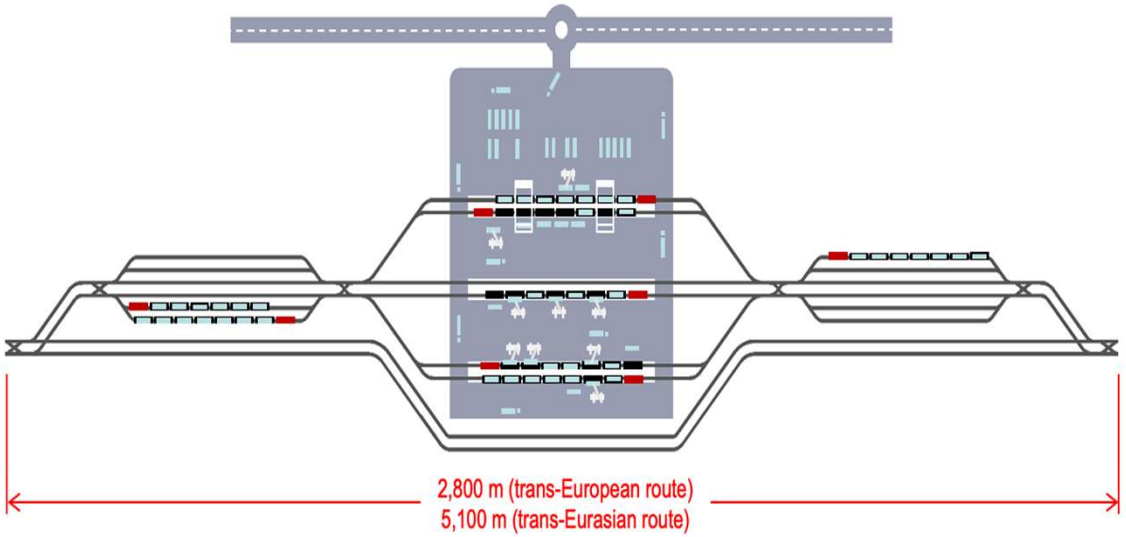
Note: Existing Intermodal terminals in continental EU + Switzerland

IMPACT OF TRAFFIC SCENARIOS IN THE INTERMODAL TERMINALS

425 additional new +FIRRST terminals are required across the EU (plus Switzerland) to accomplish a railway share of 30 % over distances of 300 km

Location of 425 +FIRRST new terminals (19 in Netherlands)

New Intermodal Terminal Concept



IMPACT OF TRAFFIC SCENARIOS IN INTERMODAL TERMINALS AND INTERCONNECTION LINKS

Terminal handling capacity per region (NUTS2/NUTS3): example for Girona

TERMINAL	Global traffic Rail + Road 2015 (30%)	PTP Rail traffic 2015	PTP		FIRRST	
			2030 stagnant	2030 Δ20%	2030 stagnant	2030 Δ20%
GIRONA	***20.700***	***2.000***	***2.600***	***3.120***	***18.100***	***21.720***
Vilamalla terminal			2.800	2.800		
New +FIRRST terminal in South Vilamalla					9.200	9.200
New +FIRRST mini terminal in Celrà					800	800
Girona mercaderies terminal (passing-through)			2.800	2.800		
New +FIRRST semicompact terminal between Riudellots de la Selva and Caldes de Malavella					14.000	14.000
Total:			**5.600**	**5.600**	**24.000**	**24.000**
Difference:			3.000	2.480	5.900	2.280

A. Terminal name and location
B. 30% of total daily traffic in 2015
C. Daily Point-to-point rail transport 2015
D. Daily Point-to-point rail transport 2030 and capacity of terminals
E. Daily Point-to-point rail transport 2030+20% and capacity of terminals
F. Additional daily rail transport in 2030 to achieve 30% share
G. Additional daily rail transport in 2030+20% to achieve 30% share

CAPACITY TABLE
CASE OF BARCELONA

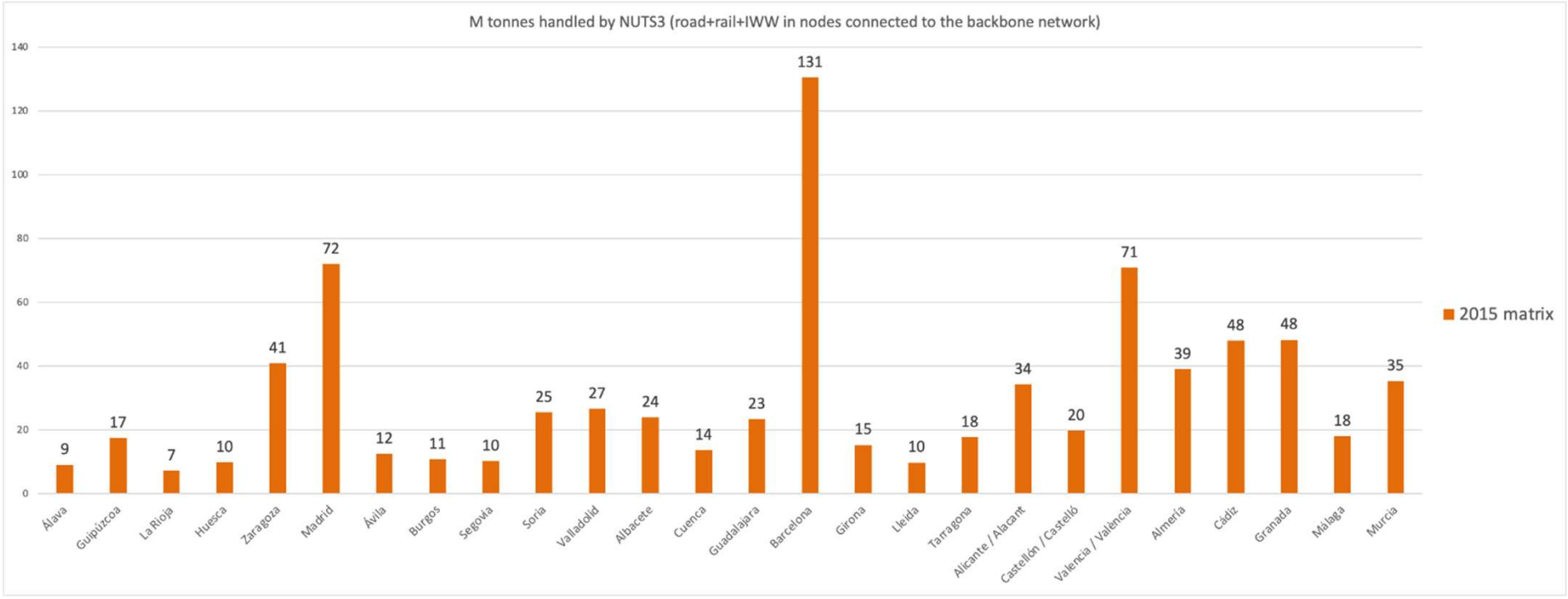
TERMINAL	Global traffic Rail + Road 2015 (30%)	PTP Rail traffic 2015	PTP		FIRRST		PTP Port Share scenario 60/40	
			2030 stagnant	2030 Δ20%	2030 stagnant	2030 Δ20%	PTP 2030 Δ20% 60/40	+FFIRRST 2030 Δ20% 60/40
BARCELONA	***97.500***	***16.000***	***20.800***	***24.960***	***76.700***	***92.040***	***50.960***	***92.040***
Granollers mercaderies (enlargement) +FIRRST-C semi-compact terminal			8.960	8.960	22.400	22.400	8.960	22.400
Pastas Gallo (bulk) in Granollers			1.800	1.800				
Repsol (liquid) in Montornés del Vallès			1.400	1.400			1.400	
La Llagosta car terminal			3.000	3.000			3.000	
New +FIRRST semi-compact terminal between la Florida and Ripollet					18.400	18.400		18.400
Castellbisbal terminal (enlargement) +FIRRST System					4.400	4.400		4.400
CELSA in Castellbisbal			2.000	2.000			2.000	
Gonvarri Barcelona in Castellbisbal			400	400			400	
New +FIRRST semi-compact terminal in the old riverbed of the Llobregat river					28.800	28.800		28.800
BEST Port terminal (Port of Barcelona)			9.940	9.940			9.940	
2 new terminals in the Southern dock of the Port of Barcelona			19.880	19.880			19.880	
Grupo Alonso Setemar terminal (Port of Barcelona)			5.180	5.180			5.180	
Morrot port terminal (Port of Barcelona)			26.460	26.460			26.460	
APM terminal (Port of Barcelona)			9.940	9.940			9.940	
ICL Iberia terminal (Port of Barcelona)			800	800			800	
SEAT terminal in Martorell			2.200	2.200			2.200	
SEAT factory in Barcelona Zona Franca*			2.000	2.000				
Autoterminal (Port of Barcelona)			2.400	2.400			2.400	
SETRAM car terminal 1 (Port of Barcelona)			1.000	1.000			1.000	

CAPACITY TABLE
CASE OF BARCELONA

TERMINAL	Global traffic Rail + Road 2015 (30%)	PTP Rail traffic 2015	PTP		FIRRST		PTP Port Share scenario 60/40	
			2030 stagnant	2030 Δ20%	2030 stagnant	2030 Δ20%	PTP 2030 Δ20% 60/40	+FFIRRST 2030 Δ20% 60/40
SETRAM car terminal 2 (Port of Barcelona)			1.000	1.000			1.000	
Railsider Mediterráneo in Port of Barcelona			50	50			50	
Molenbernative in Port of Barcelona			50	50			50	
Bergé logistics in Port of Barcelona			50	50			50	
Naeko logistic in Port of Barcelona			50	50			50	
Relisa in Port of Barcelona			450	450			450	
Transfesa Port of Barcelona			450	450			450	
Ergransa (bulk) in Port of Barcelona			800	800			800	
New +FIRRST terminal in Igualada					18.400	18.400		18.400
Alstom factory in Sta. Perpètua de la Mogoda			40	40			40	
TEPSA Moll Energía			3.375	3.375			3.375	
Transportes ferroviales especiales - Moll Energia			1.500	1.500			1.500	
Inovyn Martorell (chemical plant)			400	400			400	
Cargill Martorell (chemical plant)			200	200			200	
New +FIRRST intermediate full terminal between Vic and Manlleu (C-25/C-17)					4.800	4.800		4.800
Bulk terminal in Gurb-Vic (cereals)			200	200			200	
New +FIRRST mini terminal in Manresa					800	800		800
Harinera Vilafranquina in els Monjos			900	900				
Total:			**106.875**	**106.875**	**98.000**	**98.000**	**102.175**	**98.000**
Difference:			84.075	79.915	21.300	5.960	51.215	5.960

Example of model results: SPAIN (NUTS3)

(Over 300km)



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STAKEHOLDERS ALLIANCE FOR THE IMPLEMENTATION OF THE +FIRRST SYSTEM IN THE EU

PURPOSE OF THE ALLIANCE

The primary purpose of this Alliance is to realise the pilot test of the +FIRRST implementation in the catchment area of the rail route:

a. Rotterdam-Antwerpen-Brussels-Lille-Paris-Dijon-Lyon-Marseille-Montpellier-Barcelona.

b. Duisburg-Düsseldorf-Köln-Koblenz-Luxembourg-Metz-Nancy-Dijon-Lyon-Marseille-Montpellier-Barcelona.

Potential enlargement of the railway routes in the catchment area could be envisaged

OBJECTIVES OF THE ALLIANCE (I)

a. To facilitate the collaboration and communication among stakeholders.

b. To involve the stakeholders in the realization of the +FIRRST Pilot test. In this regard, **three sorts of stakeholder are envisaged: Promoters, Implementers and Supporters**.

The promoters, together with the implementers and main supporters, will look for:

I. **The detailed definition of the +FIRRST Pilot test** (operation, software, infrastructure, rolling stock, etc.).

OBJECTIVES OF THE ALLIANCE (II)

II. The detailed definition of the implementation stages:

1st phase a) Removing crossborder barriers.

1st phase b) Implementing +FIRRST considering selected existing intermodal terminals.

2nd phase. Implementing +FIRRST considering selected existing intermodal terminals and additional +FIRRST terminals in abandoned or semi-abandoned marshalling yards.

III. Sources of funding.

IV. The involvement of the actors in the +FIRRST Pilot Test development and implementation.

c. To monitor the +FIRRST Pilot Test execution.

MEMBERSHIP (I)

Who may become a member

Every organisation that supports the Project can become a member of this Alliance.

Membership grouping

a. **Promoters**: ESC, FERRMED, IRU, UIRR and MCRIT
b. **Implementers**: Shippers, rail operators, road transporters, infrastructure managers, intermodal terminals, logistics operators, flow control centres…
c. **Supporters**: Any kind of entities interested in the Project e.g. Associations related to transport and logistics, main ports, business associations, specialised media, involved member states, involved regions, etc.

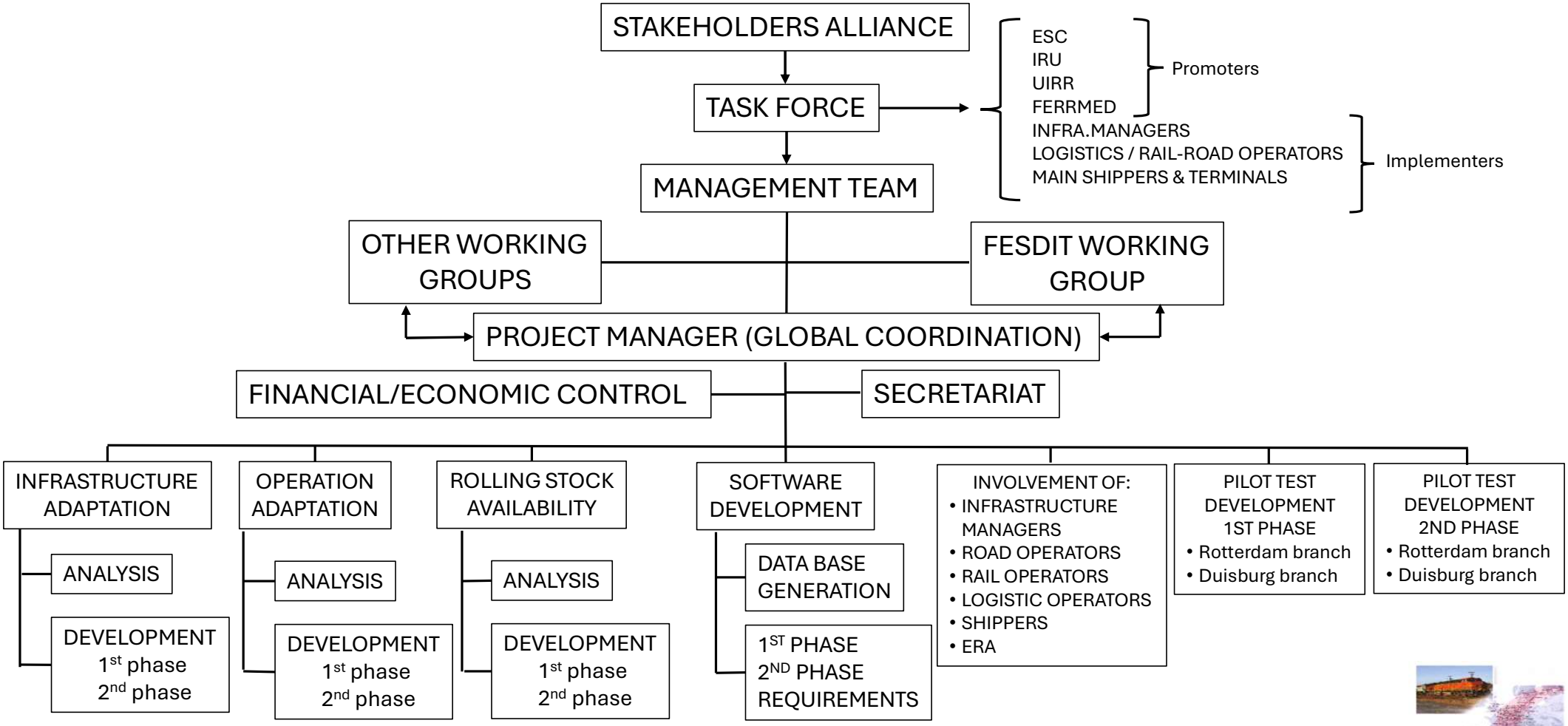
MEMBERSHIP (II)

Membership criteria

a. Commitment with the Alliance's purpose and objectives.

b. Ability to contribute time and resources to the Alliance's activities (this contribution will depend on the role in the Alliance as well as the specialization of each member).

STAKEHOLDER ALLIANCE – ORGANIZATION CHART



POSSIBLE MEMBERS OF THE ALLIANCE (I)

ASSOCIATIONS RELATED TO TRANSPORT AND LOGISTICS

- ESC
- IRU
- CER*
- ERFA
- CLECAT
- UIC*
- UIRR
- IN MOVE Rail Group
- FERRMED
- Global Cold Chain Association (GCCA) *
- …

LOGISTIC OPERATORS

- HUPAC *
- Synergy
- DSV
- DB Schenker
- Jan de Rÿk Logistics

RAILWAY INFRASTRUCTURE MANAGERS

- DB Netz
- ProRail
- INFRABEL*
- SNCF Réseau *
- LFP Perthús
- ADIF *
- CFL

INTERMODAL TERMINALS

- BEST
- CIMALSA
- Contargo
- Naviland
- …

Confirmed Promoters
Confirmed Implementers
Confirmed Supporters
* = Already contacted

ROAD TRANSPORTERS

- Calsina-Carré
- …

RAILWAY FREIGHT OPERATORS

- DB Cargo
- CAPTRAIN*
- LINEAS
- RENFE Mercancías
- VIIA

SHIPPERS

- SEAT/VOLKSWAGEN & suppliers
- Heineken
- AB InBev
- BASF
- FORD*
- RENAULT-NISSAN

POSSIBLE MEMBERS OF THE ALLIANCE (II)

INITIAL MAIN PORTS

- Port of Rotterdam *
- Port of Antwerp Bruges *
- North Sea Port (Vlissingen/Ghent)
- Port of Duisburg*
- Grand Port Marseille-Fos*
- Port of Barcelona*
- Port of Tarragona
- Port of València*
- ...

FLOW CONTROL PROCESS

- ERA*
- Certifydoc
- Project44
- HUPAC *
- ...

PILOT TEST INITIAL INVOLVED REGIONS

- Zuid Holland *
- Zeeland
- Flanders
- Brussels-Capital Region
- Wallonia
- Nord-Pas-de-Calais
- Île de France
- Grand Est
- Bourgogne-Franche-Comté
- Auvergne-Rhône-Alpes
- Provence-Cote d'Azur *
- Occitanie
- Catalonia*
- North-Rhine-Westphalia *
- Rhineland-Palatinate
- Saarland

BUSINESS ASSOCIATIONS

- ACEA
- BUSINESS EUROPE
- CLEPA
- SME UNITED*
- FOMENT DEL TREBALL
- PIMEC
- AMEC
- CECOT

PILOT TEST INVOLVED STATES

- The Netherlands
- Germany
- Belgium
- Luxembourg
- France *
- Spain *

SPECIALISED MEDIA

- Fructidor.com
- Rail Freight Magazine
- The Economist / FT
- Politico

CONSULTANT COMPANY

- MCrit

TENTATIVE TIMING FOR +FIRRST PILOT TEST

	2024	2025	2026	2027	2028
Constitution of the Stakeholders Alliance					
Creation of the task force for the test development					
Selection of funding sources					
Preparation of the documentation for the call for proposals					
Approval of the call for proposal					
Test Study development					
Approval of the test development plan					
Start of the First phase of the test					
Test development and control/assess “First phase”					
Preparation for second phase taking into account first phase assessment (as well as additional terminals)					
Construction of +FIRRST terminals in existing marshalling yards					
Start of the second phase of the test					

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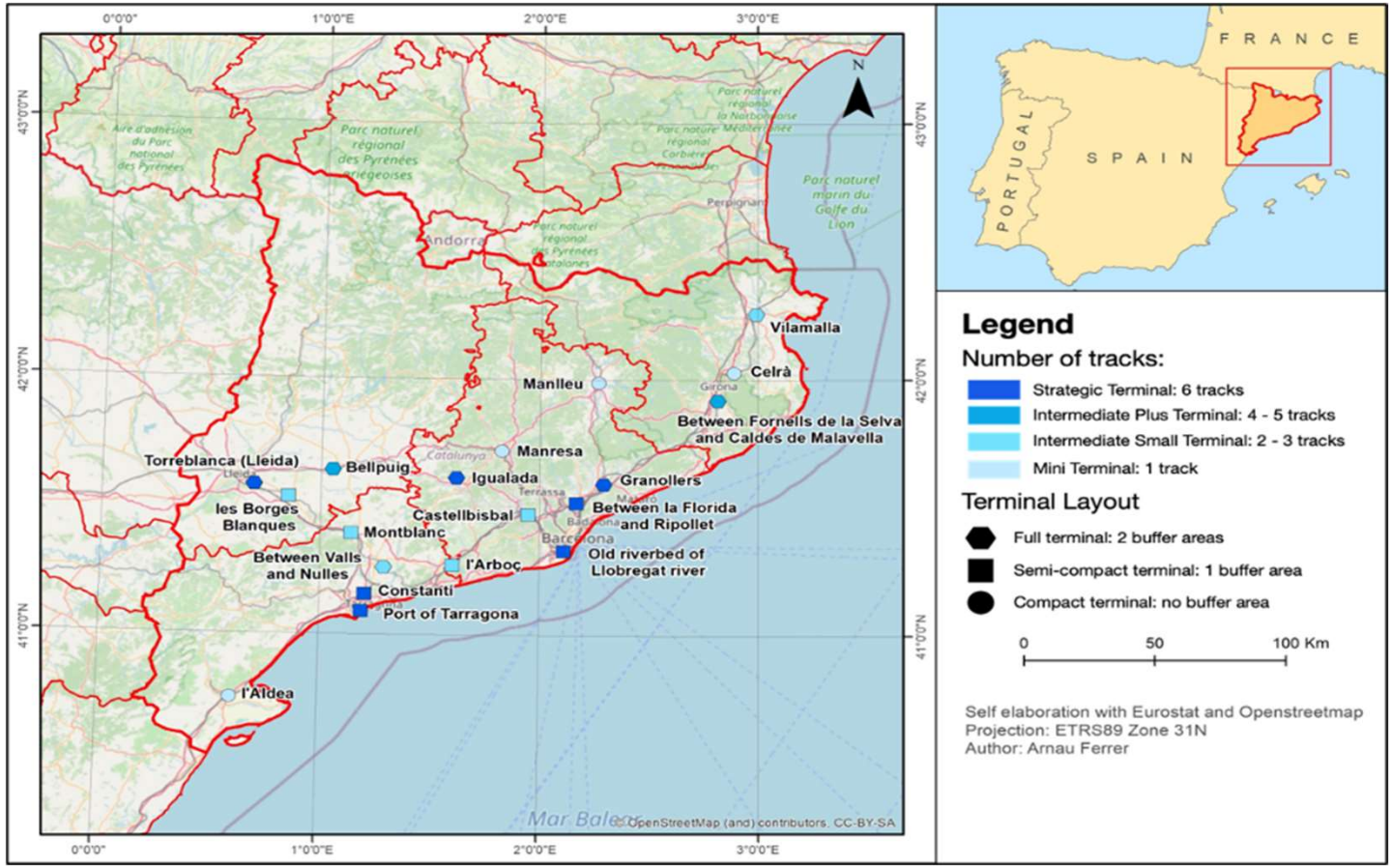
IMPLANTACIÓ DE LES CONCLUSIONS DEL FERRMED STUDY A CATALUNYA

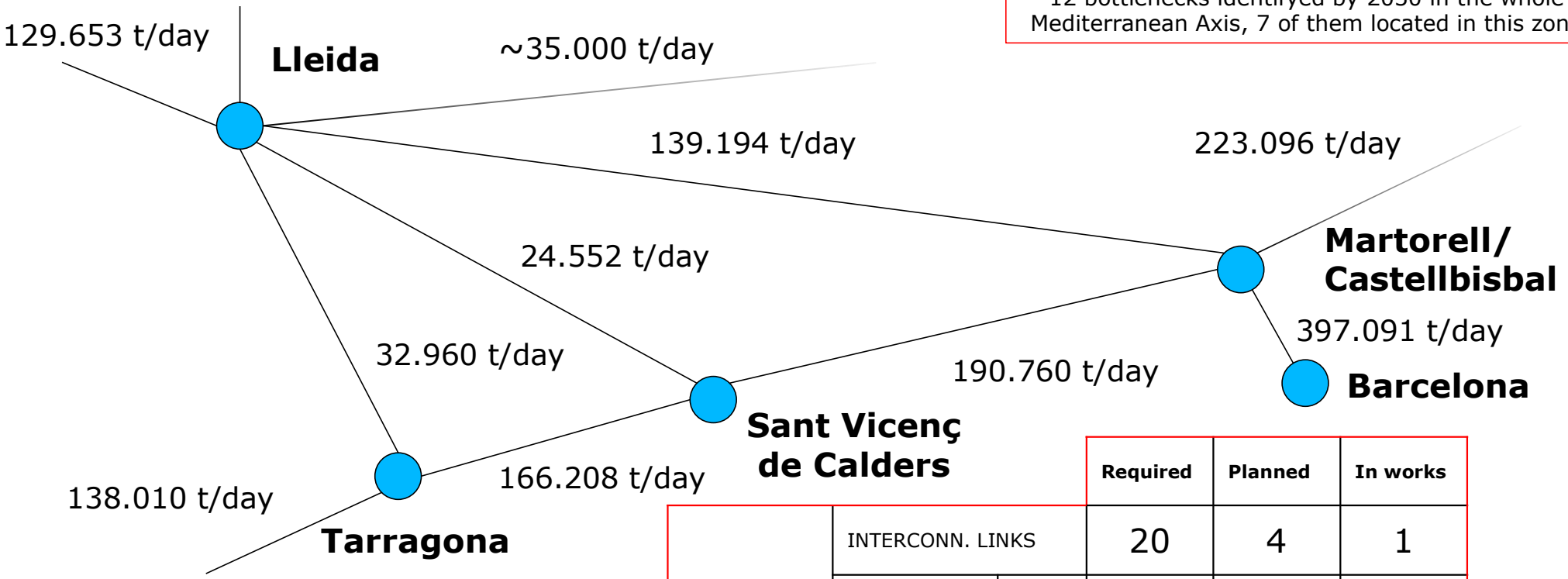
MAPA DE LES TERMINALS +FIRRST A CATALUNYA



CONFLUENCE BETWEEN EBRO AXIS – MEDITERRANEAN AXIS (DAILY FREIGHT VOLUMES)

(EU threshold (65%) = 122,000 t/day)

12 bottlenecks identifyed by 2030 in the whole Mediterranean Axis, 7 of them located in this zone



			Required	Planned	In works
Required actions	INTERCONN. LINKS		20	4	1
	INTERMODAL TERMINALS	NEW	16	3	-
		REFB.	6	3	1

ÀMBIT DEL CORREDOR MEDITERRANI

Estat Espanyol

Inversions segons el pla del Ministeri de Foment presentat a Barcelona l'any 2011, afegint alguns trams ferroviaris mancants estudiats per FERRMED.

Resoldre la problemàtica de les Rodalies de Barcelona i València.

Línia doble des de la frontera francesa fins a Algesires.

Noves terminals i reconversió/ampliació d'algunes de les existents en tot el recorregut i nous accessos als ports de Castelló, Cartagena, Sagunt i Almería.

República Francesa

By-pass Est per a mercaderies a l'aglomeració de Lyon.

Nova línia Montpeller – Perpinyà.

Noves terminals i reconversió/ampliació d'algunes de les existents en tot el recorregut.

ACTUACIONS REQUERIDES A LA XARXA FERROVIÀRIA DE CATALUNYA

Total investment in the EU in B€

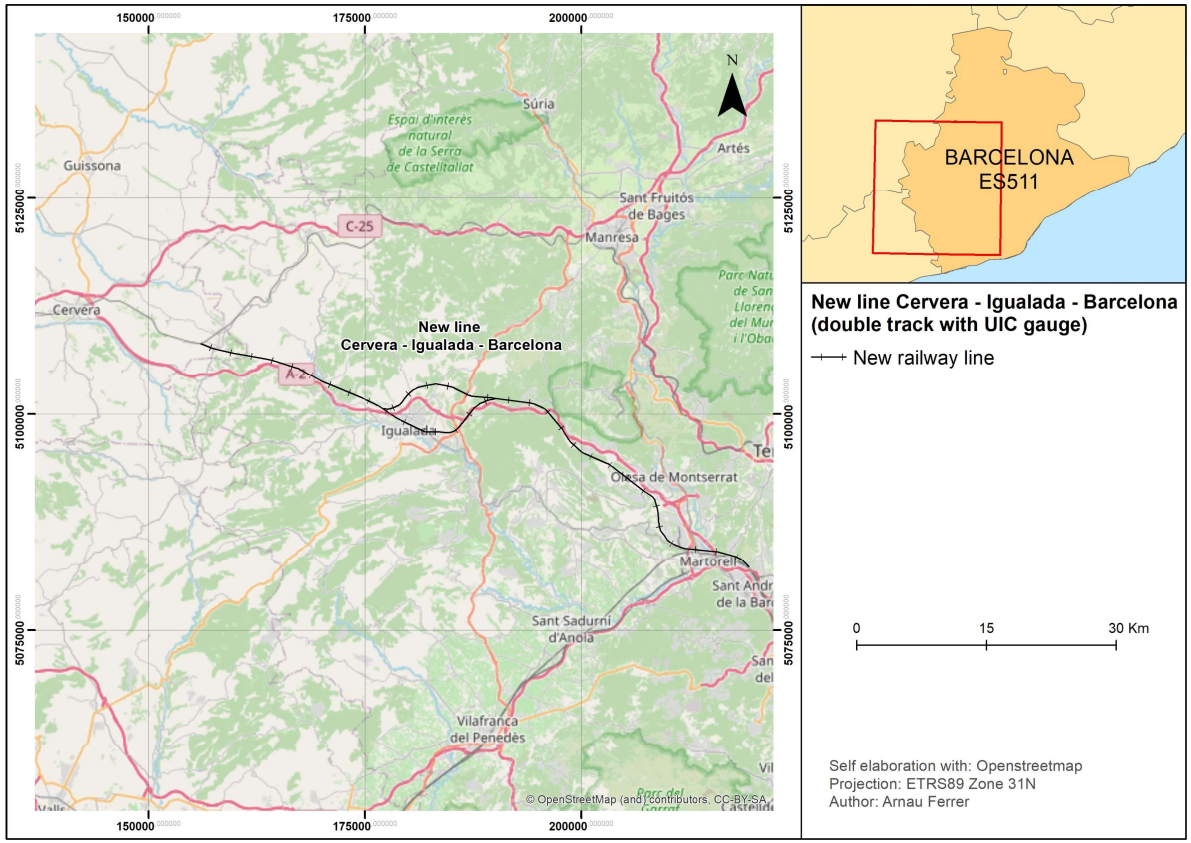
Links and terminals	EU/Member State	481.9
	FERRMED	77.27
	Total	**559.17**

Total investment in Catalonia in M€*

Links and terminals	EU/Member State	6.117	1,3%
	FERRMED	9.857	12,8%
	Total	**15.974**	**2,9%**

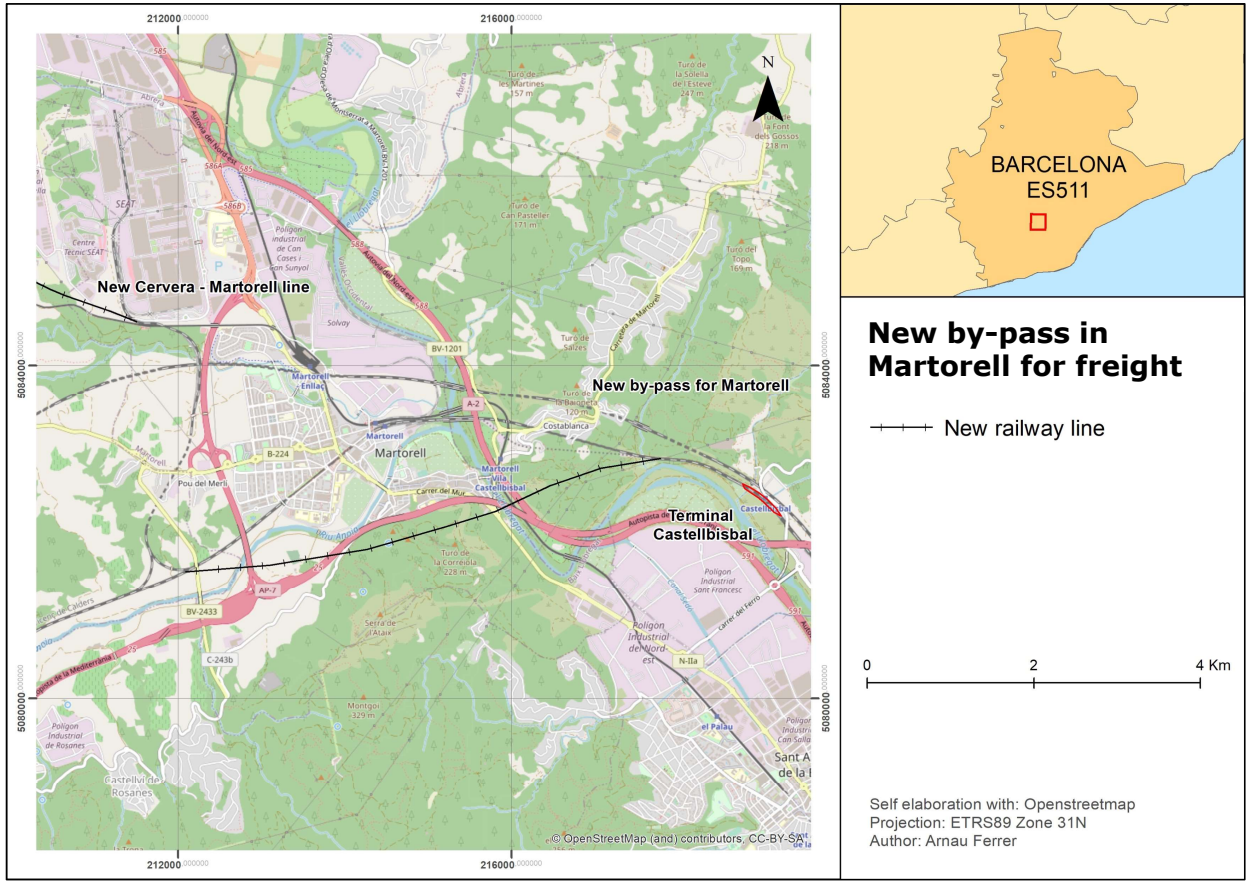
**No inclou l'import de les noves línies de rodalies ni les expropiacions*

New railway line between Cervera and Martorell

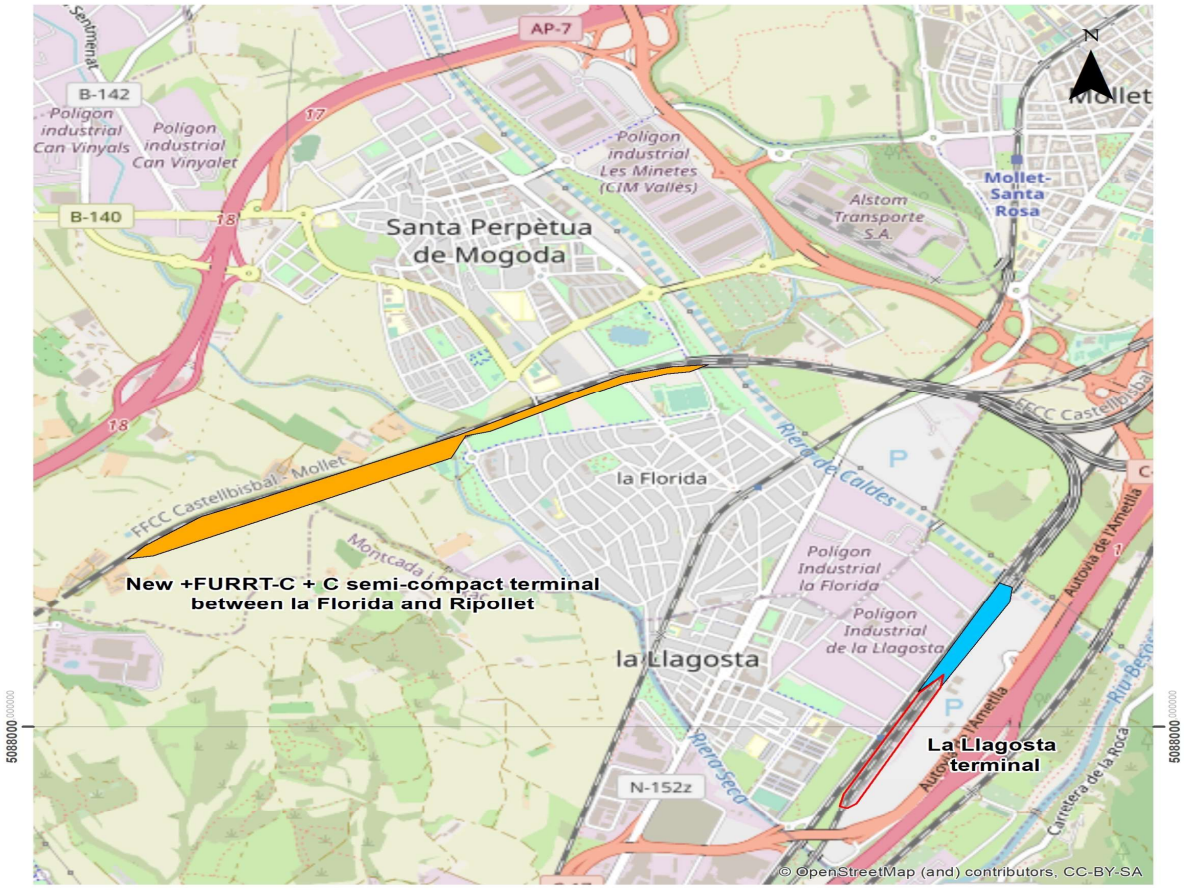


IMPROVEMENT ACTIONS IN THE INTERMODAL TERMINALS & INTERCONNECTION LINKS

New by-pass in Martorell



IMPROVEMENT ACTIONS IN THE INTERMODAL TERMINALS & INTERCONNECTION LINKS



Legend

- Current terminal
- Terminal enlargement
- New terminal

0 1 2 Km

Self elaboration with: Openstreetmap
Projection: ETRS89 Zone 31N
Author: Arnau Ferrer

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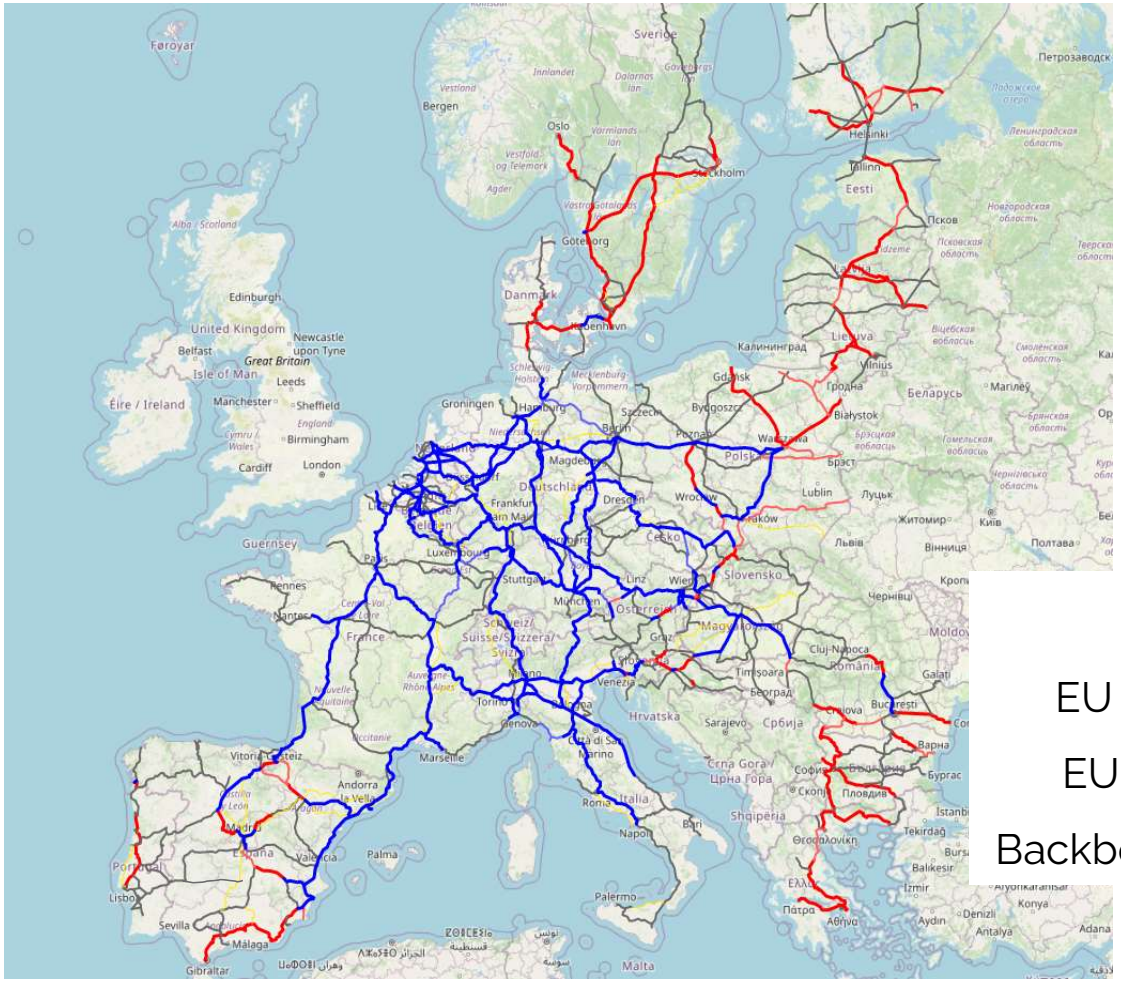
CONCLUSIONS BÀSIQUES DE LA PRESENTACIÓ

DETERMINATION OF THE EU BACKBONE NETWORK



First priority (18,040 km)

Second priority (8,500 km)

Third priority (50,700 km)

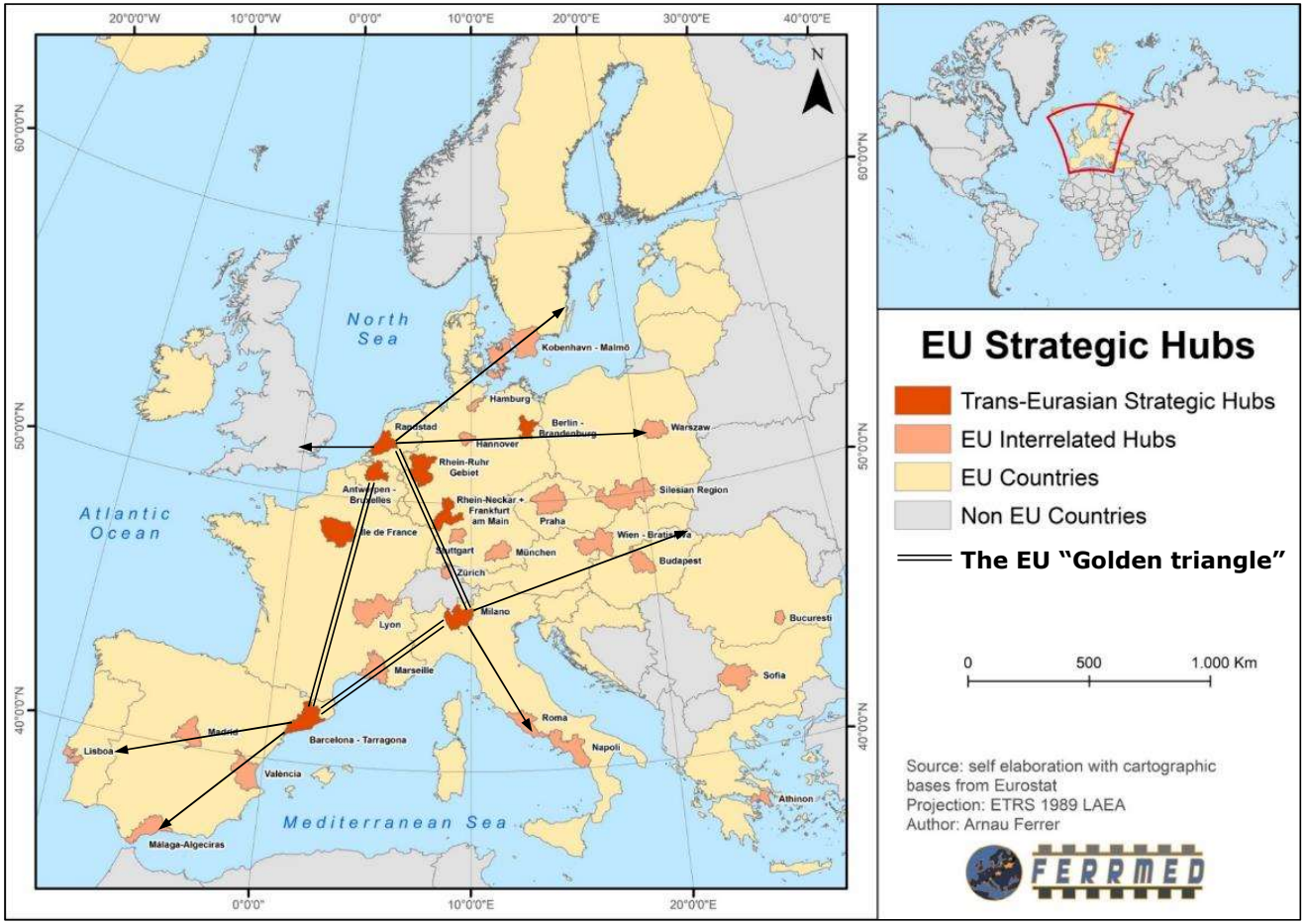
EU Core Network (aggregated): **77,240 km**

EU Central Backbone Network: **18,040 km (23,3 %)**

EU Extended Backbone Network: **8,500 km (11 %)**

Backbone Network 65 % threshold: **122,000 tonnes/day**

EU STRATEGIC SOCIO-ECONOMIC HUBS



+FIRRST:
FERRMED'S FAST, FLEXIBLE, INTEGRATED RAIL-ROAD TRANSPORT SYSTEM

- **+FIRRST** will move isolated semi-trailers, containers and swap-bodies (ILUs) from/to different destinations in a **fast, flexible integrated rail-road transport system**.
- It is a novel way of **organizing intermodal rail-road transport in the form of "Mobility as a Service (MaaS).**
- Several +FIRRST trains (**Ptp, Sai** and **Sor**) will operate in a framework of a **real time rolling planning concept**, interlinking the EU Socio-Economic Strategic Hubs (+ related intermediate hubs) defined in FERRMED's Study.

MOLTES GRÀCIES PER LA VOSTRA ATENCIÓ