

FERRMED DECLARATION MOVING TOWARDS AN EURASIAN DIMENSION

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1.- FERRMED PROPOSALS DEPLOYMENT THROUGHOUT 12 YEARS OF EXISTENCE

1.1.- FROM EU PRIORITY PROJECTS TO A RETICULAR AND POLYCENTRIC CORE NETWORK

The idea of creating FERRMED started in 2003. FERRMED was officially constituted in Brussels, on August 5th, 2004 as a non-profit multisectorial Association built on the private sector, with the purpose to improve the rail freight transportation and industrial competitiveness in Europe.

At that time, the European Commission (EC TEN-T) official position regarding railway transport policy consisted in several “priority projects” conceived to smooth transportation flows in some important bottlenecks and improve cross border infrastructures. Regarding this official EU perspective, FERRMED proposed in the first quarter of 2005, to move to a ‘Railway Core Network concept’, which consisted in a maximum of three or four corridors North-South and three or four corridors East-West. FERRMED’s core idea was to push for a better linkage of the most important socio-economic areas in the EU (key ports and main industrial and logistic zones). In these main corridors should be applied common and ambitious standards - the so-called FERRMED Standards-, with the intention of reversing the negative balance trend of railway in land transportation share, and leading the way to a more competitive rail-freight transport in the EU. This would improve the economic efficiency, together with achieving better environmental conditions.

In order to test practical application of this ambitious redesign of EU freight

transportation system, FERRMED produced a huge study, co-financed by the EC TEN-T with the intention of analysing the impact of bottlenecks solving and the gradual implementation of FERRMED Standards (see the list of those basic standards in FERRMED website) on the specific area of the North-South Axis, linking Scandinavia to Southern Iberian Peninsula and Northern Italy – through the EU Locomotive Economic Regions (EULER) (See Figure 1).

From this FERRMED Global Study (written in over two years – from Jan. 2007 to Oct. 2009), two main conclusions arose:

- The confirmation that the gradual accomplishment of FERRMED Standards is the only way to reverse the continuous decrease of the rail freight share in the land transportation system.
- FERRMED Standards full range's implementation in the main trunks of FERRMED Railway Great Axis (EULER Vector), would generate an Economic Internal Rate of Return (EIRR) of 11.09%.

Overall, this would mean that the Full FERRMED Standards implementation in the most important socioeconomic corridors of EU is highly recommended.

By the time being, under the pressure of FERRMED and other European key transport associations, the EC old Concept of “priority projects”, from a “regional” perspective, evolved to a whole TEN-T new Policy defining an “EU Network” concept from a global approach (see figure 2).



Figure 1: Western North-South (EULER) vector

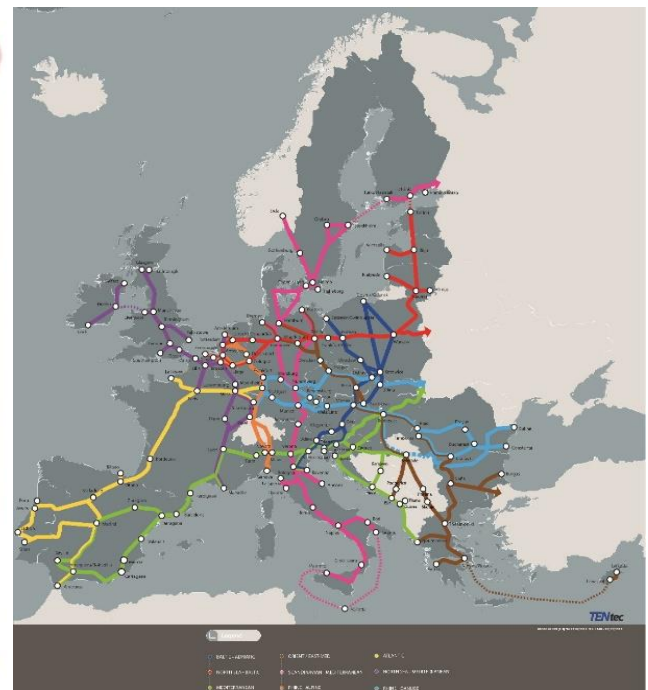


Figure 2: EU Core Network

1.2.- FULL FERRMED TRANS-SIB CORRIDORS IN THE EU CORE NETWORK

Obviously, these most important socio-economic corridors proposed by FERRMED, fully aligned with the three emerging global growth vectors in the EU (see attached figure 3): A) European Union Locomotive Regions (EULER) Vector, B) Eurasian Vector and C) Far East/South Asia - Mediterranean Vector, became included in the EC just defined trans-European core network.

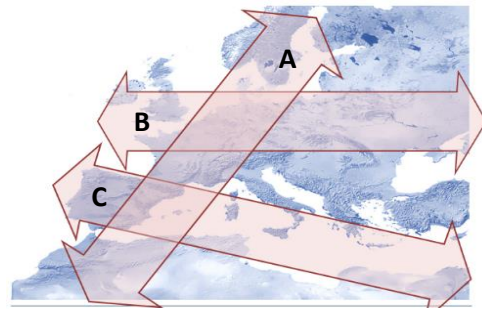


Figure 3: Global growth vectors

An important issue is to take into account that these most important socio-economic corridors in the EU, with FERRMED standards duly implemented, have an “Eurasian dimension”, because they facilitate the land bridge railway traffic between EU, Russia, China and other related countries, allowing long and heavy freight trains, as they usually are in the Russian Federation and other CIS Countries. In EU, these “Full FERRMED Trans-Sib corridors” have an extent of about 15.000 km, instead of more than 60.000 km of the EU Core Network approved by the EU Institutions. It is there where we have to concentrate the adequate investments concerning FERRMED Standards gradual implementation (including the corresponding adaptation of intermodal terminals). The attached figure 4 displays the Full FERRMED EU Main Trans-Sib Corridors.

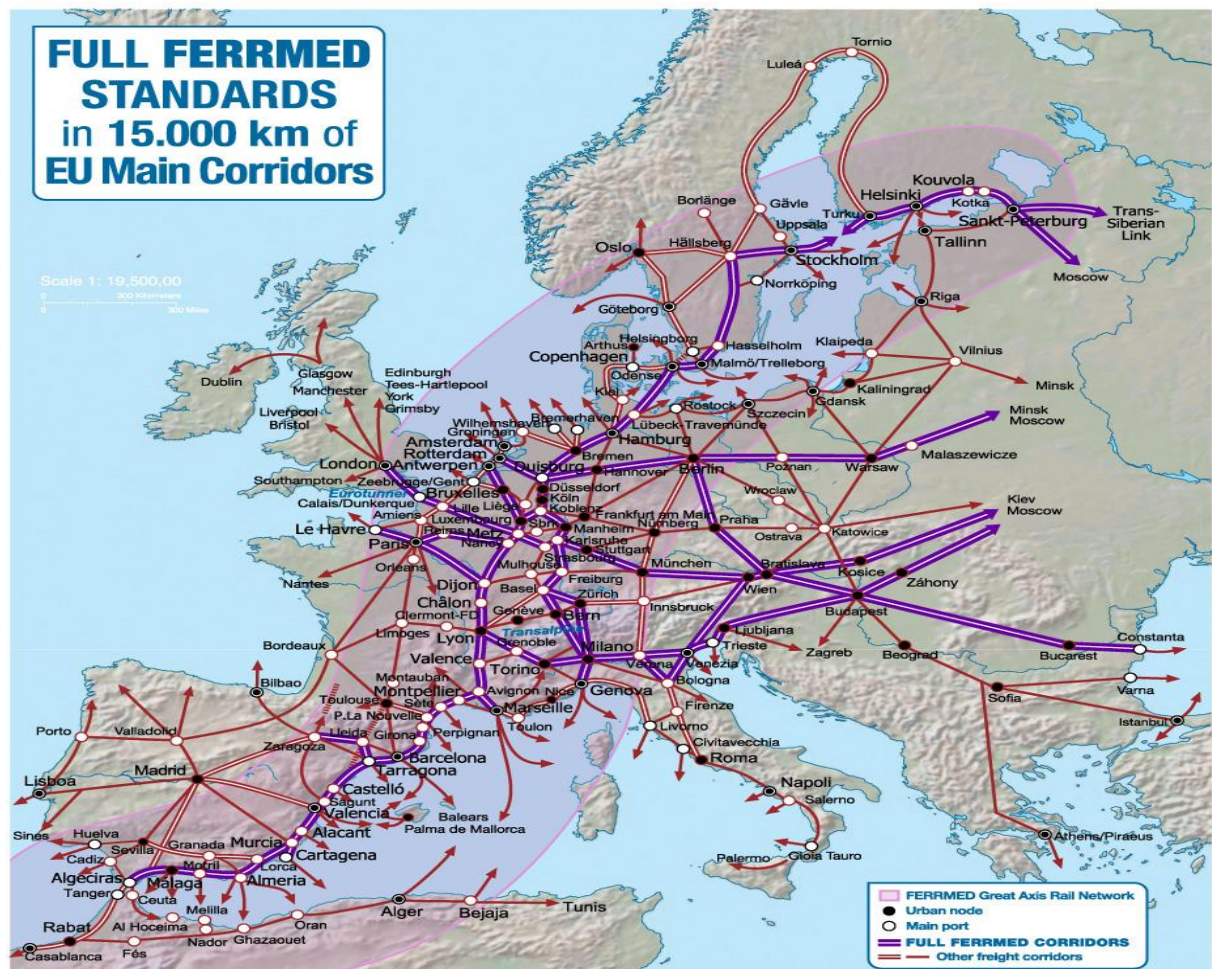


Figure 4

In fact, these corridors coincide with the most significant part of the “European Rail Network for Competitive Freight”. FERRMED strongly insists in the fact that it is in those corridors where the infrastructure and operational investments for rail freight transport have to be concentrated as a first priority, allowing longer (1.500m) and heavier trains (3.600 ÷ 5000 tonnes), and making rolling motorway procedures, with UIC-C loading gauge, feasible.

As these Full FERRMED EU Main Trans-Sib Corridors are directly related with the most dynamic EU socio-economic regions and concentrate the most of the rail freight traffic, the environmental impact will be highly positive, and lead to the achievement of the “30/30 target” stated in the “White Paper of Transport”.

1.3.- FERRMED STANDARDS IMPLEMENTATION IN EU RAILWAY CORE NETWORK

The EC TEN-T Railway Core Network approved by the EU in 2013, takes into consideration most of the FERRMED Standards, except the proposed length of 1.500m and UIC-C loading gauge. FERRMED insists in the application of the full FERRMED Standards in the aforementioned selected corridors. In fact, at country level, some progress has already been made in the length of the trains - it is the case in France and Germany - where trains of close to 850m length are accepted in some lines. Furthermore, in France, tests for trains of 1.500m length have been made successfully (Marathon Project).

Another key issue is the gradual transformation of freight wagons according to FERRMED proposals stated in the study carried out (between 2008 and 2010) by the Royal Institute of Technology Stockholm - KTH and the Technical University of Berlin - TUB on behalf of FERRMED (available on FERRMED website). It concerns specially the introduction of new freight wagons build with a central beam to adequately convey the stress, compact brakes and automatic couplings (polyvalent during the first period).

FERRMED looks forward to the steady accomplishment of all these issues in the Full FERRMED EU Trans-Sib Corridors, jointly with the introduction of complementary topics related to the 4th Railway Package. In that sense, FERRMED is very pleased with the important achievement in the Swiss Railway System, as it is the case of the recently inaugurated Saint-Gotthard tunnel. On the opposite, FERRMED is very concerned by the continuous delays in works related to the Mediterranean Corridor in Spain, especially the simple and low cost extension of the UIC width of the tracks (adding a third rail to the existing Iberian tracks).

2.- CHINA-EUROPE FREIGHT TRANSPORT AND EU RAIL NETWORK CHALLENGES

2.1.- PRESENT CONDITIONS REMARKS

Approximately 40% of the total cargo turnover China-Europe are high value added products. This niche opens new opportunities to attract to rail some share from air & sea transport.

Efficient railway services are required at Eurasian level, reducing costs, shortening transit times and improving quality. In that sense, two key initiatives are mainly welcomed: “Improvement of the Trans-Siberian mainline’s train handling capacity” in Russian Federation and the Chinese new OBOR policy “One Belt, One Road”.

EU railway network is not adequate to facilitate Eurasian cost-effective traffics. The EU Rail Core Network is too wide and there is not ABC criteria for gradual development at EU level.

EU Priority paths enhancement, duly oriented to the three main socio-economic growth vectors, do not exist. As a consequence there is no increase of the railway share in EU land freight transportation in the last 10 years.

The stagnant situation of EU Railway Freight transportation system is clearly stated in the Report “Rail freight transport in the EU: still not on the right track”, published by the European Court of Auditors on May 2016. FERRMED fully agree with this Report assertions.

2.2.- INTERCONTINENTAL TRENDS

2.2.1.- INTERCONTINENTAL SEA TRAFFIC ROUTES CRITICAL MASS

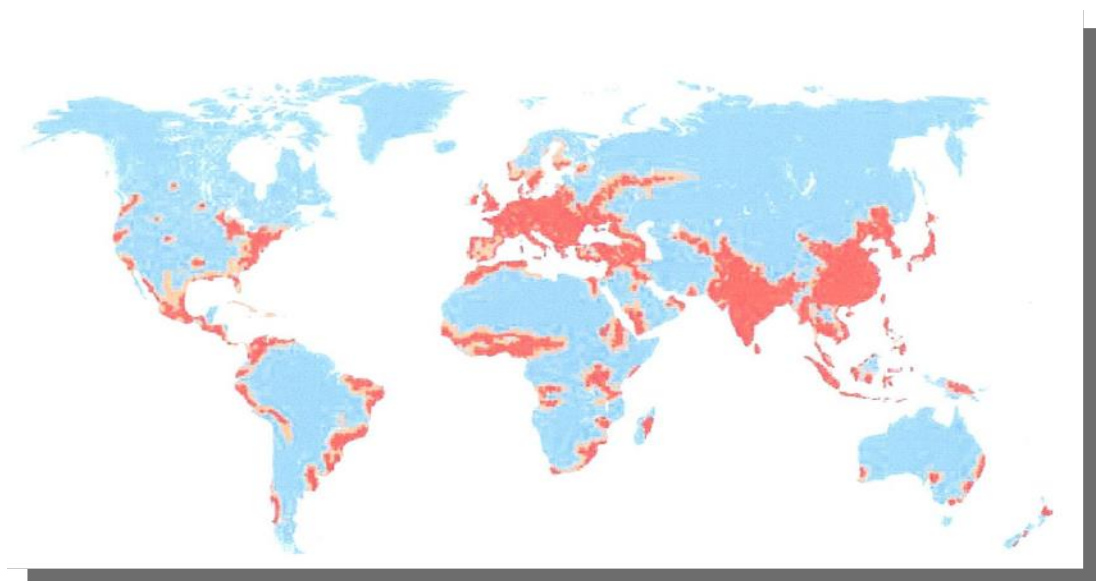


Figure 5: Worldwide population geographical distribution

Far East-Europe via Suez Canal (**Far East – Mediterranean Vector**) is the maritime route in the world with more “critical mass”. “Maritime silk road” is the name of this route in OBOR initiative.

More than 70% of world population is related to this itinerary, that overflows to Pacific and Atlantic basins.

2.2.2.- INTERCONTINENTAL LAND TRAFFIC MAIN ROUTES. EURASIAN LAND BRIDGE



Figure 6: Backbone of Eurasian East-West Vector complementary route to Suez Canal itinerary

The Eurasian East-West Vector, links China with EU through EEU/CIS countries. In OBOR initiative it is named “Silk Road Economic Belt” (SREB).

East bound is connected to trans-Pacific and west bound is coupled to trans-Atlantic routes. There are continuous growth volumes forecasted in the Eurasian land bridge: At least 80% increase in 2030.

2.2.3.- FERRMED GREAT AXIS RAIL NETWORK, BACKBONE OF EULER VECTOR (EULER= European Union Locomotive Economic Regions)

The rail freight network of the FERRMED Great Axis **interconnects the most important sea and inland harbour fronts; and the main East-West axes of the EU.**

FERRMED Great Axis has a direct and close impact over **250 millions Europeans** (54% of the EU-28 population and 66% of the GDP).

In addition, the axis :

- has a close influence over **70 millions inhabitants in North Africa.**
- **links with** western end of **Trans-Siberian Railway** in St. Petersburg and Finland

FERRMED GREAT AXIS RAIL NETWORK, backbone of EULER Vector.



Figure 1: Western North-South (EULER) vector

2.2.4.- EUROPEAN UNION SOCIO-ECONOMIC GROWTH VECTORS

The EU and neighbouring countries are going to a new socio-economic dimension following the three emerging growth vectors:

- **Western North-South Vector (EULER)**
- **Eurasian East-West Vector**
- **Far East – Mediterranean Vector**

The increase of competitiveness is mainly oriented towards this three emerging vectors. **Investments have to be made accordingly** (See Figure 3)

2.3.- EUROPEAN UNION MEGA-REGIONS

The worldwide Mega-regions concept has been clearly defined by eminent economists as it is the case of Kenichi Ohmae and Richard Florida.

In the case of the EU, the most important Mega-Regions are duly engaged to the main socio-economic growth vectors, particularly regarding the EULER vector and the EURASIAN EAST-WEST vector.

The Mega-Regions are determined considering the economic activity generation.

In the figure 7 there are the main Mega-Regions stated according to Richard Florida criteria, based in spatial techniques and statistics as well as in light emission (LRP). The number in each Mega-Regions is the ordinal score worldwide in 2008.

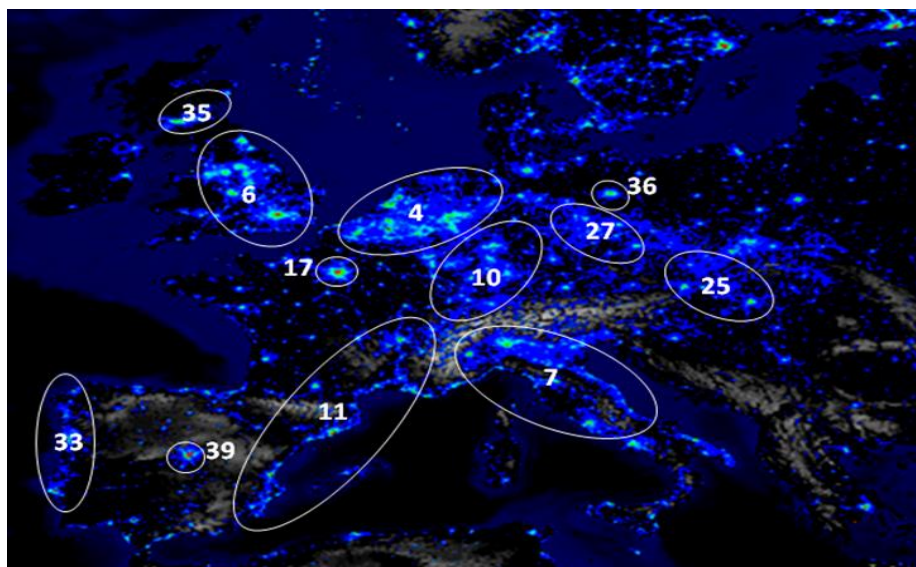


Figure 7: Mega-Regions in EU

The six most important EU Mega-Regions in 2015 are: “Am-Brus-Twerp”, “Lon-Leed-Chester”, “Rom-Mil-Tur”, “Barce-Lyon”, “Frank-Gart” and “Vienna-Budapest”. See in the attached table (Figure 8) the score of each Mega-Region considering the number of inhabitants and the GDP.

MEGA-REGION	INHABITANTS	GDP IN MILLION EUROS
AM – BRUS – TWERP (AMSTERDAM – BRUSSELS – ANTWERPEN) =Netherlands – Belgium – Luxemborug – Nord Rhein- Westfalen – Niedersachsen – Bremen – Hamburg=	~60.000.000	~2.175.000
LON – LEED – CHESTER (LONDON – LEEDS –MANCHESTER) =England=	~50.000.000	~1.766.000
ROM – MIL – TUR (ROME – MILAN – TURIN) =Piedmont – Liguria – Lombardy – Trentino · Alto Adige – Veneto – Friuli · Venezia · Guilia – Emilia Romagna – Toscany – Marches – Umbria – Abruzzo – Latium – Molise – Campania=	~47.400.000	~1.315.000
BARCE – LYON (BARCELONA – LYON) =Rhône-Alpes – Provence · Alpes · Côte d’Azur – Midi- Pyrénées/Languedoc-Roussillon – Catalonia – Aragon – Valencian Community – Balearic Islands – Murcia – Almería=	~34.000.000	~910.000
FRANK – GART (FRANKFURT AM MAIN – STUTTGART) =Baden-Wutenberg – Hesén – Alsace – Saarland – West of Rheinland – Pfalz · Western part of Bavaria=	~26.000.000	~875.000
VIENNA – BUDAPEST =Triangle Vienna, Bratsilava, Budapest, – North West Slovakia – East Czech Republic – Southern part of Poland=	~23.000.000	~530.000

Figure 8: Six most important Mega-Regions in EU (2015) (according to Richard Florida criteria)

2.4.- RAILWAY CORRIDORS WITH FULL FERRMED STANDARDS APPLICATION

These railway corridors, proposed by FERRMED, are part of the Core Network and coincide with the most meaningful portion of the “European Rail Network for Competitive Freight”. Altogether have a global length of 15.000 Kms and gather close to 60% of land freight transportation in the EU Core Network.

It is there were FERRMED Standards have to be gradually implemented, starting the works immediately. An agreed plan with involved member states and properly coordinated by the EC, is the key of the success. This plan has to consider an Eurasian vision and to emphasize three significant FERRMED Standards like: length of the trains (capacity to reach trains of 1.500 meters and up to 5.000 tonnes), UIC-C loading gauge and unified coordination for trains paths allocation.

The EU main trans-sib Corridors Network and concerned Mega-Regions are precisely formulated in the attached figure 9 including the proposal of Trans-Sib strategical Mega-Terminals location.

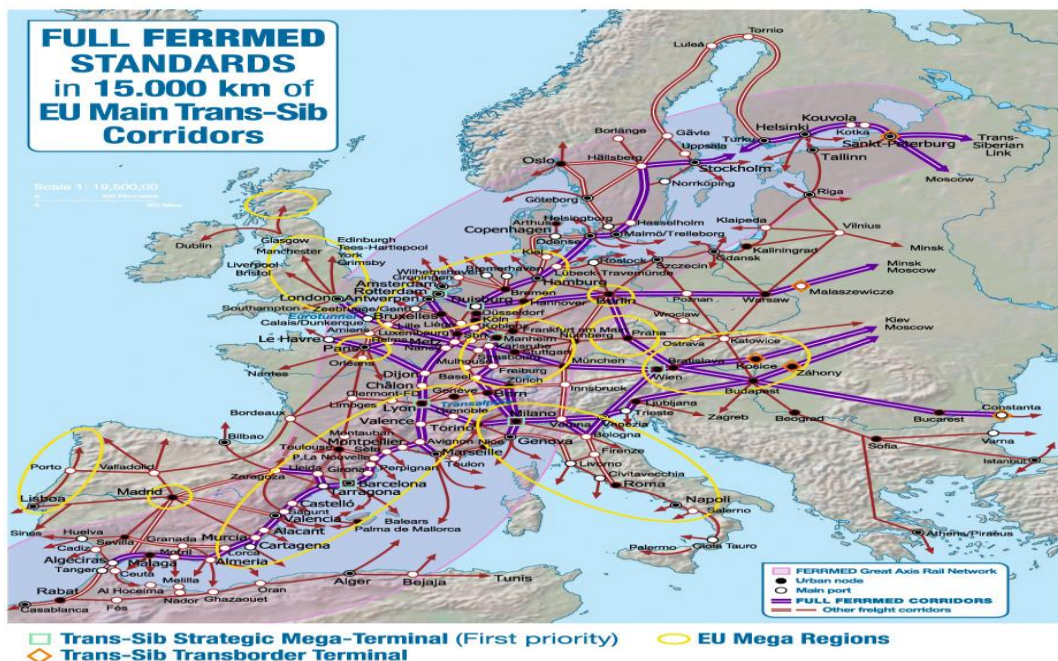


Figure 9: EU Full FERRMED main Trans-Sib Corridors

The Trans-Sib train characteristics in EU have to take into account FERRMED Standards about length and gross weight. This kind of trains allows to increase the payload between 75 and 100%, to reduce operating costs by 25% and to boost the lines capacity more than 50%.

See in the figure 10, the FERRMED Trains Top characteristics.

<i>FERRMED Trains Top Characteristics</i>	
Length	1.500m
Track gauge	1435 mm
Loading gauge	UIC C
Gross Weight = Load	3.600 t – 5.000t
Number of motorized axles	12 axles
Number of locomotives	More than one: 2 Co-Co or 3 Bo-Bo
Starting tractive effort of the train	600 kN – 800 kN
Power of the train	7.000 kW – 10.000 kW

Figure 10

2.5.- TRANS-SIB STRATEGIC MEGA-TERMINALS LOCATION. RECOMMENDED CONDITIONS

The Trans-Sib Strategic Mega-Terminals have to be geographically situated according to the following conditions:

- **To be located in a significant Mega-Region and in an EU main Trans-Sib Corridor**
- **To be established in an important logistic and industrial zone with comprehensive and diversified economic activity sectors** like: aeronautical, agrifood, automotive, ceramics, construction auxiliary industry, electronics, iron and steel, logistics services, metallurgical, mining, petrochemical, pharmaceutical, railway rolling stock manufacturing, textile and clothing, etc, etc (to reduce logistics costs and better “both senses flow” balancing)
- **To have a good communication system: railways, motorways, sea or inland port and airport with easy international links**
- **Site accessible to efficient complementary facilities like: universities and research centres, business schools, shopping districts, etc**
- **Reasonable warehouses and land prices**
- **“Free zone” declaration possibility**

The recommended/possible location zones are: London (UK), Rotterdam (Netherlands), Duisburg (Germany), Mannheim (Germany), Milan (Italy), Barcelona (Spain), Lyon (France) and Vienna (Austria).

2.6.- NEW OPPORTUNITIES FOR EURASIAN LAND BRIDGE

As it is stated in the item 2.1 “PRESENT CONDITIONS REMARKS”, considering that approximately 40% of the total cargo turnover China-Europe are high value added products, new opportunities appear to attract to rail some share from air & sea transport.

On the other hand, in Deep Sea Route, bigger ships causes significant impact in ports and hinterlands, particularly in stock evolutions in wharfs and intermodal terminals.

The trend growth in world container traffic, does not allow to keep routes frequency with mega-ships. See stock evolution in figure 11.

STOCK EVOLUTION IN INTERMODAL PORT TERMINALS

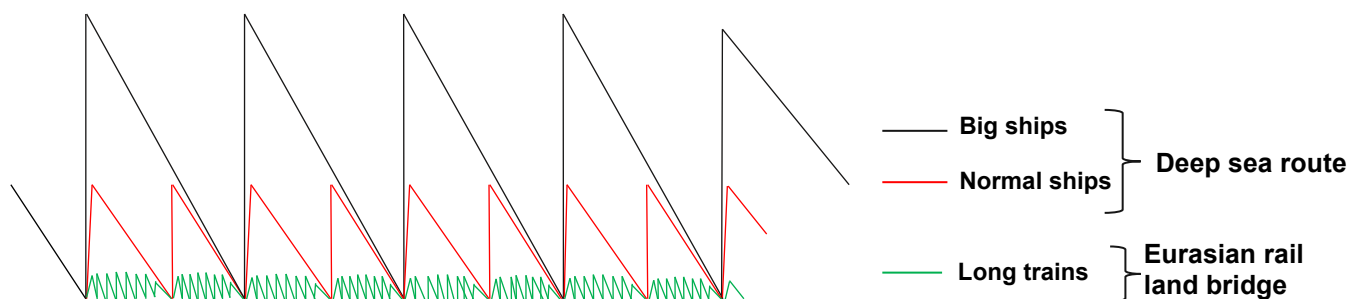


Figure 11

To avoid stock peaks as much as possible and reduce transportation costs, long and heavy trains are required to connect ports with inland intermodal terminals and main industrial consumption areas.

The continuous growth of the number of mega-vessels available in the deep sea routes means less delivery frequencies and, consequently, more stocks in intermodal terminals and manufacturing companies. For this reason, additional new opportunities arises for Eurasian rail land bridge due to the possibility of high frequency deliveries.

3.- MAIN CONSIDERATIONS

- To avoid rail freight transportation stagnation in EU, to concentrate the infrastructure investment in most important socio-economic corridors, as FERRMED states, jointly with the introduction of complementary operational topics considered in EU 4th Railway Package is a key. It is the only realistic way to improve the EU transportation competitiveness and it is, as well, the best approach to properly convey the Trans-Eurasian railway traffic in the EU and the most confident way to accomplish the goals of the “White Paper on Transport”.
- New opportunities for Eurasian land-bridge railway system appears attracting flows from air & sea transport of high value added goods, if costs and transit times are duly reduced and service quality increases. In that sense, the initiatives like “Improvement of the Trans-Siberian Mainline’s train handling capacity” in Russian Federation and the Chinese new policy “One Belt, One Road” are fundamental. **In EU it is required a complementary initiative in the Trans-European Railway Network as FERRMED states in this Declaration.**

“FIRST PRIORITY TO MOST OUTSTANDING SOCIO-ECONOMIC AND ENVIRONMENTAL ACHIEVEMENTS IS THE KEY OF GROWTH”

“Non idem semper dicere, sed idem semper spectare debemus”

“We have not always to say what to do, but always to do what we say”

Marcus Tullius Cicero



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