



# D.T1.1.5 WORK PAPER

---

Baseline study Emilia-Romagna

Version 1.0

01.2020

---

## Table of Contents

|  |    |
|--|----|
| 1. Introduction .....  | 3  |
| 2. Baseline study .....  | 3  |
| A) Territorial analysis .....  | 3  |
| B) Policy Analysis.....  | 18 |
| C) Regional Stakeholder Mapping.....                                 | 21 |
| D) SWOT Analysis: Strengths, Weaknesses, Opportunities, Threats..... | 24 |
| E) Recommendation/Outlook .....                                      | 25 |

## 1. Introduction

Based on the deliverable “Methodology for baseline study” (D.T1.1.3) this Work Paper aims at analysing the current state of rail freight infrastructures and services in the region of Emilia-Romagna.

First, there will be a Territorial Analysis (A) to give a general overview about the region of Emilia-Romagna. The focus will then lay on the territorial analysis of the region and its catchment area regarding regional rail freight infrastructure and services, e.g industrial clusters and sites, rail infrastructure, intermodal facilities, transport flows, network classification etc. Maps and figures will visualise the status quo of the regional rail freight transport.

Section (B) continues with a Policy Analysis regarding rail freight infrastructure and services by analysing policy documents on national and regional level, including goals and strategies as well instruments.

After that follows a Regional Stakeholder Mapping (C), where the main stakeholders for regional rail freight transport will be listed. They will be described by their role, importance and contribution to the REIF project and classified in the categories of their influence on the project (low or high) and their level of interest in the project (low or high).

The analysis completes with a SWOT Analysis (D) by rounding up strengths, weaknesses, opportunities and threats in the field of regional rail freight transport.

Finally, section (E) concludes the baseline study with a Recommendation/Outlook for the future work in the project.

## 2. Baseline study

### A) Territorial analysis



|                              |                              |
|------------------------------|------------------------------|
| Population (1/1/2019)        | 4,471,485 inhabitants        |
| Surface                      | 22,452 sq.km                 |
| Population Density           | 199.11 inhabitants per sq.km |
| Provinces                    | 9 (8 +1 metropolitan city)   |
| Municipalities (1/1/2019)    | 328                          |
| GDP (2017)                   | 157,216 million €            |
| GDP per capita (2017)        | 35,324 current euro          |
| Number of companies (2017)   | 367k                         |
| Number of employees          | 1,6 million                  |
| Employment rate (2018) 15-64 | 69,6%                        |
| Unemployment rate (2018)     | 6%                           |
| Export 2018                  | 63.8 billion euro            |
| Import 2018                  | 36.5 billion euro            |

**Figure 1 Main data of Emilia-Romagna region**

## Regions/Ports and their Hinterland/catchment area

### Industrial clusters/branches

Emilia-Romagna has a highly specialized production system, consisting of 424 thousand companies, mainly SMEs, 50 thousand of which operate in the manufacturing macro-sector.

The region boasts some of the top Italian brands belonging to different sectors, and these are:

- Automotive (Ferrari, Lamborghini, Ducati and Maserati are some examples)
- Food (Barilla, Parmigiano Reggiano, Segafredo, prosciutto di Parma, etc.)
- Packaging (IMA, Marchesini Group, TetraPak)
- Fashion (Max Mara, Yoox, etc.)
- Tiles district (Florim, Marazzi, etc.)
- Wellbeing (Technogym)
- Health (Rizzoli Ortopedia, Cefla, etc.)

More specifically, regional specializations are detailed in the following list:

1. **AGRO-FOOD**
  - Meat and dairy products
  - Agricultural machinery
  - Bakery and farinaceous products
2. **HOUSING & CONSTRUCTION**
  - Ceramic products
  - Furniture and wooden products
3. **CHEMICALS:**
  - Chemical, rubber and plastic products
4. **MECHANICAL ENGINEERING**
  - Transport vehicles
  - Engines and hydraulic components
  - Agricultural machinery
  - Lifting and handling equipment
  - Boating
  - Packaging
5. **FASHION**
  - Footwear and leather goods
  - Textile and wearing apparel
6. **HEALTH CARE**
  - Biomedical
  - Pharmaceutical Products
7. **CULTURE & CREATIVITY**
  - Creative, Arts and Entertainment Activities
  - Media and Cultural Industry

For the main regional specializations, the figure 2 illustrates the import export turnover expressed in euros (2018 data)

FOREIGN TRADE EMILIA-ROMAGNA-WORLD BY SPECIALIZATION (Istat-Coeweb 2018)

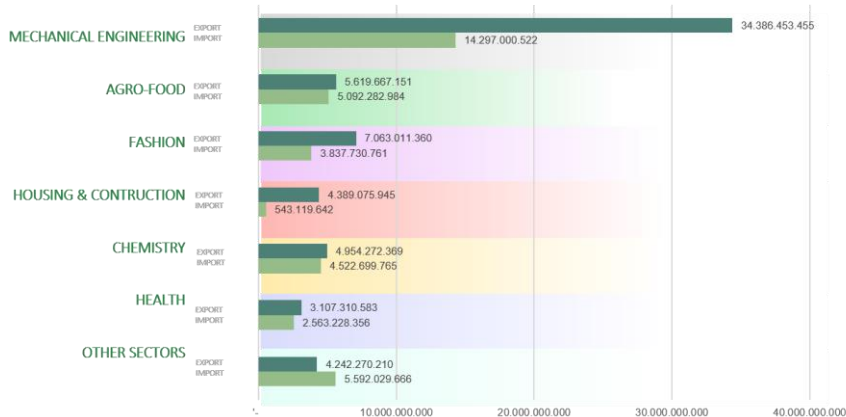


Figure 2 Import export turnover (in euros)

Companies in Emilia-Romagna have extensive access to foreign markets at both European and global levels. The Figure 3 shows the foreign trade amounts (imports+exports).

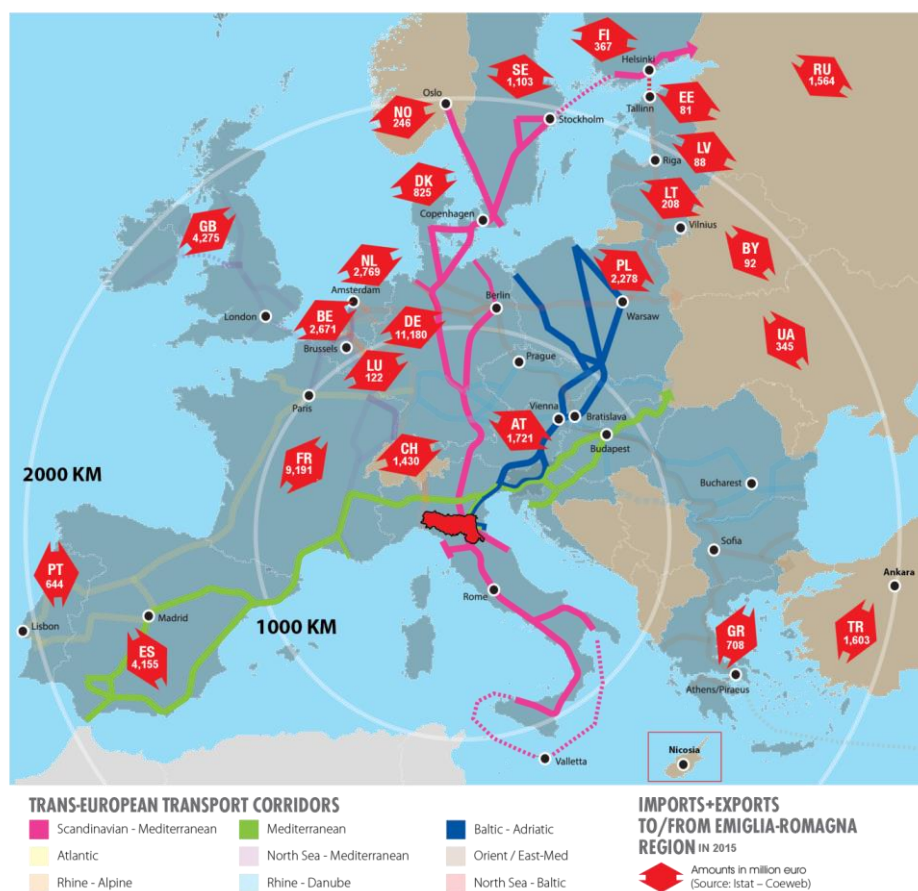
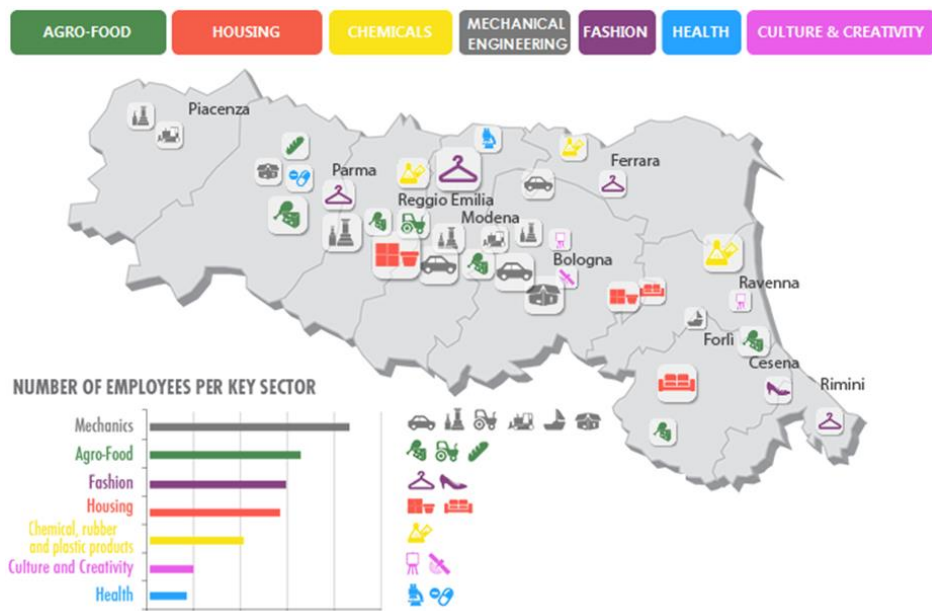


Figure 3 Main clusters of Emilia Romagna

## Industrial sites

The industrial sites are widespread throughout the region, with a slightly higher concentration in the provinces of Bologna, Modena and Reggio Emilia. This is particularly evident when looking at the distribution of the regional key productive clusters:



**Figure 4 Main clusters of Emilia Romagna**

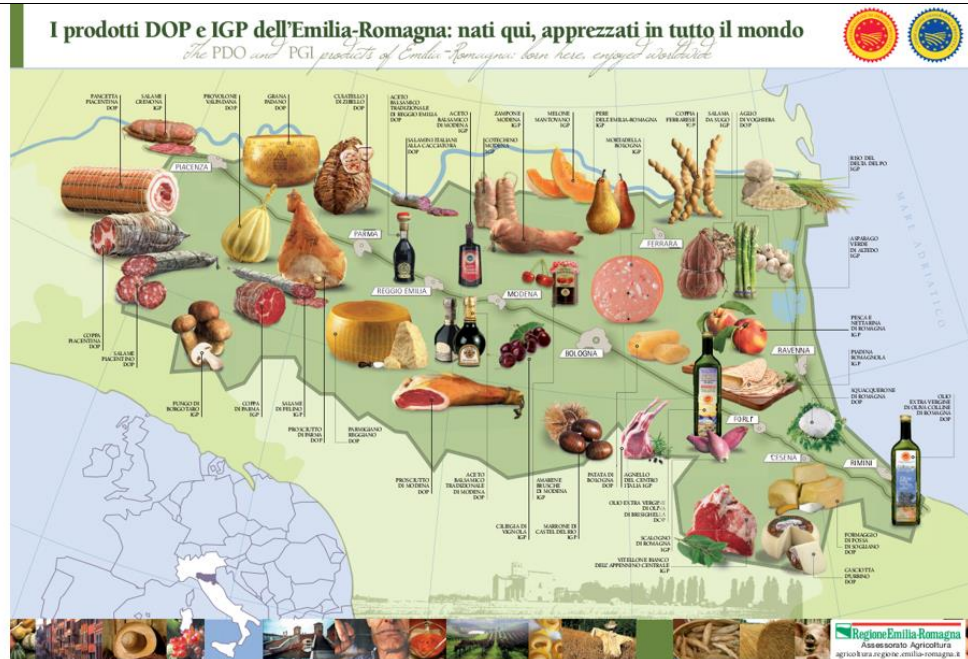
Top brands, however, are spread all over the regional territory:



**Figure 5 Top brands of Emilia Romagna**

The food sector is one of the most important for the regional economy and many regional food products have a PDO and/or PGI certification mark. The high-quality food products are also widespread throughout the region, yet each province has its own specialties.





**Figure 6 DOP and IGP food products of Emilia Romagna**

## Rail infrastructure

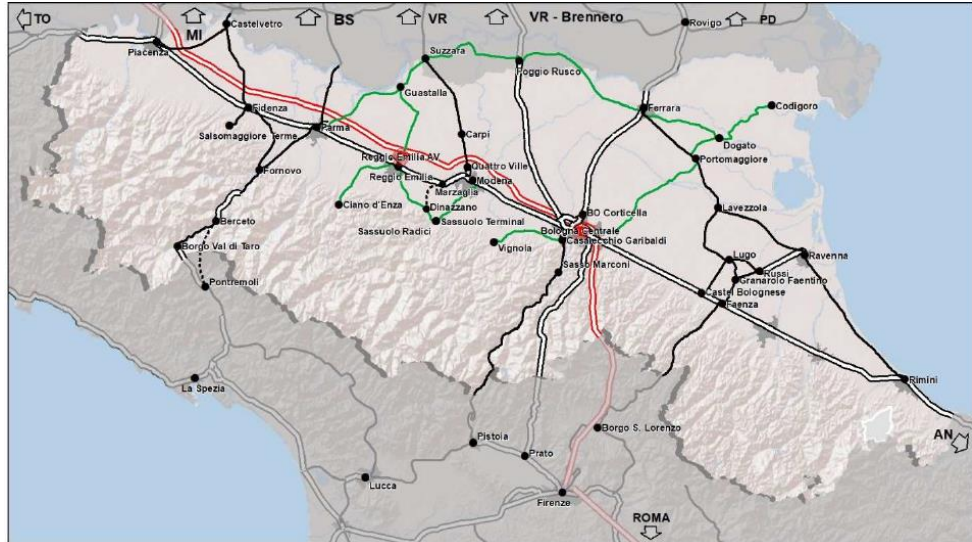
The national rail network infrastructure managed by the national operator (RFI) is 16,700 km long, with 18 railway companies running an average of 420 trains a day. In 2015, 45.52 million of trains\*km ran on the national railway, 60% of which generated from the northern regions of Italy. The volume of rail freight transport distributed in the TEN-T corridors show the great relevance of rail traffic in the Emilia Romagna region.

The regional rail infrastructure network of Emilia Romagna region is managed by Infrastructure Operators (RFI - Rete Ferroviaria Italiana, and FER - Ferrovie Emilia-Romagna), allowing the access to the railway network to Railway Undertakings (RU), performing the maintenance and ensuring circulation safety and regularity on the whole network, managing the investments for the upgrade of railway lines, both under technological and infrastructural perspective. The portion of network managed by RFI is 1,315 km long while the part under the responsibility of FER is composed by 364 km of single-line tracks; FER operates under concession by the Region, in compliance with specific service and program contracts. In Emilia Romagna, the average number of daily scheduled freight trains is 89/day, representing about the 21% of the national rail freight traffic. The regional rail network used by freight transport has a good potential infrastructural capacity, with allowed axial mass of 22.5 tons (D4 classification).

However, a significant performance improvement is foreseen by the new commercial plan for the development of the freight transport of RFI, with the goal of achieving a full European interoperability. By 2020, the regional freight railways should reach an overall capacity of 28 million tons per year, together with the other technological improvements and expansion works.

The two main lines of the regional infrastructure managed by FER are currently the Reggio Emilia-Dinazzano and the Ferrara-Poggio Rusco-Suzzara, electrified until Poggio Rusco. More in general, only 138 km on a total of 364 of the FER lines are electrified.

The rail infrastructure of Emilia Romagna is represented in Figure 7.



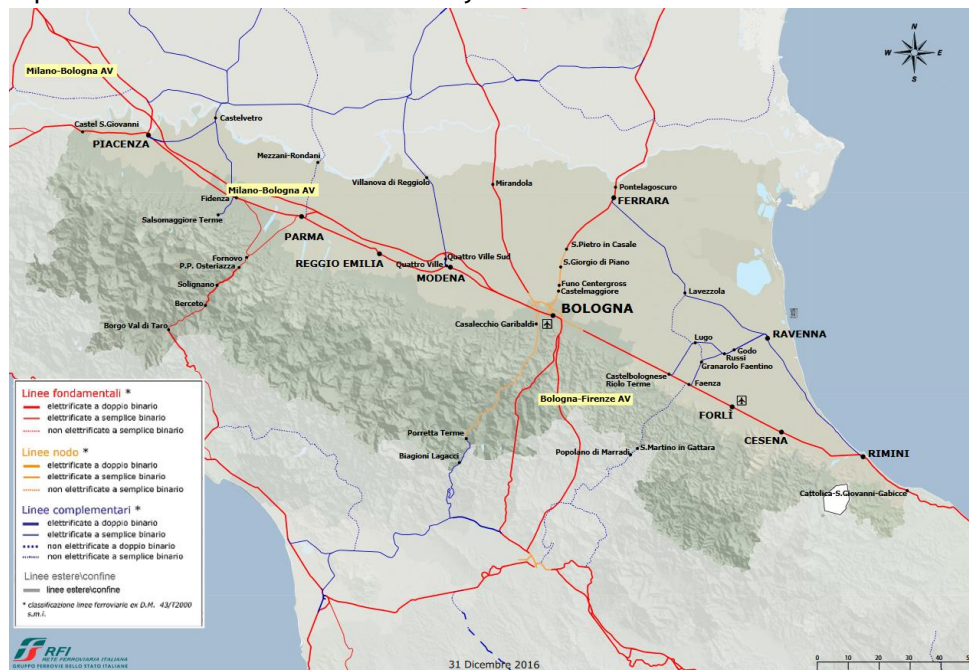
**Figure 7 Railway infrastructure network of Emilia Romagna**

- lines

The operative RFI railway lines in Emilia Romagna are 1,315 km long. These can be classified as follows:

- Fundamental lines: 748 km
- Complementary lines: 397 km
- Node lines: 170 km

In Figure 8, fundamental lines are represented in red, complementary lines are represented in blue and node lines in yellow.



**Figure 8 Regional railway lines managed by RFI**



|                               |  |
|-------------------------------|--|
|                               | <p>In addition to the lines managed by the national operator RFI, the regional lines managed by FER are listed below:</p> <ul style="list-style-type: none"> <li>• Bologna - Portomaggiore</li> <li>• Ferrara - Codigoro</li> <li>• Ferrara - Suzzara</li> <li>• Parma - Suzzara</li> <li>• Modena - Sassuolo</li> <li>• Casalecchio - Vignola</li> <li>• Reggio Emilia - Guastalla</li> <li>• Reggio Emilia - Sassuolo</li> <li>• Reggio Emilia - Ciano d'Enza</li> </ul> <p>Railway lines are classified according to their different structural characteristics and to the correlated maximum permitted loads and admitted loading gauges. A large part of the fundamental lines allows the circulation of freight traffic without limitations.</p> |
| - <b>tracks</b>               | <p>The overall length of regional tracks is 2,119 km, 1,609 km of which for the conventional lines, and 510 km for the high-speed lines (AV).<br/>All the lines managed by Emilia Romagna Railway (FER) have single tracks.<br/>Lines with double tracks are represented by a double red line in Figure 12.</p>  |
| - <b>electrification</b>      | <p>The electrified lines are 144.8 km long. In particular:</p> <ul style="list-style-type: none"> <li>• Bologna - Portomaggiore (46.6 km)</li> <li>• Casalecchio - Vignola (24.4 km)</li> <li>• Ferrara - Poggio Rusco (46.5 km)</li> <li>• Modena - Sassuolo (19.3 km)</li> </ul> <p>The priorities for a new electrification of the lines will concern 192.33 km on the following connections:</p> <ul style="list-style-type: none"> <li>• Parma-Suzzara-Poggio Rusco (78.5 km)</li> <li>• Sassuolo-Dinazzano-Reggio Emilia (18 km)</li> <li>• Reggio Emilia-Guastalla (20.6 km)</li> <li>• Reggio Emilia-Ciano d'Enza (23.03 km)</li> <li>• Ferrara-Codigoro (52.2 km)</li> </ul>  |
| <b>Network classification</b> | <p>Within the nine corridors making up the Trans-European Network - Transport (TEN-T), four of these cross Italy and three of these cross the Emilia Romagna territory. These are the Baltic Adriatic Corridor (BAC), the Scandinavian-Mediterranean (SCAN-MED) and the Mediterranean (MED).</p> <p>The 38% of the Italian rail freight transport is concentrated along the BAC and the SCAN-MED corridors, thus demonstrating the importance of the rail freight traffic in the region. Figure 9 represents the freight corridors relevant for Italy and for each corridor crossing Emilia-Romagna the following characteristics are given: Loading Gauge (fig. 10); line module (fig. 11)</p>  |



*Figure 9 Freight lines/corridors: focus on Italy*

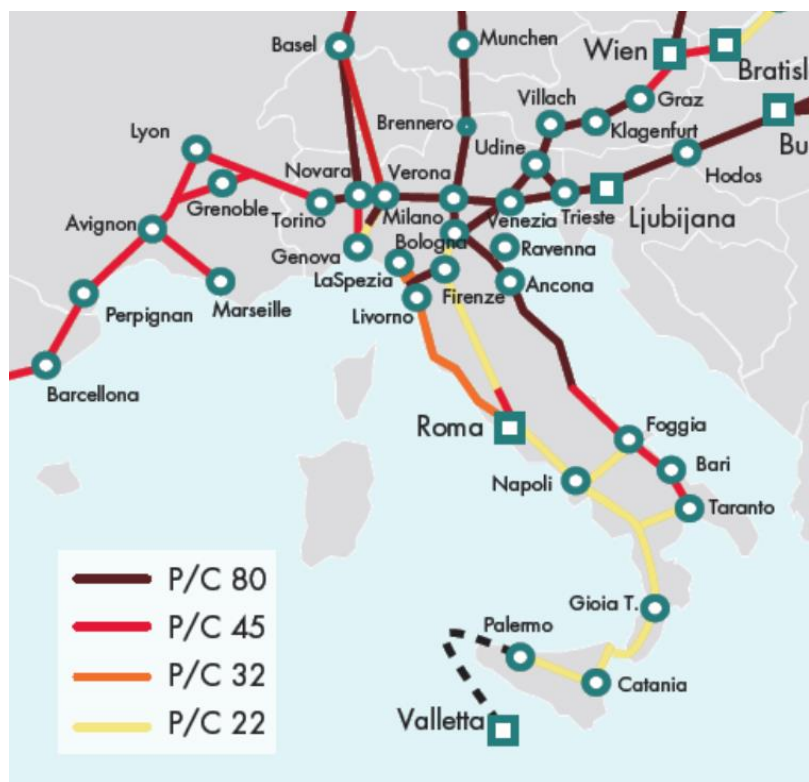


Figure 10 Freight lines/corridors: focus on loading gauges



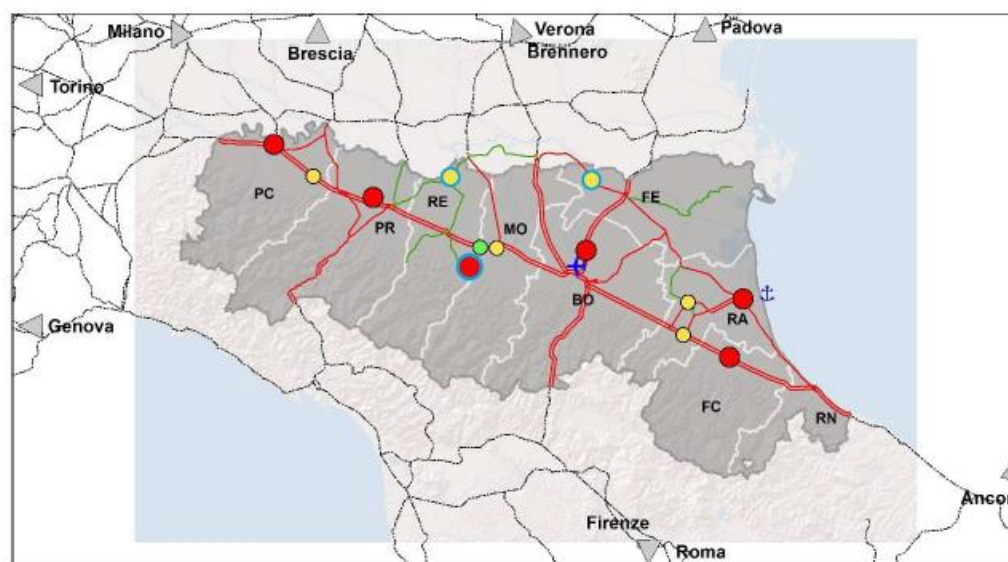
Figure 11 Freight lines/corridors: focus on line modules

In the following table, the main P/C standard loading gauges profiles are represented, with the related intermodal transport units (UTIs) admitted.

| Loading Gauge code | Freight rail wagon | Maximum height (mm) | Type of intermodal transport(s) allowed |
|--------------------|--------------------|---------------------|---|
| P/C 80             | Poche/Wippen       | 4100                | Rolling Highway                         |
| P/C 60             | Poche/Wippen       | 3900                | Rolling Highway / Modalhor              |
| P/C 50             | Poche/Wippen       | 3800                | Rolling Highway / Modalhor              |
| P/C 45             | Poche/Wippen       | 3750                | High Cube container                     |
| P/C 32             | Poche/Wippen       | 3620                | Swap bodies / semi-trailer              |
| P/C 30             | Poche/Wippen       | 3600                | Container                               |
| P/C 25             | Poche/Wippen       | 3550                | Container                               |
| P/C 22             | Poche/Wippen       | 3520                | Container                               |

*Table 1 Loading Gauges limits*

The overall regional railway network for freight transport is represented in Figure 12, where the double red lines are electrified double track lines, the single red lines are electrified single track lines, and the green lines are non-electrified single track lines.



#### Reti e Nodi Ferroviari Merci in RER al 2011

##### Rete Ferroviaria per trasporto merci

- Linee a doppio binario elettrificate
- Linee a semplice binario elettrificate
- Linee a semplice binario non elettrificate

##### Scali Ferroviari

- Scali principali
- Scali FER
- Altri scali
- Scalo in completamento

##### Altri hub logistici

- ⚓ Porto di Ravenna
- ✈ Aeroporto di Bologna

*Figure 12 Regional railway network*

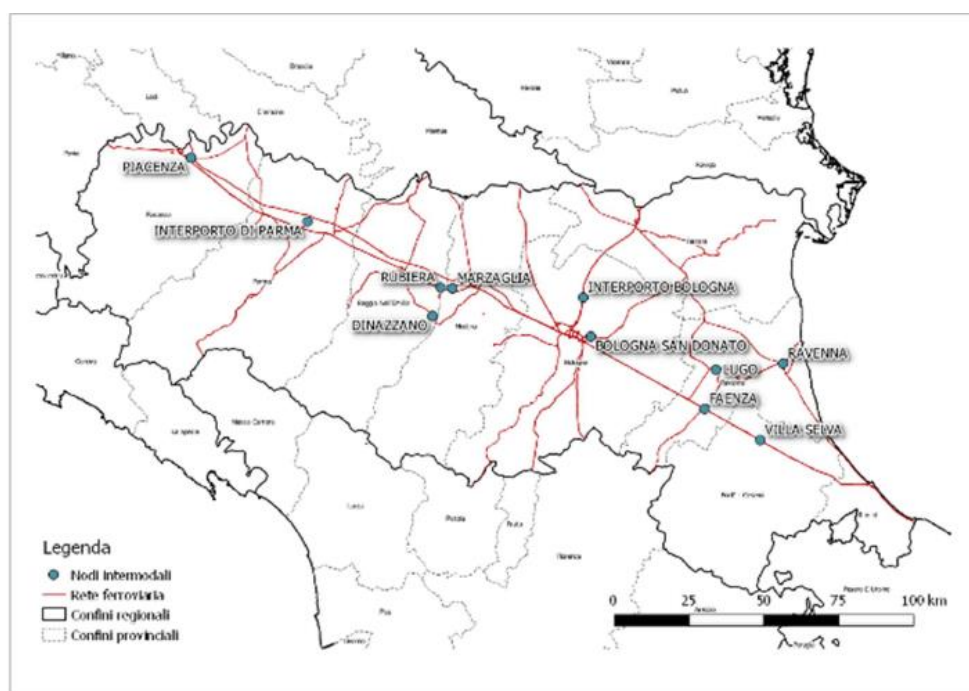
## Intermodal facilities

There are many facilities in Emilia Romagna dedicated to intermodal and combined transport, with differentiated business models and offering differentiated multimodal services.

Following the agreement signed in 2009 between the national railway group (Gruppo FS) and the Emilia-Romagna Region, the Region identified the main regional intermodal nodes and these are:

1. Piacenza
2. Parma freight village CePIM
3. Marzaglia
4. Bologna freight village
5. Villa Selva
6. Ravenna
7. Bologna San Donato (Rail Freight Yard)
8. Faenza
9. Lugo

In addition to the above-mentioned intermodal nodes of the agreement, two more terminals of the Reggio Emilia area have been added because of their great relevance for the regional rail transport system: Rubiera and Dinazzano Po (see Figure 13).



**Figure 13 Main regional intermodal nodes on the Emilia Romagna railway network**



The table below illustrates the characteristics of the regional intermodal nodes:

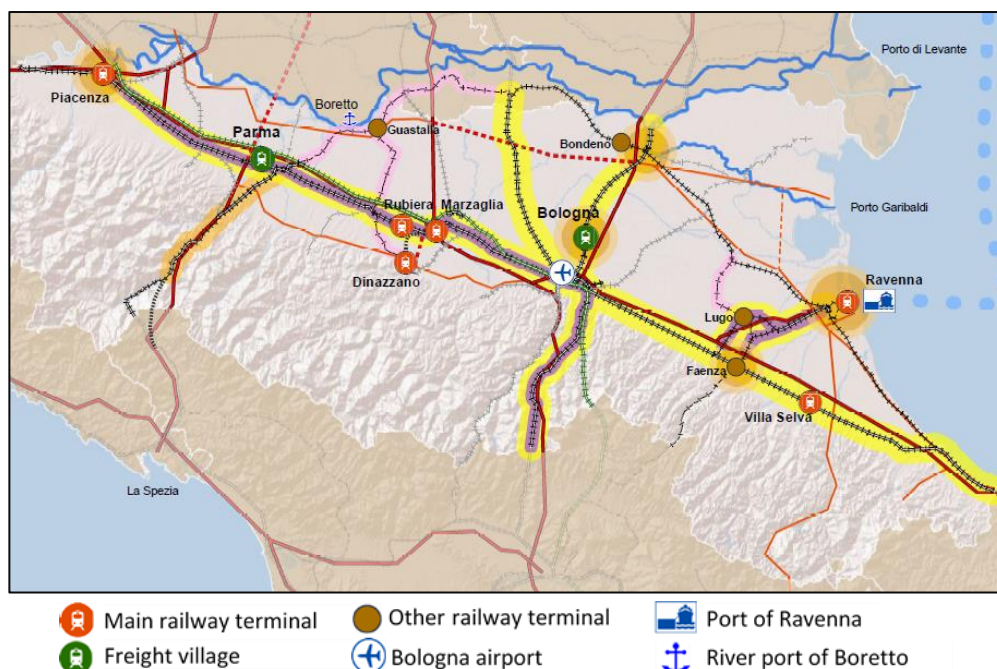
| Node                    | Intermodal maritime | Combined road-rail transport | Traditional | Rail Port Db |
|-------------------------|---------------------|------------------------------|-------------|--------------|
| Villa Selva             |                     | X                            |             |              |
| Terminal Piacenza       |                     | X                            |             |              |
| Bologna freight village | X                   | X                            | X           |              |
| Parma freight village   |                     | X                            | X           | X            |
| Dinazzano Po            | X                   |                              | X           | X            |
| Rubiera                 | X                   |                              |             |              |
| Lugo                    |                     | X                            | X           |              |
| Ravenna                 | X                   |                              | X           |              |
| Faenza                  |                     | X                            |             |              |

*Table 2 Characteristics of regional intermodal nodes*

In 2015, about 19,000 trains left from -and about the same amount arrived to- the regional intermodal nodes, for a total amount of 32,700 trains/year. The main regional rail freight connections are Reggio Emilia-Dinazzano Po (6,300 trains) and the Port of Ravenna (5,800 trains). Very important origin and destination nodes are Piacenza, Parma, Rubiera and Bologna (14,300 trains totally).

Figure 14 represents the logistic nodes of Emilia Romagna:

- Bologna Airport
- Port of Ravenna
- River port of Boretto
- Freight villages (in green)
- Main railway terminals (red)
- Other railway terminals (brown)



**Figure 14 Emilia Romagna logistic nodes**

## Transport flows

The total tons handled by the intermodal nodes system is equal to 18,171,147 tons (2018 data, see table below).

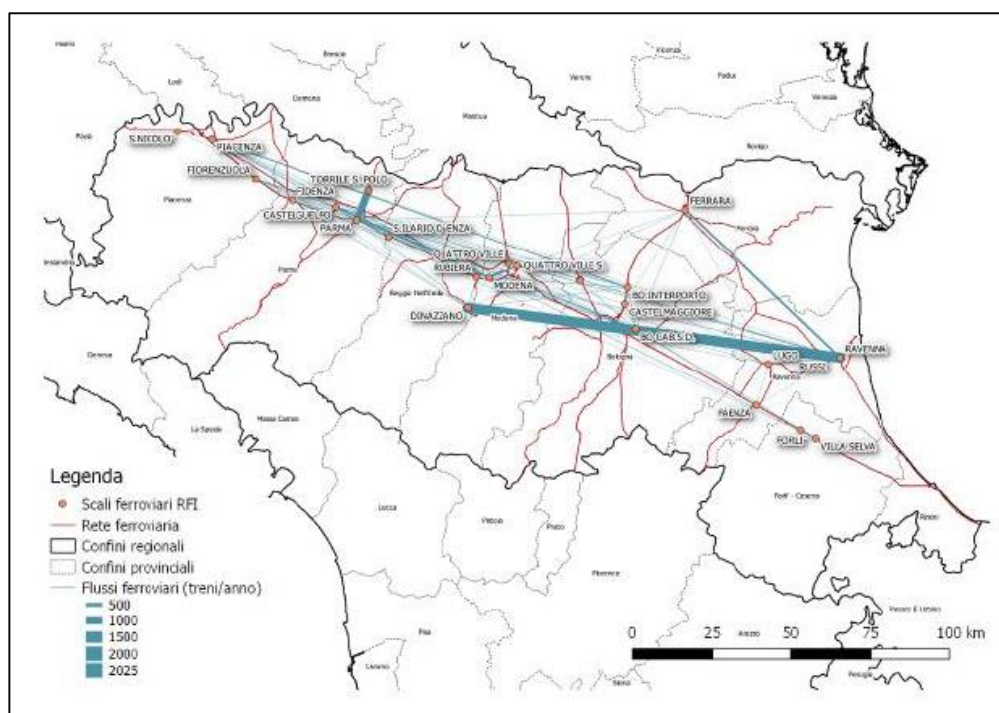
An analysis of the quantities handled by the individual regional intermodal nodes shows the following:

- a strong relationship between the port of Ravenna and the Lombardia regional system
- the significant function of the ports of Liguria in the export of the ceramics from the Reggio-Emilia Modena area
- the connection role of the Bologna freight village both with the ports of Liguria and with the Lombardia Region
- the node of Piacenza, in addition to its consolidated connections with the northern Italian regions, handles a significant amount of tons towards the south of the country, in particular towards Puglia and Campania

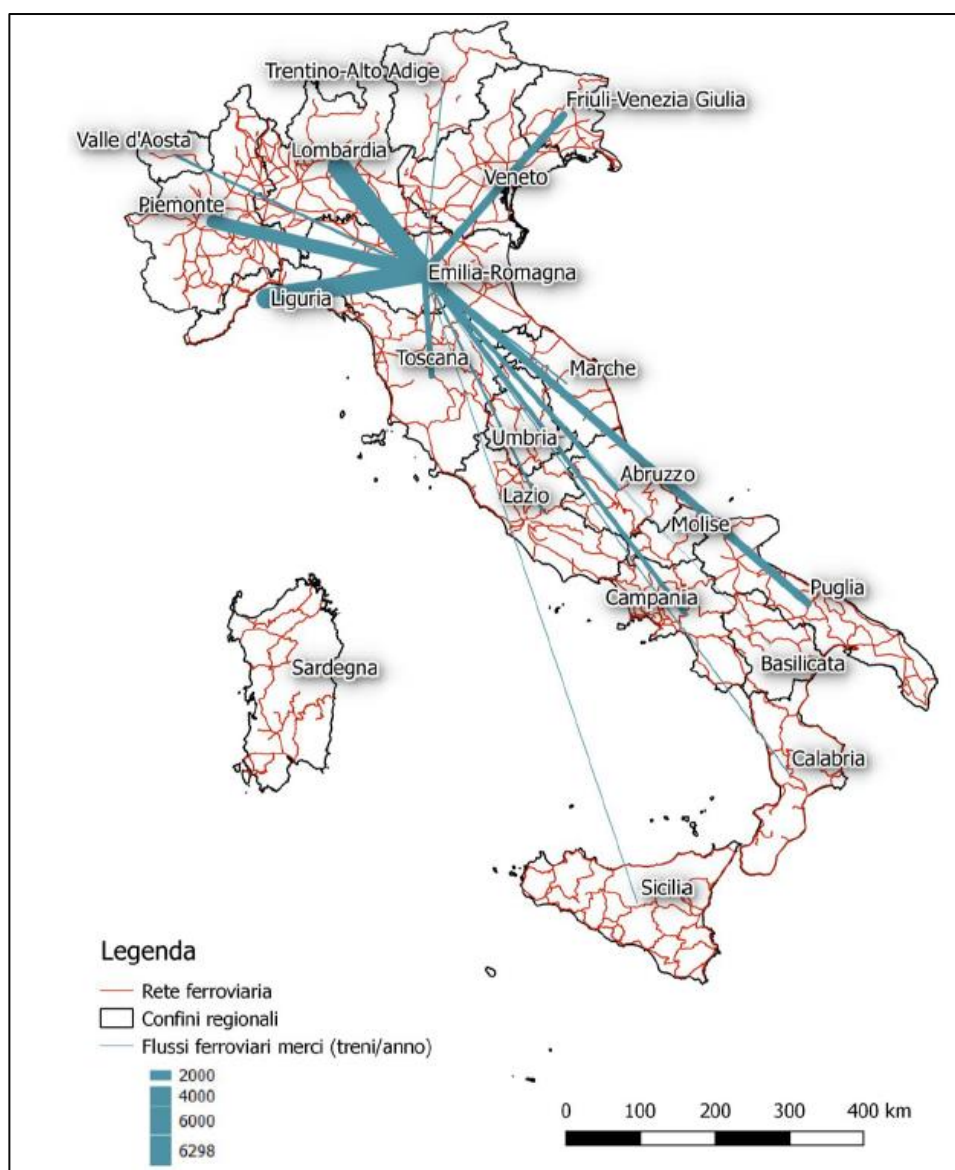
| Prov   | Nodo/operatore             | Tonnellate movimentate |            |            |            |            | Incremento rispetto al 2017 |
|--------|----------------------------|------------------------|------------|------------|------------|------------|-----------------------------|
|        |                            | 2009                   | 2013       | 2016       | 2017       | 2018       |                             |
| BO     | Interporto Bologna         | 1.300.000              | 1.549.488  | 1.190.259  | 1.136.996  | 1.196.000  | + 5,19%                     |
| RE     | Terminal Rubiera/Logtainer | 997.000                | 2.000.000  | 2.039.921  | 2.168.525  | 2.164.963  | -0,16%                      |
| RE     | Dinazzano/Dinazzano Po     | 1.295.554              | 3.162.575  | 3.746.695  | 3.453.945  | 3.395.153  | -1,70%                      |
| PR     | Interporto Parma/Cepim     | 850.000                | 3.848.200  | 3.300.000  | 2.700.000  | 2.700.000  | -                           |
| PC     | Terminal Piacenza/HUPAC    | 1.350.000              | 1.600.000  | 4.082.504  | 4.586.500  | 4.765.600  | + 3,90%                     |
| FC     | Villaselva/Lotras          | —                      | 123.750    | 318.720    | 360.220    | 388.080    | + 7,73%                     |
| RA     | Porto Ravenna              | 3.169.373              | 2.440.000  | 3.368.090  | 3.437.704  | 3.561.351  | + 3,60%                     |
| TOTALE |                            | 9.241.927              | 14.724.195 | 18.046.189 | 17.843.890 | 18.171.147 | + 1,83%                     |

**Figure 15 Freight tons processed in the main regional logistic nodes**

The following two figures represent the annual connections (2015 data) between regional freight rail yards (Figure 16) and the transport flow from Emilia Romagna and the other Italian regions (Figure 17), where the thickness of the blue lines is proportional to the number of trains. The main regional O/D pairs, grouped by province, are Ravenna - Reggio Emilia (2025 2,025 trains per year) and Parma - Torile S. Polo (1428 1,428 trains per year). Regarding the freight train flows between Emilia-Romagna and the other regions, the main O/D pairs are Emilia-Romagna - Lombardia (6298 6,298 trains per year), Emilia-Romagna - Liguria (5578 5,578 trains per year) and Emilia-Romagna - Piemonte (3724 3,724 trains per year).



**Figure 16 Annual connections between freight rail yards (Source: ITL elaboration on RFI data)**



**Figure 17 Rail transport flow from Emilia Romagna to the other Italian regions (Source: ITL elaboration on RFI data)**

**Modal share development**

The freight rail modal share in Emilia-Romagna is equal to 11% (express as tons, 2016 data)

## B) Policy Analysis

Freight transportation is essential for safeguarding the competitiveness of industrial and regional services, especially in an economy that is integrated in internationalized and strongly export-oriented supply chains. In 2014, the regional rail freight transport increased by +7.2% compared to 2013. In 2016, goods moved by rail reached about 19.6 million tons, reaching a quota never reached so far.

The total tons handled by the intermodal nodes system is equal to 18,350,746 tons. The regional intermodal system has a great potential and the public as well as private investments confirm this thesis. The railway network capacity will increase in the next years, and in order to intercept this increased capacity in the regional system, the Region will:

- encourage forms of cooperation between terminals for the creation of a regional cluster able to offer an integrated offer of services and create synergies for transversal activities in support of the core business (professional and managerial training, auxiliary services, etc.)
- support projects on the improvement of the railway accessibility of the last mile of terminals to reduce the bottlenecks threatening their operations and competitiveness;
- support the process of the shunting service efficiency of regional terminals
- support system promotional actions through joint participation to international sectoral events.

### Modal share development

The Regional Integrated Transport Plan (PRIT2025) aims at rebalancing towards new forms of collective and non-motorized mobility both in urban and extra-urban areas for increasing the accessibility of the territory. More efficient systems of modal integration and co-modality for passengers and for goods will be promoted, innovating and empowering the local public transport and acting on the rules of the system governance.

As far as the freight transport is concerned, the goal to 2025 is to increase the modal share of rail freight transport by +30%, with a minimum modal share of 13%. Table 3 shows the modal split road/rail for regional freight transport (tons). In particular, the computation is made considering the total regional rail freight traffic and the total regional road freight traffic (excluding crossing traffic). In table 4 the same modal share is calculated considering, as far as road freight transport is concerned, only the traffic originating within the Emilia-Romagna region. As better illustrated below, the data in table 4 shows the growth of the modal share compared to the only traffic originating in the region, therefore coming from the market basin of more immediate interest for the present work and - as described below - potentially involved in the regional incentive system for rail transport. The freight rail modal share in Italy is 9.3% (tons, 2017 data).

| Year | % Road | % Rail |
|------|--------|--------|
| 2010 | 95     | 5      |
| 2012 | 94     | 6      |
| 2013 | 92     | 8      |
| 2014 | 91     | 9      |
| 2015 | 90     | 10     |
| 2016 | 89     | 11     |

**Table 3 Road/Rail freight modal share in Emilia-Romagna region (2010-2016)**



| Year | % Road | % Rail |
|------|--------|--------|
| 2010 | 93     | 7      |
| 2011 | 93     | 7      |
| 2012 | 92     | 8      |
| 2013 | 90     | 10     |
| 2014 | 88     | 12     |
| 2015 | 86     | 14     |
| 2016 | 86     | 14     |

**Table 4 Road/Rail freight modal share in Emilia-Romagna region (2010-2016) - only road traffic with origin in the region**

The optimization of modal integration means a pivotal role of railway stations in the organization of services. In particular, the whole railway infrastructure must become the central node of urban and extra-urban mobility and therefore road transport should play the role of adductor to the railway system.

According to the PRIT2025, financial and economic investments of all actors (municipalities in particular) should concentrate on railway stations, for the target is to equip them as modal interchange poles. In addition to exchanger parking lots that include reserved areas for the charge of electric vehicles, safe stations for private bikes, bike sharing and car sharing must also be provided.

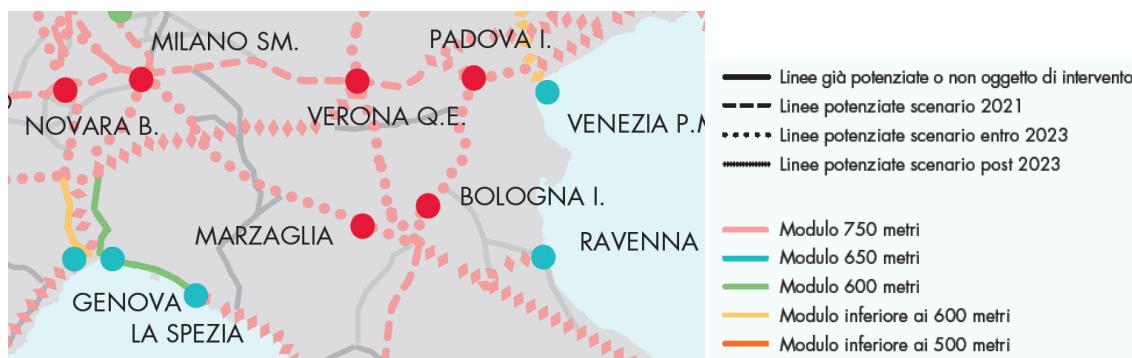
Projects under the RFI investments plan by 2020/2030 involving railway lines in the Emilia-Romagna region:

| Linea                            |              | Attuale                | 2018                   | 2020                   | 2030                   |
|----------------------------------|--------------|------------------------|------------------------|------------------------|------------------------|
| Bologna – Ancona (Adriatica)     | Sagoma       | P/C 80 fino Rimini     | P/C 80                 | P/C 80                 | P/C 80                 |
|                                  | Modulo linea | 600 m                  | 750 m da Faenza        | 750 m                  | 750 m                  |
|                                  | Peso assiale | D4 fino Rimini         | D4 fino Rimini         | D4 fino Rimini         | D4 fino Rimini         |
| Bologna – Milano                 | Sagoma       | P/C 45                 | P/C 80 fino Piacenza   | P/C 80                 | P/C 80                 |
|                                  | Modulo linea | 650 m                  | 650 m                  | 750 m                  | 750 m                  |
|                                  | Peso assiale | D4                     | D4                     | D4                     | D4                     |
| Bologna – Firenze (Direttissima) | Sagoma       | P/C 22                 | P/C 22                 | P/C 22                 | P/C 80                 |
|                                  | Modulo linea | 600 m                  | 750 m                  | 750 m                  | 750 m                  |
|                                  | Peso assiale | D4                     | D4                     | D4                     | D4                     |
| Bologna – Padova                 | Sagoma       | P/C 80                 | P/C 80                 | P/C 80                 | P/C 80                 |
|                                  | Modulo linea | 650 m                  | 650 m                  | 750 m                  | 750 m                  |
|                                  | Peso assiale | D4                     | D4                     | D4                     | D4                     |
| Bologna – Verona – Brennero      | Sagoma       | P/C 80                 | P/C 80                 | P/C 80                 | P/C 80                 |
|                                  | Modulo linea | 600 m                  | 750 m                  | 750 m                  | 750 m                  |
|                                  | Peso assiale | D4                     | D4                     | D4                     | D4                     |
| Castelbolognese/Faenza – Ravenna | Sagoma       | P/C 32                 | P/C 80                 | P/C 80                 | P/C 80                 |
|                                  | Modulo linea | 575 m                  | 575 m                  | 750 m                  | 750 m                  |
|                                  | Peso assiale | D4 limitazione 50 km/h | D4 limitazione 50 km/h | D4 limitazione 50 km/h | D4                     |
| Ferrara – Ravenna – Rimini       | Sagoma       | P/C 32                 | P/C 32                 | P/C 32                 | P/C 32                 |
|                                  | Modulo linea | 575 m                  | 575 m                  | 575 m                  | 575 m                  |
|                                  | Peso assiale | D4 limitazione 70 km/h | D4 limitazione 70 km/h | D4 limitazione 70 km/h | D4 limitazione 70 km/h |

**Figure 18 Main network upgrade infrastructural projects planned in time horizon 2018-2030 - general frame**



**Figure 19 Upgrade projects planned on the main lines crossing the Emilia-Romagna region (Loading Gauge)**



**Figure 20 Upgrade projects planned on the main lines crossing the Emilia-Romagna region (Line module)**

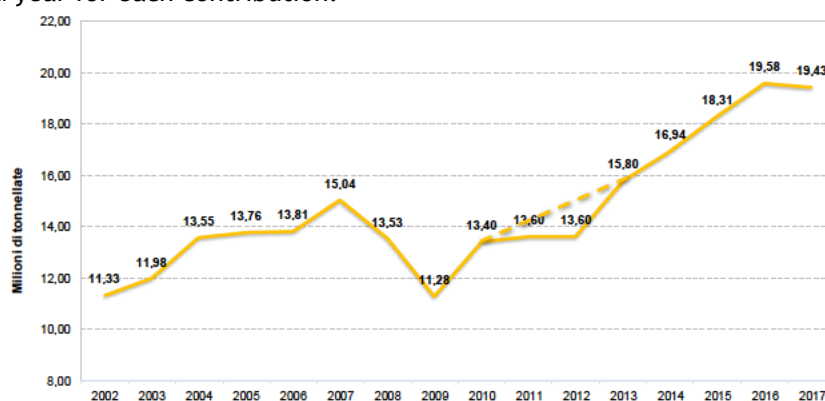
In 2009, the Region adopted measures to face the sharp drop in rail traffic caused by the economic crisis and to prevent its further erosion, leading to the collapse of the entire intermodal rail-road supply chain. The objective was to stimulate the growth of rail freight transport by encouraging new traffic (i.e. additional to those already carried out) on existing and new traffic relationships, thus reducing the number of heavy vehicles on the road network, with obvious benefits in terms of environmental impacts, congestion and safety.

The Regional Law 15/2009 provided for 3 million euro of annual contributions for each year in the period 2010-2011-2012. During the first year 3,750,027 t of goods were transported, 2,681,870 t more than in 2009. Of these, 1,551,727 t subsidized. In the second year of life of the regional law, the services supported carried 4,506,904 t of goods, of which 3,513,666 t were additional compared to 2009. Of these, 1,663,890 t benefited from the subsidy. Finally, in 2012, the incentive services carried 3,911,548 t of goods, of which 2,968,290 t were additional compared to 2009. Of these, 1,949,300 t benefited from the subsidy. During the fourth and fifth years of performance of the incentive services, despite the absence of the subsidy, the traffic was 3,774,530 t and 3,528,807 t of goods, respectively.

It has been estimated that the modal shift between road and rail stimulated by this law, over three years, has generated a saving of about 75% of primary energy (in terms of energy bills would be more than EUR 96 million, compared with contributions actually issued of just over EUR 5.785 million). In addition, from an environmental point of view, thanks to the modal shift, the emission of about 28,000 kg of particulate matter and 155,000 ton of CO<sub>2</sub> equivalent in atmosphere has been avoided.

Following the valuable outcomes of this first experience, in 2013 the Region approved a new law on incentives for rail freight transport (Regional Law 10/2014). The total budget was EUR 800,000/ year for 2014-2015-2016: during 2014, 4,342 trains were performed, carrying a total of 3,603,828 ton of goods, of

which 1,278,720 additional ton compared to 2013; during the second year, again as part of the services eligible for subsidy, 4,816 trains were carried out, transporting a total of 3,866,208 ton of goods, of which 1,207,227 more than in 2013; finally the third year has substantially confirmed the trend of the second year, especially as regards the total number of trains, which reached 4,873, while the tons increased to 4,029,621, of which 1,389,640 additional. During the period of validity of the law, more than 70% of the traffics subsidized had origin and destination on the regional territory, confirming the regional value of this measure. Figure 21 shows the positive effect on the growth trend of regional rail freight transport generated by the regional policy initiatives previously described. Recently, the Region approved a new law (Regional Law 30/2019) on incentives for regional rail transport. The amount of the incentive is 0.007 EUR/ton-km, up to 150,000 EUR/year for each contribution.



**Figure 21 Tonnes of freight carried by train in Emilia Romagna (2002-2017)**

### C) Regional Stakeholder Mapping

The involvement of major stakeholders is a key element for the project's results and outputs. Cooperation and coordination between all relevant stakeholders in regional rail freight transport is therefore fundamental and important.

In the first table the relevant stakeholders are listed and described according to their role and benefits, the second one maps the stakeholders according to their influence and level of interest in the project.



| Stakeholder   | Role                                  | Importance/<br>Relevance<br>(High/medium<br>/ low) | Contribution to<br>the project  | Benefits<br>from the<br>project   | Conflicts<br>(Potential,<br>existing, former)  | Current<br>level of<br>support | Strategies to<br>improve the<br>support  |
|---|---------------------------------------|--|---|---|--|--------------------------------|--|
| RFI   | Railway<br>infrastructure<br>operator | High   | implementation of<br>infrastructure<br>projects and<br>upgrading of the<br>railway network                        | improving<br>coordination<br>with local<br>authorities  | difficulties in the<br>implementation of<br>projects and<br>potential difficulties<br>in coordination with<br>the other network<br>managing body | Medium                         | Continuous and<br>regular<br>meetings and<br>feedback.   |
| FER   | Railway<br>infrastructure<br>operator | High   | implementation of<br>infrastructure<br>projects and<br>upgrading of the<br>railway network                        | improving<br>coordination<br>with local<br>authorities  | difficulties in the<br>implementation of<br>projects and<br>potential difficulties<br>in coordination with<br>the other network<br>managing body | Medium                         | Continuous and<br>regular<br>meetings and<br>feedback.   |
| Terminal<br>operators                                   | Operators                             | High   | Data exchange;<br>highlighting of<br>critical points  | strengthening<br>relations with<br>other<br>stakeholders;<br>sharing good<br>practices  | potential<br>confidentiality and<br>sensitivity of data  | High                           | highlight the<br>advantage of<br>sharing<br>information and<br>the potential<br>for<br>strengthening<br>relations with<br>stakeholders |
| Railway<br>Undertakings                                 | Operators                             | High   | Data exchange on<br>trains; highlight<br>helpful market<br>strategies to<br>attract traffic                       | Strengthen the<br>relations with<br>other<br>stakeholders;<br>share<br>knowledge and<br>data to<br>improve the<br>commercial<br>offer | Potential limits due<br>to competition in the<br>market; sensitivity of<br>commercial data   | Medium                         | Highlight the<br>opportunity to<br>improve the<br>market<br>performance  |
| Custom<br>Agencies                                      |                                       | Low  | Support in the<br>implementation of<br>measures to speed<br>up processes  | Better<br>knowledge of<br>technical and<br>operational<br>contexts<br>thanks to the<br>sharing of data<br>and<br>experiences          | Difficulties in the<br>implementation of<br>measures to speed<br>up processes  | Low                            | Continuous and<br>regular<br>meetings and<br>feedback.   |
| Trade and<br>Industry<br>associations                   | Representativ<br>e of industries      | Medium/High  | Contributing to<br>the definition of<br>market needs and<br>requests of users<br>of freight<br>transport services | highlight the<br>needs of<br>industries and<br>potential users<br>of freight<br>transport   | difficulty in<br>matching<br>supply/demand   | Low                            | Continuous and<br>regular<br>meetings and<br>feedback.   |
| MTO,<br>Integrators,<br>handling<br>agents,<br>shippers | Operators                             | Medium/High  | Data exchange on<br>freight traffic;<br>highlight helpful<br>market strategies<br>to attract demand               | Strengthen the<br>relations with<br>other<br>stakeholders;<br>share<br>knowledge and<br>data to<br>improve the                        | Potential limits due<br>to competition in the<br>market; sensitivity of<br>commercial data   | Medium                         | Continuous and<br>regular<br>meetings and<br>feedback.   |



|                |                    |            |   |  |   |      |   |
|----------------|--------------------|------------|---|--|---|------|---|
|                |                    |            |   | commercial offer                                 |   |      |   |
| Port Authority | Public Stakeholder | Low/Medium | Data on rail/maritime traffic and regulation issues | strengthening relations with other stakeholders; | potentially complex data access and dissemination | High | Continuous and regular meetings and feedback. |

**Classification of stakeholders**

|           |      | INTEREST  |  |
|-----------|------|---|--|
|           |      | Low   | High   |
| INFLUENCE | Low  | <i>Marginal Stakeholders:<br/>Importance = low<br/>Customs agencies; chambers of commerce</i> | <i>Operative Stakeholders:<br/>Importance = medium/high<br/>Trade and Industry associations, MTO, Integrators, handling agents, shippers</i> |
|           | High | <i>Relevant Stakeholders:<br/>Importance = medium/high<br/>RFI, FER</i>                       | <i>Key Stakeholders:<br/>Importance = high<br/>Railway Undertakings, Terminal operators<br/>Port Authority</i>                               |



## D) SWOT Analysis: Strengths, Weaknesses, Opportunities, Threats

| Strengths  | Weaknesses   |
|--|--|
| Quality and quantity of rail and inter-modal infrastructures   | Difficulties of integration between different modes of transport and different involved stakeholders |
| Good level of cooperation among institutional players and private operators  | Road accessibility to intermodal nodes   |
| Territory in which prestigious companies and brands are present, as well as a vast and productive agri-food sector, a potential basin of attraction/generation of large flows of goods | Competitiveness of rail/road intermodal transport strictly dependent on public incentives            |
|  | Lack of quality last mile rail connection in the relevant regional nodes (port, main industries,..)  |
| Opportunities  | Threats  |
| Expected growth of the regional industrial system  | Difficulties in reducing the perceived and actual road/rail performance and cost gap                 |
| Planned investments on the railway network   | Delays in infrastructure upgrading projects  |
| Development of research on new technologies to support modal integration   |  |
| Increasing society's awareness about sustainability issues   |  |

## E) Recommendation/Outlook

This baseline study report contains elements that allow to focus on the following conclusions, useful for the implementation of future steps of the project:

- The Emilia-Romagna region has an important and extensive railway network and several intermodal nodes, widespread throughout the territory;
- Several projects to improve and update the rail network are planned in the next years by the network operators (RFI and FER).
- The analysis of rail and road freight flows, and of freight handled at nodes, shows a clear predominance of road transport over rail transport.
- The system of incentives for rail transport provided by the region of Emilia-Romagna since 2009 has had a tangible effect on demand for rail freight transport.
- In order to make rail freight transport attractive to a larger market catchment area, it is necessary to reduce the dependence of attractiveness on the incentive system and make the system more competitive by acting on the accessibility of intermodal nodes and on costs reduction.

### Data Source

RFI (Rete Ferroviaria Italiana) - <http://www.rfi.it>

FER (Ferrovie Emilia-Romagna) - <http://www.fer.it>

Regione Emilia-Romagna, “Rapporto annuale di monitoraggio della mobilità e del trasporto in Emilia-Romagna 2019” - <https://mobilita.regione.emilia-romagna.it/Pubblicazioni/monitoraggio/monitoraggio-2019>

Regione Emilia-Romagna, “Piano Regionale Integrato dei Trasporti 2025” (submitted for approval)