

Rail freight in the EU: Developing a tool for more sustainable transport

SUMMARY

In the early 20th century, rail was by far the most important mode for hauling goods across Europe. Since then, the freight market has undergone profound changes. In 2014, rail accounted for less than 12 % of all freight in the EU, while its main competitor, road haulage, achieved roughly a 50 % market share. This development entailed environmental concerns, road being considered more detrimental to the environment than rail. In the context of a predicted increase in freight transport, the EU has adopted a broad policy framework and a set of initiatives to promote more sustainable transport where rail freight plays an important role. These range from measures to improve the competitiveness, governance and technical compatibility of the rail sector in general, to specific provisions to support rail freight networks and services. The EU has also provided for a set of financing instruments and programmes.

Today, experts seem to share a common understanding of the unsatisfactory performance of rail freight: regulatory and management issues, an uneven playing field and insufficient effectiveness of EU funding are among the main causes that are being discussed. At the same time, a consensus seems to have emerged on the need to increase rail freight in the EU. As a result, recommendations have been made to enhance and stabilise the regulatory environment; improve management and better adapt it to rail freight needs; make more consistent use of EU funds to improve the infrastructure; better exploit the potential of intermodal facilities; and monitor more closely the results achieved. Ongoing steps, such as rail projects at EU and national level and implementation of the EU regulatory framework, are already contributing to making rail freight a more customer-oriented and sustainable mode of transport.



In this briefing:

- Introduction
- Background
- Assessment
- European Parliament position
- Stakeholders
- Concluding remarks
- Main references

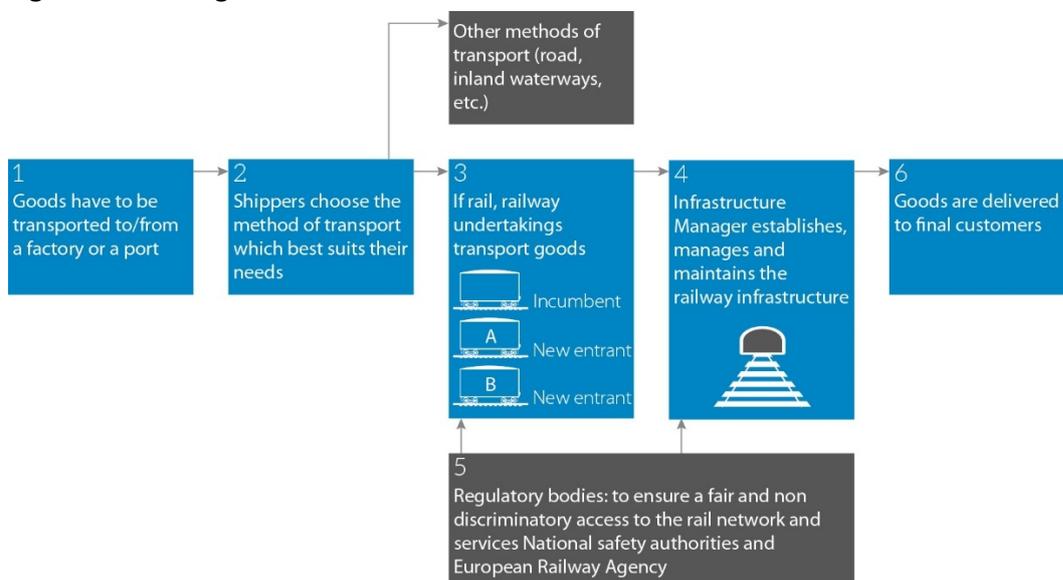
Introduction

At the beginning of the 20th century, over 80 % of goods in Europe were moved by rail. Today, the situation is drastically different. In 2014, out of a total of 3 524 billion tonne-kilometres (tkm)¹ of freight in the EU, only [11.7 %](#) was transported by rail. In the past 20 years, road haulage, the main competitor to rail freight (RF), has seized on the growth in the traffic of goods, especially lighter and more perishable ones, taking over roughly 50 % of the freight market, while the share of rail has [decreased](#) slightly. This development has prompted energy-related and environmental concerns, as road haulage has a more detrimental impact on the environment than rail. According to Eurostat, in 2014 rail accounted for [0.6 %](#)² and road for almost 73 % of the EU's total greenhouse gas emissions produced by the transport sector. The same percentages were registered for [CO₂ emissions](#) in both transport modes. Moreover, road transport entails other adverse consequences, such as costs associated with [road congestion](#), which, according to the European Commission, are projected to increase by about 50 % by 2050. Environmental concerns could worsen, given the Commission's forecasts of a 40 % [increase](#) in freight transport by 2030, and up to 80 % by 2050, compared to 2005.³

To answer these challenges, over the last 25 years the Commission has been advocating a policy aimed at shifting the balance between transport modes and at promoting more sustainable transport. In this endeavour, RF plays a leading role, as it can reduce pollution and EU oil imports at the same time.

In 2014, the EU had an active [rail network](#) of approximately 220 000 km.

Figure 1: Rail freight actors



Source: [European Court of Auditors' report on rail freight transport in the EU](#) – 2016.

Background

The EU policy framework

In its 2001 white paper on transport, the Commission proposed measures to revitalise the rail sector and to set up a [network](#) dedicated to freight. Between 2001 and 2016, the EU adopted four sets of legislative measures known as '[railway packages](#)'. They were mainly aimed at opening the markets, ensuring that operators have a fair access to rail infrastructure and services, and implementing common safety and compatibility (interoperability) standards. In particular, the first railway package, adopted in 2001, reinforced cooperation between infrastructure managers (IMs) to facilitate [international](#)

[RF](#), and opened RF companies' access to a defined [trans-European freight network](#). A [European Railway Agency](#) was established in 2004 to provide technical support for infrastructure, rolling stock and traffic management systems, and to draft technical specifications for interoperability (TSIs).⁴ In addition, the agency was tasked with issuing EU-wide vehicle authorisations. As of January 2007, the RF market was [fully opened](#) to rail operators to carry out all types of freight services.

The trans-European transport network (TEN-T)

European rail development plans were integrated into the trans-European networks (TENs). The TENs were set up in the areas of transport ([TEN-T](#)), energy and telecommunications, to develop the internal market and promote economic and social cohesion. TEN-T aims to create a [multimodal network](#) (rail, inland waterway, road, maritime and air transport) to facilitate the transport of goods and passengers across the EU. The current binding 2013 guidelines comprise a [dual-layer structure](#) consisting of a core network to be completed by 2030, and a wider base layer, the comprehensive network, to be developed by 2050. The core network comprises the [major links](#) and is organised in [nine corridors](#) and two horizontal priorities, one of which concerns the common European rail traffic management system ([ERTMS](#)). TEN-T guidelines also establish priority actions for missing links or shortcomings in interoperability and multimodal connections.

The EU has taken several specific actions to support RF. In a 2007 communication, the Commission put forward [actions](#) to promote a strong EU rail network as part of the TEN-T. RF would have priority on the network and would provide more reliable and efficient services. In 2008, the Commission ran a [public consultation](#) to assess the problems preventing RF development. The main issues identified were inadequate response to logistical needs, insufficient reliability, and shortcomings of the infrastructure. Suggested improvements included removing traffic bottlenecks and enhancing the compatibility of the equipment and staff. Later that year, the Commission put forward its proposal for a regulation to set up a [rail network for competitive freight](#), with an [impact assessment](#).

The resulting [Regulation 913/2010](#) is the backbone of EU RF policy. It sets out the provisions to select, organise and manage RF corridors, and to provide their indicative investment planning. Each corridor should cross the territory of at least three Member States, or of two, if the distance between the terminals served is greater than 500 km. The development of the [nine](#) initial RF corridors listed in the annex to the regulation should be consistent with the TEN-T core network corridors and the ERTMS. To boost coordination between Member States and IMs for each freight corridor, the former should establish an executive board and the latter a management board. For each corridor, the executive board should define the general objectives, while the management board should present implementation and investment plans. The management board should establish a one-stop shop to answer requests for infrastructure capacity for freight trains crossing at least one border along the corridor. IMs can jointly define dedicated capacity ('pre-arranged train paths') for RF to facilitate RF effectiveness, journey times, frequency and routings along the corridors. RF services along the corridors should be monitored through regular performance and quality reports and user satisfaction surveys. Finally, in its 2011 white paper on transport, the Commission set a [target](#) of shifting 30 % of road freight over 300 km to other modes such as rail or waterborne transport by 2030, and more than 50 % by 2050.

Main transport and rail freight financing instruments

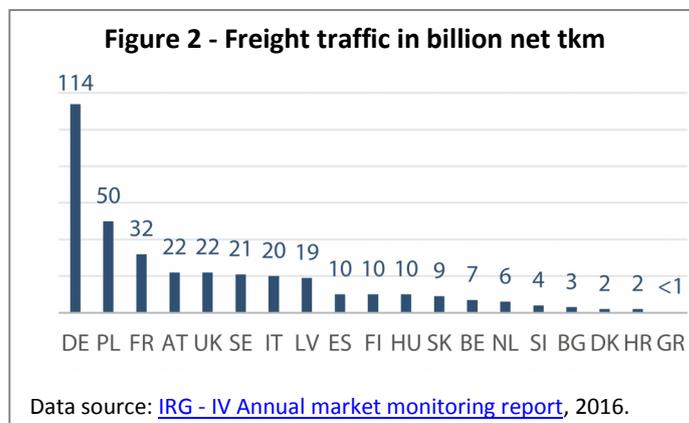
[National budgets](#) are the prevailing source for financing rail infrastructure (about 50 %), but they are facing increasing constraints. Current national rail access revenues are not

sufficient to contribute to infrastructure investment. Hence, EU co-funding is the main additional source of investment for transport in general and for both passenger and freight rail services in particular. With an estimated transport envelope of €70 billion for 2014-2020, financing is provided under the European structural and investments funds (ESIF), specifically the European Regional Development Fund (ERDF) and the Cohesion Fund (CF). TEN-T provides additional funding through the [Connecting Europe Facility \(CEF\)](#), with a €24 billion transport budget for the 2014-2020 period. The ERDF and the CF provide grants and their projects are managed jointly by the Commission and the Member States, while the Innovation and Networks Executive Agency (INEA) manages CEF grants. Moreover, the [Horizon 2020](#) research and innovation programme includes a €6.3 billion budget for smart, green and integrated [transport](#) for the 2014-2020 period. Among other things, Horizon 2020 finances a research and innovation initiative ([Shift2Rail](#)), which aims to enhance the quality and reliability of the EU rail system, while halving its life-cycle costs.

In 2015, the European Investment Bank (EIB) Group and the Commission set up the [European Fund for Strategic Investments \(EFSI\)](#) to help overcome the current investment gap in the EU. The EFSI works with financial instruments and is expected to mobilise €315 billion⁵ in three years; its [transport projects](#) currently account for **8 %** of the investments.

Assessment

In 2016, the European Court of Auditors (ECA) published an [audit report](#) on the three major recipients of EU rail funding (the Czech Republic, Poland and Spain) and the main beneficiaries of TEN-T funding (France and Germany) during the 2007-2013 period. Overall, the ECA considers that RF performance is still unsatisfactory. When comparing 2000 with 2014, [RF volumes](#) were equally stable, at respectively 405 and 411 billion tkm, while road had marked an increase from 1 509 to 1 725 billion tkm. Despite this relative stability, the 2008 financial crisis had a severe impact on RF from which it has not yet fully recovered. Rail is used mainly for transporting coal and lignite, crude and refined petroleum, natural gas, metals and chemicals. From 2000 to 2014, RF modal share decreased slightly from 12.5 % to 11.7 %, while road increased from 46.5 % to 49 %. These data hide a huge heterogeneity across the EU. Central and eastern EU Member States, whose modal share was relatively high in 2000, experienced a [steeper decline](#) in RF share. Nevertheless, in 2014 the three Baltic Member States had the [largest RF share](#) (above 50 %), followed by Slovenia, Slovakia and Finland.



Factors of unsatisfactory performance of rail freight

Relative underperformance of RF depends on a broad range of regulatory, strategic, management and economic factors.

- **Regulatory factors:** despite the adoption by the EU of a wide range of measures to liberalise the markets and enhance rail governance and technical compatibility, the single European railway area has not yet been achieved. As the ECA notes, the EU rail

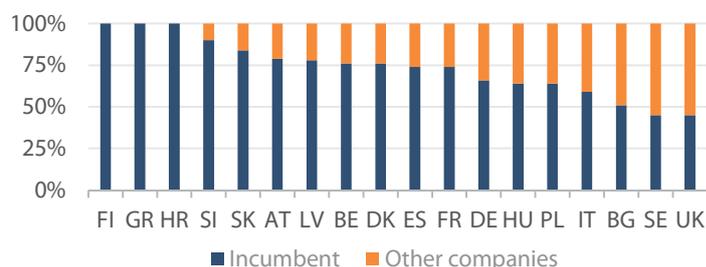
network is still composed of 26 not fully interoperable national subparts. Different national rules governing rail path allocation and management, as well as different pricing policies and IMs, hamper RF competitiveness. Moreover, as observed in a policy paper drawn up by the Centre on Regulation in Europe (CERRE), the RF market still has high levels of [concentration](#) and its [opening](#) is uneven across the EU. For instance, in some countries the RF market is almost closed. On average, freight incumbent operators account for approximately 67 % of the market. Competition is stronger in the UK, Sweden, Bulgaria, Italy and Poland. In 2014 alone, eight new operators emerged on the Polish RF market. Observers report possible discriminatory practices by incumbent operators, such as the introduction of obstacles to rail facilities (terminals), path allocation and available rolling stock.

- **Management procedures:** according to the ECA report, traffic management procedures implemented by each national IM are not adapted to the needs of RF services, which are cross-border in more than 50 % of the cases. Even if this does not apply to the nine RF corridors where pre-arranged paths can be requested in a single operation, the ECA notes that in some corridors the [take-over](#) of this procedure has been very slow. Additionally, RF is often penalised by a priority order favouring passenger trains and by night time maintenance works, when networks are theoretically more accessible to RF trains.
- [Comparison](#) between rail freight and road haulage according to specific factors:

Factor	Rail	Road haulage	Impact on freight transport
Access to infrastructure	Path requests have to be made in advance or on an ad hoc basis	No need for advance requests	Road more flexible
Infrastructure density	Network less dense	Network dense	Road faster
Administrative barriers	One locomotive and driver for each country	One truck and driver for the whole EU	Road more flexible
Intra-modal competition	Limited offer of rail freight companies	Larger range of road haulage companies	Road can offer better quality and price
Door to door transport	Very rarely available	Offered	Road can offer better quality and price and faster service
Access charges	Every km of track is charged	Some transport segments are free	Road can offer better price
Traffic management	Disadvantaged for track priority rules	Not disadvantaged	Road more reliable, faster
Crossing borders	Stops to change locomotive/driver	Less frequent stops	Road faster, more punctual

As shown in the table above, road is more efficient than rail when it comes to freight transport. Moreover, a low average [commercial speed](#) of freight trains contributes to

Figure 3 - Market shares of freight railway undertakings (% net tkm)



Data source: [IRG – IV Annual market monitoring report](#), 2016.

low RF performance. While trucks move at an average of 60 km/h, trains run at 18 km/h on some routes, or at 20-30 km/h in some central and eastern EU countries.

- **Insufficient maintenance:** to ensure competitive RF services, networks must be regularly renovated and maintained. The ECA points out that IMs do not provide sufficient maintenance for the network that is mainly used by freight trains. This can lead to speed restrictions or closures of secondary lines which, because they have limited passenger traffic, could be used for transporting goods from the manufacturer to the consumer.
- **Insufficient effectiveness of EU funding:** between 2007 and 2013, rail projects accounted for only [30 %](#) of the cohesion policy funds allocated to transport. In contravention to EU policy objectives, in three of the five countries studied, more funds were allocated to road than to rail. In all five Member States, the funds allocated to rail were dedicated mainly to passenger services. In [Spain](#), for instance, 95 % of CF and ERDF funding was used for passenger high-speed lines. Additionally, investments for connecting rail to ports, for streamlining border crossings or providing connections to important sections generating RF traffic, were limited, particularly from the ERDF and the CF. Yet, these investments are necessary: as pointed out by a 2015 study carried out for the European Parliament, [rail links](#) to two large French ports, Marseille and Le Havre, have significantly lower speeds than road haulage. Moreover, with the exception of TEN-T funding, no priority has been given to providing last-mile facilities or to adapting the network to longer trains.

European Parliament position

The Parliament has voiced its support for RF in the context of many files dealing with transport policy in a broad sense, such as the TEN-T, or with specific rail policy issues. In 2009, in its first reading resolution on the proposal for a regulation to set up a European rail network for competitive freight, the Parliament insisted on the importance of [political action](#) and financial involvement of the Member States and the EU to improve RF efficiency. In its June 2010 second reading resolution on the same proposal, it underlined the need to develop better [interconnections](#) with neighbouring third countries and with other transport modes, including maritime and inland ports. It also asked that new applicants, such as shippers, freight forwarders and combined transport operators, be granted the right to request international pre-arranged RF paths.

Further to the two fatal freight train accidents that occurred in 2009 in Viareggio (Italy) and Barendrecht (the Netherlands), Parliament's Committee on Transport and Tourism asked the Commission what measures would be appropriate to enhance the [safety and maintenance](#) of freight carriages. More recently, in its 2013 resolution on the proposal for a regulation on the development of the TEN-T, the Parliament specified the requirements for [rail infrastructure](#) on the core network: deploying full electrification and the ERTMS, equipping freight lines to run trains with a length of 740 m – expected to become the standard in the EU by 2030 – and installing a nominal track gauge⁶ of 1 435 mm for new rail lines. These features support RF interoperability and efficiency.

Stakeholders

In a 2014 [policy paper](#) issued by CERRE, rail stakeholders sent some key messages to the Commission and to the public authorities. They called for a stable regulatory environment to enable them to develop their activities and highlighted the need for public investments in infrastructure. They insisted on the quality of rail infrastructure throughout the

network, as a condition for ensuring punctuality of services. Finally, to level the playing field with road haulage, they advocated for persistent low rail infrastructure charges.

In May 2016, during the transport conference on TEN-T ('[TEN-T days](#)'), rail sector associations⁷ adopted a [joint statement](#) on boosting international RF. Building on the nine operational freight corridors, they suggested focusing on measures to improve their competitiveness in terms of quality, reliability and efficiency of services. According to them, the RF logistics chain should foster cooperation to speed up planning requests and reduce transit time, disruptions and delays. They also suggested providing shippers with tracking ability to have reliable information on the status of their goods. The signatories insisted on continuing providing comparable key performance indicators on the quality of services along each freight corridor, as an essential RF marketing instrument. Finally, they recognised the importance of [rail noise](#), calling for a solution at EU level.

In its [policy priorities for 2014-2019](#), the Community of European Railway and Infrastructure Companies (CER) proposed a master plan for RF. It advocated a consistent implementation of the EU legislative framework and suggested improving infrastructure quality to increase RF commercial speed and punctuality. Developing first and last-mile links to industrial sites, warehouses or urban distribution nodes and enhancing rail connections to sea ports should facilitate intermodal freight connections. Most recently, during the 2016 [Global RF Conference](#) organised by the worldwide railway association (UIC), the participants insisted on further developing RF interoperability and cross-border operations and on focusing more on customer needs, such as service reliability, flexibility and price stability. They also underlined the opportunities offered to RF by digitalisation and a reinforced collaboration between stakeholders.

Concluding remarks

The data and literature analysed show that EU and national level initiatives implemented to develop RF have not achieved the strength of impact advocated by the Commission. To address this situation, the reports consulted seem to converge towards a range of recommendations. On regulatory issues, they suggest improving competition by implementing EU legislation, in particular the fourth railway package adopted in 2016 (both [technical](#) and [market](#) pillars). They also insist on keeping low RF access charges. On management, a consensus has developed that traffic rules (path allocation, priority) should be more adapted to RF needs. Some [experts](#) call for the circulation of longer, faster trains to increase RF flexibility. To improve the level playing field with other transport modes, many consider that it is crucial to enhance RF infrastructure, with a more consistent approach between EU objectives and funding. Improving interoperability, removing cross-border bottlenecks and expanding the network, as well as developing [intermodal facilities](#), in particular dedicated connections to ports and industrial sites, are recurring recommendations. The ECA suggests introducing quantitative objectives and asks the Commission to monitor them and assess user satisfaction. Many stakeholders call for the sector to apply a more business-minded approach, as a way to attract customers. At the same time, observers agree on RF development and on a potential shift from road to rail, even if their conclusions differ significantly as to the [size of the shift](#): between 1 to 14 percentage points. Consensus exists on a RF growth segment, above a threshold of roughly 300 km, where RF is competitive.

Recent developments seem to substantiate these observations. In its July 2016 [communication](#) on an EU strategy for low-emission mobility, the Commission envisaged the revision of Regulation 913/2010 to enhance the use of RF corridors and promote

multi-modality. In June 2016, a [ministerial declaration](#) revealed the political will in the EU to support international RF and in particular the market-oriented development of the RF corridors. Many RF projects are underway. As an example, the [Smart-Rail project](#), developed under the Shift2Rail initiative, focuses on improving RF services to shippers and final consumers. The [Xrail](#) alliance, set up in 2010, aims to increase the efficiency and competitiveness of wagonload⁸ traffic, which represents 25-30 % of all EU RF traffic.

Many initiatives are taking place at national level too. For instance, to help reduce RF bottlenecks, in 2016 Germany's federal transport ministers approved [measures](#) to allow longer (740 m) freight trains to operate in the country. To encourage a shift from road to RF, in the same year the [Italian government](#) launched a €255 million funding scheme allowing for subsidies to RF operators. In January 2017, [Spain](#) approved an €850 million budget for a rail investment programme with the intention of improving access to ports, in particular to Barcelona. Beyond its borders, the EU participates in several research projects aimed at improving and developing RF capacity on the Eurasian land-bridge. The [Near2 project](#), for instance, was carried out to assess policy and operational issues with a view to increasing RF between the EU, Russia, China and other [Asian countries](#), as an attractive alternative to air and sea.

Main references

Centre on Regulation in Europe: [Development of rail freight in Europe: what regulation can and cannot do](#), policy paper, December 2014.

European Court of Auditors: [Rail freight transport in the EU: still not on the right track](#), 2016.

Endnotes

- ¹ Tonne-kilometre is a unit of measure corresponding to one tonne transported over a distance of one km.
- ² Excluding indirect emissions from electricity consumption.
- ³ Freight transport activity includes international maritime transport.
- ⁴ The technical specifications for interoperability cover each rail subsystem with the twofold aim of ensuring that it meets the essential requirements and that the EU rail system is indeed interoperable.
- ⁵ Given its first results, the Commission [proposed](#) in September 2016 to double the EFSI's duration and financial capacity.
- ⁶ The nominal distance between the two rails of a railway track.
- ⁷ [CER](#), [CLECAT](#), [EIM](#), [ERFA](#), [ERTMS Users Group](#), [ESC](#), [RFCs](#), [RNE](#), [UIP](#), [UIRR](#) and [UNIFE](#).
- ⁸ Conventional RF transports of single wagons or groups of wagons (smaller than a full train load) are classified as a wagonload.

Disclaimer and Copyright

The content of this document is the sole responsibility of the author and any opinions expressed therein do not necessarily represent the official position of the European Parliament. It is addressed to the Members and staff of the EP for their parliamentary work. Reproduction and translation for non-commercial purposes are authorised, provided the source is acknowledged and the European Parliament is given prior notice and sent a copy.

© European Union, 2017.

Photo credits: © TTstudio / Fotolia.

eprs@ep.europa.eu

<http://www.eprs.ep.parl.union.eu> (intranet)

<http://www.europarl.europa.eu/thinktank> (internet)

<http://epthinktank.eu> (blog)

