

# Fourth Annual Market Monitoring Report



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*IRG-Rail is the network of independent rail regulatory bodies from 26 European countries. The overall aim of IRG-Rail is to facilitate the creation of a single, competitive, efficient and sustainable internal railways market in Europe. IRG-Rail acts as a platform for cooperation, sharing of best practice on regulatory issues and promotion of a consistent application of the European regulatory framework.*

*This IRG-Rail paper is published on the responsibility of the IRG-Rail plenary. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the governments of its Member States.*



## Country abbreviations

	AT	Austria
	BE	Belgium
	BG	Bulgaria
	HR	Croatia
	DK	Denmark
	EE	Estonia
	FI	Finland
	FR	France
	DE	Germany
	GR	Greece
	HU	Hungary
	IT	Italy
	KS	Kosovo
	LV	Latvia
	LU	Luxembourg
	NL	Netherlands
	NO	Norway
	PL	Poland
	SK	Slovakia
	SI	Slovenia
	ES	Spain
	SE	Sweden
	CH	Switzerland
	UK	United Kingdom

## 1. Overview of European rail markets

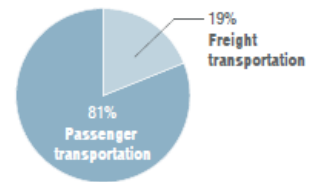
### Key figures

**209 000 km**

total network length  
in the 24 countries covered  
by the monitoring report

**4 billion**

total train kilometres  
in 22 countries in 2014,  
with 19% for freight transportation  
and 81% for passenger transportation



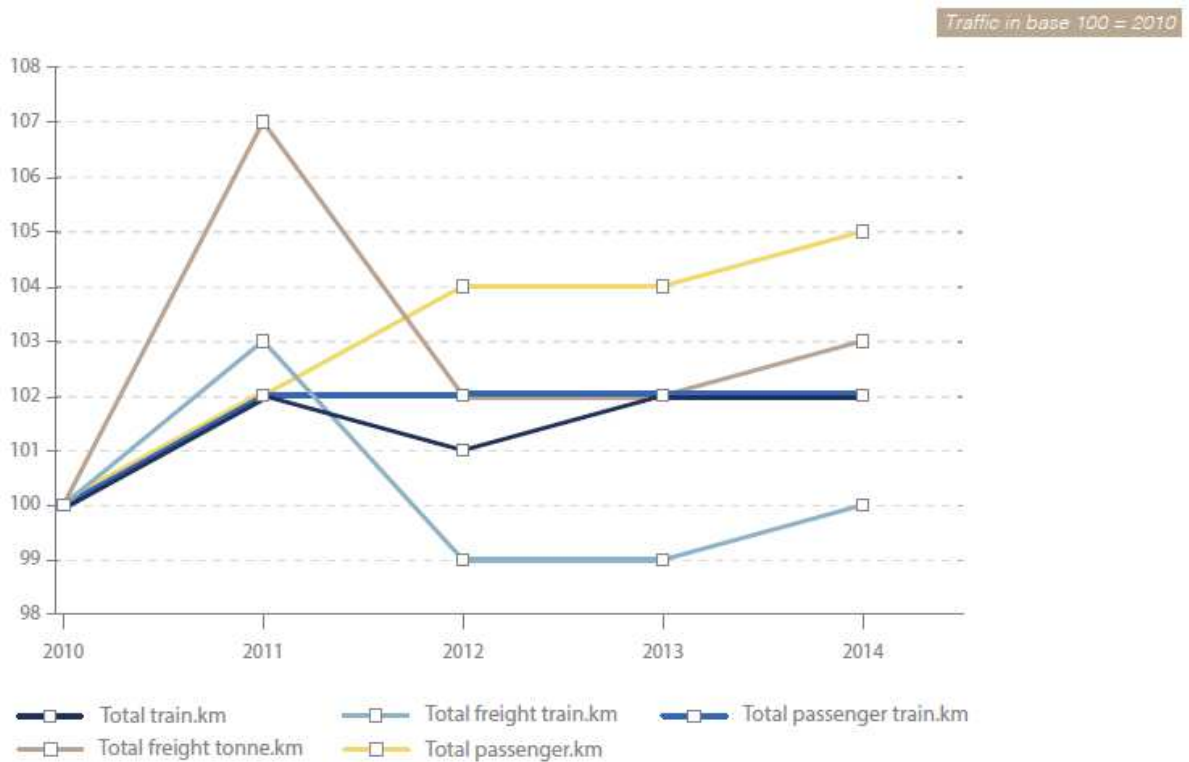
**420 billion**

total passenger kilometres  
in 21 countries in 2014

**380 billion**

total net tonne kilometres  
in 22 countries in 2014

Global evolution of rail traffic: 2010-2014 <sup>1</sup>

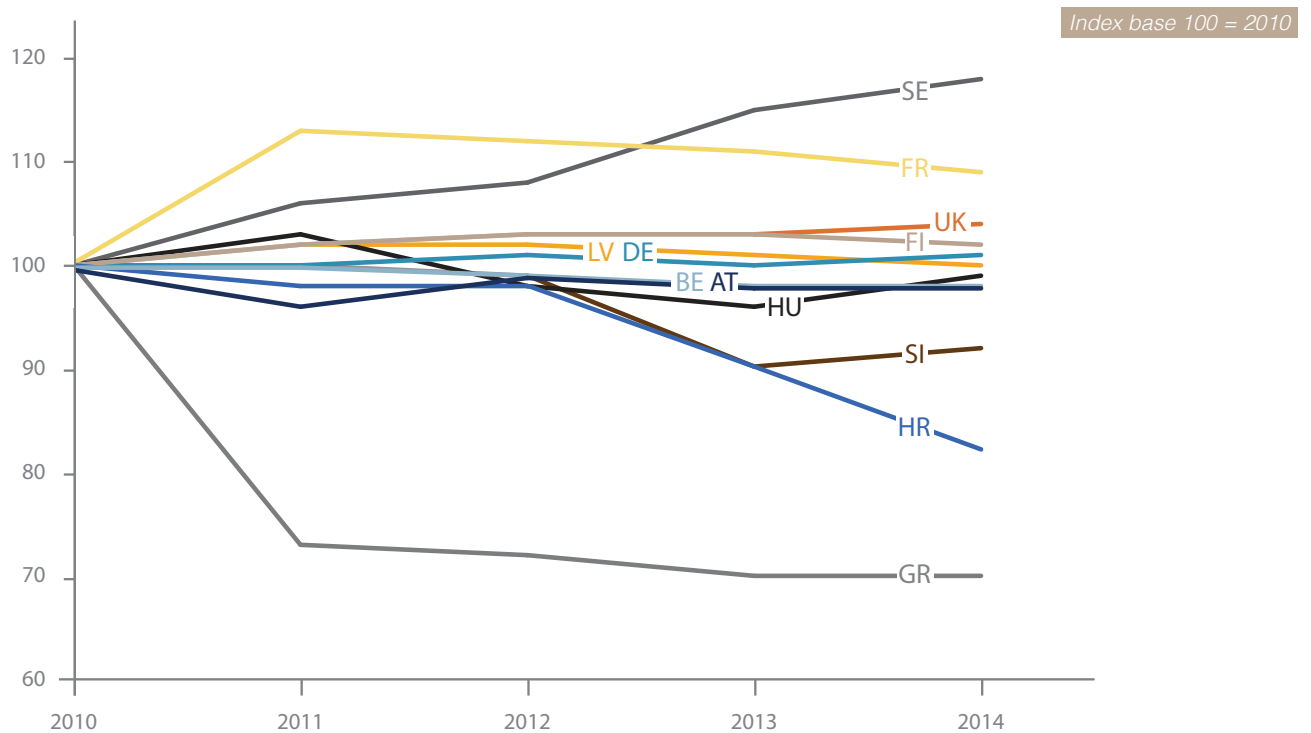


<sup>1</sup> Constant perimeter, excluding BE, EE, KS, LU, NL, ES.

## National evolution of rail traffic: 2010-2014

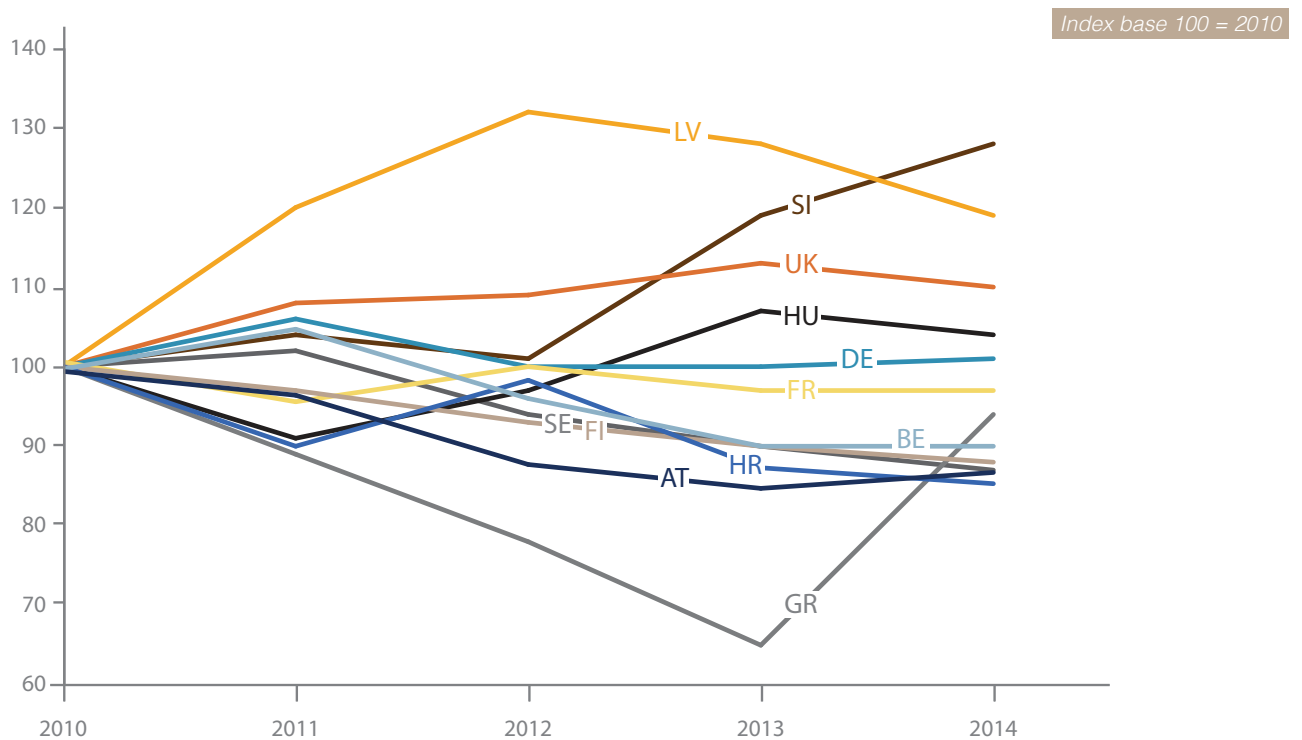
### Evolution of passenger traffic

(in train.kilometres)



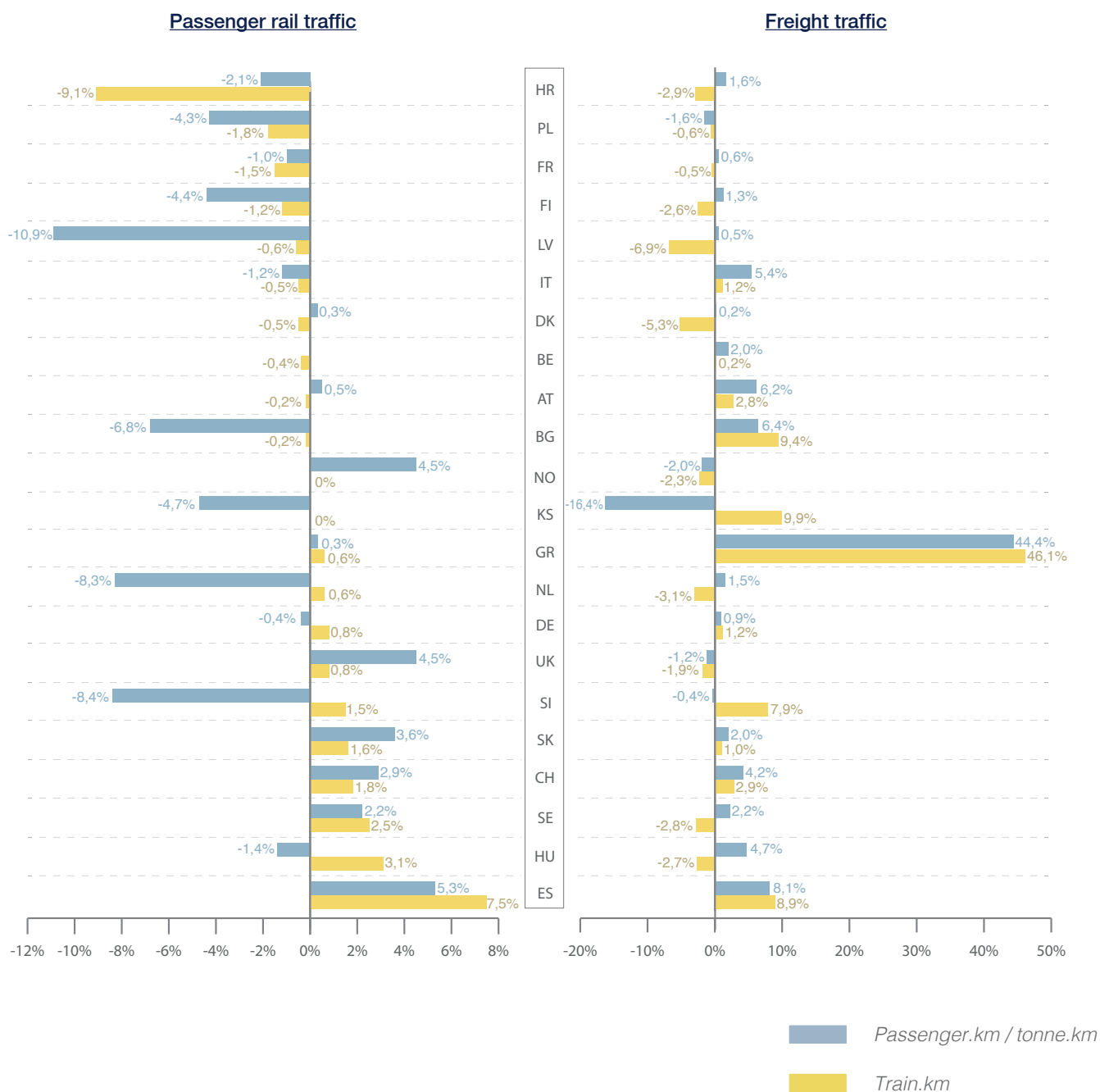
### Evolution of freight traffic

(in train.kilometres)



## Last national evolutions of rail traffic: 2013-2014

(In train.km, passenger.km and tonne.km)



## Overview of national evolutions

Country	Evolution 2013-2014			
	Freight		Passenger	
	Train.km	Tonne.km	Train.km	Passenger.km
AT	↗	↗↗	→	→
BE	→	↗	→	na
BG	↗↗	↗↗	→	↘↘
HR	↘	↗	↘↘	↘
DK	↘↘	→	→	→
FI	↘	↗	↘	↘
FR	→	↗	↘	↘
DE	↗	↗	↗	→
UK	↘	↘	↗	↗
GR	↗↗	↗↗	↗	→
HU	↘	↗	↗	↘
IT	↗	↗↗	→	↘
KS	↗↗	↘↘	→	↘
LV	↘↘	→	↘	↘↘
NL	↘	↗	↗	↘↘
NO	↘	↘	→	↗
PL	↘	↘	↘	↘
SK	↗	↗	↗	↗
SI	↗↗	→	↗	↘↘
ES	↗↗	↗↗	↗↗	↗↗
SE	↘	↗	↗	↗
CH	↗	↗	↗	↗

Key :

↘↘	Less than -5%
↘	-5% to -0,5%
→	-0,5% to +0,5%
↗	+0,5% to +5%
↗↗	+5% or more

## 2. Introduction

1. IRG-Rail is a group of independent rail regulatory bodies which was founded in June 2011. The overall aim of IRG-Rail is to support a common, competitive and sustainable internal rail market in Europe. IRG-Rail members aim at dealing consistently with regulatory challenges across Europe. Therefore the group serves as a platform for cooperation, exchange of information and best practices.
2. Regulatory bodies have a formal duty to monitor the development of competition in the rail market according to Article 56 (paragraph 2) of Directive 2012/34/EU. Thus IRG-Rail has established a market monitoring working group. The main task of the working group is to produce an annual IRG-Rail monitoring report on the developments in the railway markets of the participating IRG-Rail members.
3. The present report is the fourth market monitoring report of IRG-Rail and covers the year 2014 unless stated otherwise. This years' report focuses on trend analyses in the railway market.

### ***Aim of the report***

4. Rail market monitoring is an essential instrument for gathering market information, setting directions to the activities of the regulatory bodies and stimulating market participants to improve their activities.
5. The objective of the IRG-Rail market monitoring report is to present the results of the corresponding data collection process conducted by IRG-Rail. It is an important and unique document that represents the development of the European railway market and serves as a detailed source of information for stakeholders.

### ***Methodology***

6. Since 2011 members of the IRG-Rail market monitoring working group have been collecting data on their respective rail markets based on a shared list of indicators. In 2012 certain service facilities were integrated in the market monitoring process and in 2013 the report paid particular attention to charges. This fourth IRG-Rail report covering the period from 1 January 2014 to 31 December 2014 focuses on trend analyses.
7. In 2013 the IRG-Rail market monitoring working group agreed on common guidelines on market monitoring. These guidelines defined indicators to ensure comparability between national data, set principles on data quality and data quality checks and laid down the time schedule of the complete market monitoring process<sup>2</sup>. Further work and exchange was done in 2014 and 2015 with regards to data quality standards.
8. The next period of data collection is scheduled for summer 2016.
9. IRG-Rail draws your attention to the fact that the figures presented in this report are not meant to, nor should be used to assess the relative performance of the national railway systems. The figures aim rather to inform about national railway markets evolution and general trends into the European perimeter.
10. In total there are almost 100 indicators used to evaluate the European rail market covering:
  - Network and market structure,

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<sup>2</sup> Available at <http://www.irg-rail.eu/public-documents/2013/>

- Infrastructure: network usage and infrastructure manager revenue,
- Passenger market: traffic, market shares and revenue of railway undertakings, fares for passengers and distance travelled,
- Freight market: traffic, market shares and revenue of railway undertakings,
- Service facilities: passenger stations, freight terminals, marshalling yards with gravity hill, maintenance facilities and refuelling facilities.

Additional information can be found in the Annexes, with the main definitions for the terminology used given in Annex 1.

11. For this report, original data has come both from external sources (e.g. state institutions for transport statistics) and from the national market surveys of the IRG-Rail members. As not all regulatory bodies participated in the survey, the report does not cover all the Eurostat EU28 countries. On the other hand the IRG-Rail report includes some countries outside EU28 such as Norway and Switzerland. Several countries have not been able to provide a full set of data. Therefore readers should note that some indicators only reflect a selection of European countries. Also the interpretation given to the specific figures for a country is given on an indicative basis and may not always cover the whole phenomena.
12. IRG-Rail is aware of the difficulties of consistency and reliability of data and has carried out quality assurance checks on the data to ensure its accuracy.
13. Trend analyses are presented in development tables either as absolute values or as indexed values. The financial data used for trend analyses in this report are in real values (if not indicated otherwise). It is also worth noting that not all participating countries share a common currency, and this can affect the presented developments. Therefore the financial data used for trend analyses are in national currency (if not indicated otherwise). In this report, as well as providing a descriptive statement of trends, IRG-Rail has tried to provide explanations and detailed analysis of significant differences observed in the national markets and of specific developments in the monitored indicators over time, if possible.
14. Throughout the whole report both averages and developments are shown. Averages are always calculated as weighted average taking the absolute size of each reporting country into consideration<sup>3</sup>. Therefore averages may be driven by one or two countries with large railway infrastructure and train kilometres.

### ***Summary of findings***

15. IRG-Rail welcomes the participation of Italy and Switzerland to the market monitoring report, therefore this year's report is based on the data of 24 countries.
16. After a decrease of freight train and passenger train kilometres in 2013 the values stabilized in the freight train sector and increased in the passenger train sector in 2014.
17. In most countries, changes in passenger traffic were lower than the ones in freight, showing that there is more stability in the passenger market. In the regional passenger market this may be due to the fact that services operate under multiannual public service contracts.

#### **• Charges**

18. The average revenue from track access charges per freight train kilometres in 2014 was 2.7 Euro and 4.3 Euro from track access charges per passenger train kilometres. This means a

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<sup>3</sup> E.g. taking into account the size of each country in train kilometres.

decrease of 7.6% for freight train charges and an increase of 1.4% for passenger train charges compared to 2013.

- **Passenger**

19. The average of passenger traffic in 2014 is on the same level as in 2013. The largest decrease of passenger kilometres was in Latvia, the strongest growth in the United Kingdom.
20. In most countries the market share of non-incumbent passenger operator increased in 2014. The largest growth of non-incumbent operators was registered in Italy. Generally the ratio is heterogeneous within the reporting countries. Overall the share of the non-incumbent passenger operators increased to 27%. This average is largely driven by the United Kingdom.
21. In the majority of the countries monitored, public compensation payments represented a large proportion of revenue for railway undertakings. The most notable is the United Kingdom which was the only country with no public compensation payments because the government receives a net payment from the train operating companies.

- **Freight**

22. In 2014, German freight railway undertakings had the highest number of train kilometres followed by Poland and France. In terms of goods measured in tonne kilometres, the same ranking was observed for these three countries. Overall rail freight traffic in tonne kilometres is 3 % higher than the value of the base year (2010).
23. The market share of competitors (in train kilometres) increased in the majority of countries with competitors holding a 33% share of the market. The highest competitor market share was observed in the United Kingdom (55 %), followed by Norway (49%) and Poland (40%).
24. The revenue per freight train kilometre and per net tonne kilometre was either stable or decreased in most countries monitored in 2014.

- **Service facilities**

25. In general most of the passenger stations are operated by incumbent railway undertakings or related companies, although in the majority of monitored countries there are more independent infrastructure managers than incumbent or related companies. In France, Italy and Slovenia only incumbent railway undertakings operate passenger stations implying that competitors depend on these operators for access.
26. On average in 2014 there were 141 passenger stations per thousand route kilometre and 59 stations per million residents.
27. In contrast to the passenger stations, the majority of freight terminals are operated by either an independent infrastructure manager or another company not related to the incumbent railway undertaking.
28. Marshalling yards with gravity hills are operated either by incumbent or independent companies or both. There is no general trend in the number of facilities and operators. Regarding maintenance and refuelling facilities, the situation is similar to passenger stations. Although there are more independent than incumbent operators, most facilities are operated by incumbent and related companies.

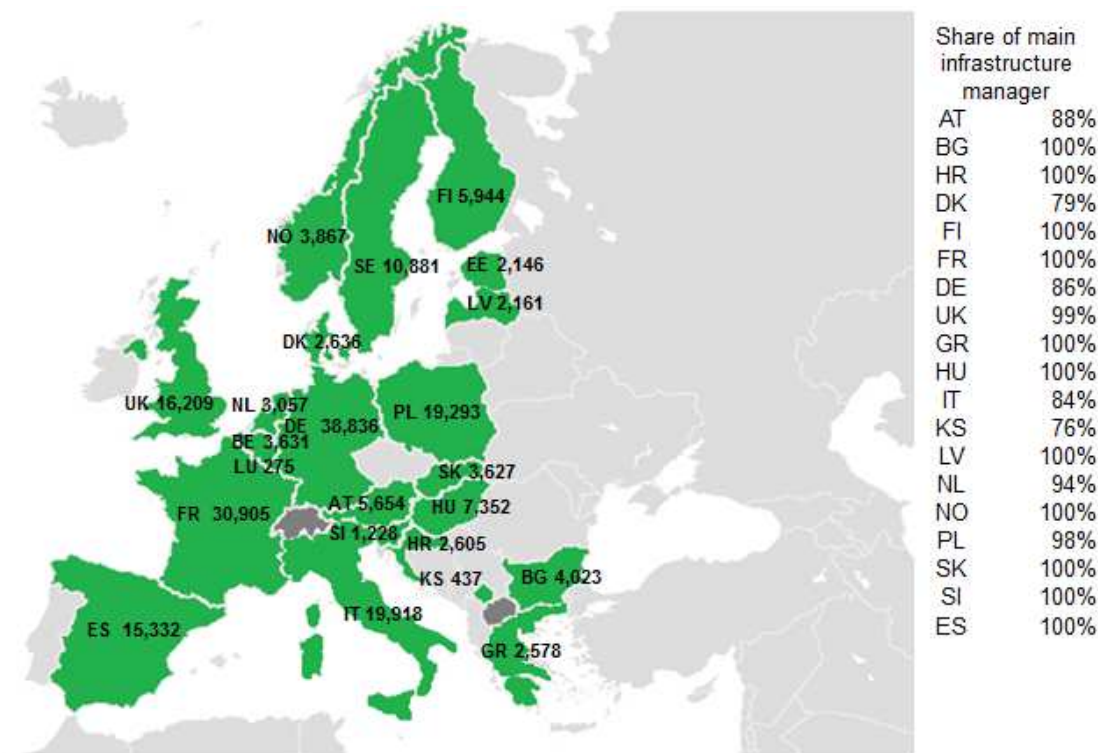


### 3. Network and market structure

#### 3.1. Network structure

29. This section reports on the railway infrastructure of the monitored countries, with the size of rail networks in route length kilometres, the share of routes managed by the incumbent infrastructure manager and the proportion of electrified route.
30. Figure 1 shows the route length in kilometres of each of the reporting countries. Germany has the longest network in Europe with a route length of 38,836 kilometres, followed by France with a route length of 30,905 kilometres. Luxemburg has the shortest network of the countries considered in this monitoring report, with a route length of 275 kilometres.
31. Compared to the values reported in the previous year, the reported route length for Croatia has reduced by 4.3% to 2,605 kilometres. This is due to improvements in data quality, with track sections registered as rail infrastructure without traffic no longer included in the reported route length.
32. Eleven of the countries covered by this market monitoring report have a network where 100% of the route length is owned by the main infrastructure manager. Kosovo has the largest percentage share of non-incumbent route, which accounts for 24% of the total route length. The non-incumbent route in Kosovo is made up of industrial lines that are used for freight transport only. Denmark has the second highest proportion of non-incumbent route with 21% of the total route length classed as non-incumbent; however this is a reduction of 3 percentage points compared to 2013. Previously the large proportion of non-incumbent route in Denmark had been attributed to the selling of parts of the network to private investors and local governments in the late 1990s.

Figure 1 - Route Length in kilometres in 2014

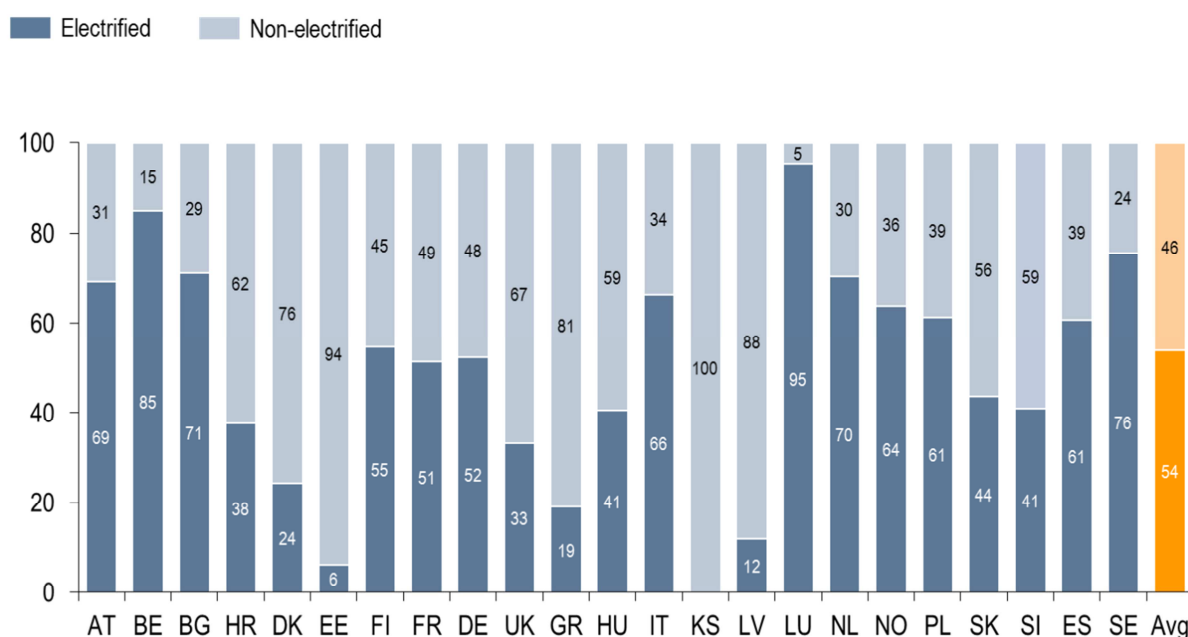


33. Electrified railways are typically faster and have reduced environmental impacts compared to non-electrified railways. Therefore the proportion of route length which is electrified is an

important indicator of the characteristics of the network in each country. In average, 54% of the route length in the monitored countries is electrified.

34. In terms of the proportion of electrified route in each country there has been very little change between 2013 and 2014. Luxembourg has the largest proportion of electrified route, with 95% of the total route length electrified, followed by Belgium with 85%. Kosovo is the only country with no electrified route. Estonia and Latvia also have relatively low proportions of electrified route, 6% and 12% respectively. Overall, 13 of the 23 reporting countries have over half of their route length electrified. The UK, which has 33% of track electrified, has embarked on a programme of electrification of some of the main routes in the country, most notable the electrification of the Great Western route across Southern England into South Wales.

**Figure 2 - Share of electrified routes (%)**



### 3.2. Market structure

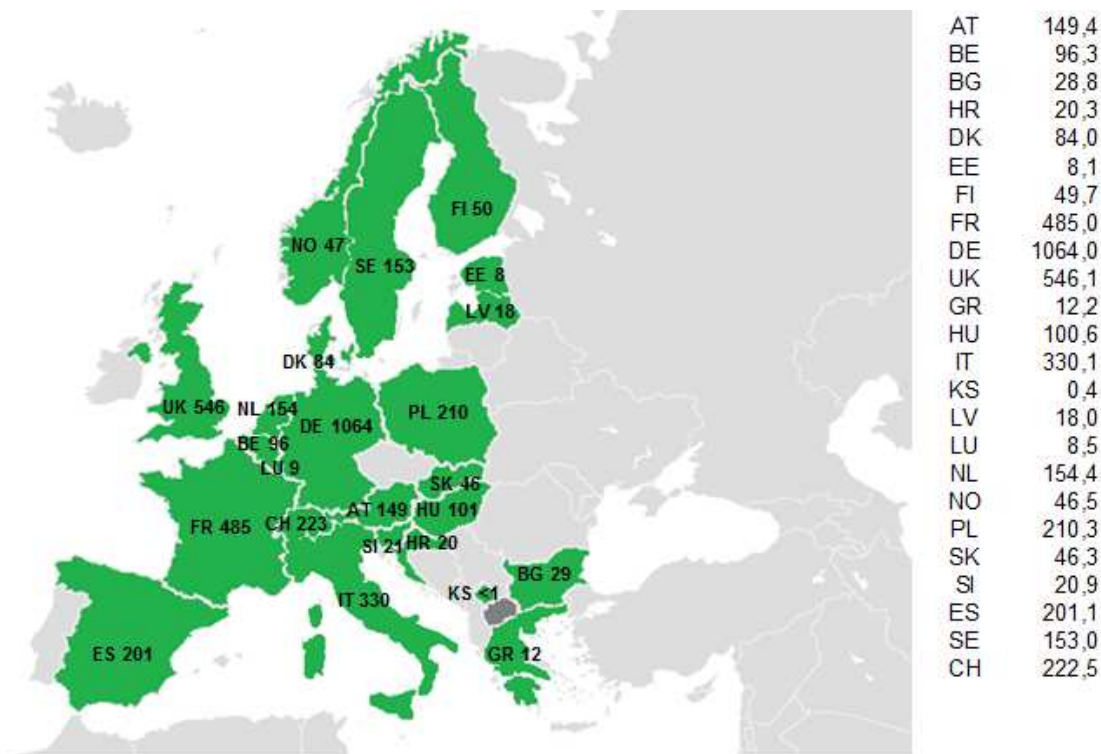
35. This section provides some background information on the rail traffic in the countries monitored. It mainly includes figures concerning train kilometres, their division into freight and passenger markets and dynamics, not only in relation to 2014, but over the period 2010-2014. The section also provides the number of active freight and passenger railway undertakings and market shares of incumbent and other companies. This can be treated as one of the indicators of openness of respective markets and of potential competition intensity in the respective markets.

Annex 3 provides additional information about the timing of market liberalisation, and ownership structures. It also shows correlation between route length and population and route length and country size as well as correlation between passenger train kilometres and population and passenger train kilometres and public compensation. Finally, Annex 3 provides a description on main national market developments in 2014.

36. Figure 3 shows the relative size of railway markets in terms of train kilometres, in the countries observed. Germany has the biggest market with more than a billion train kilometres, while total train kilometres in Kosovo are lower than half a million. Note that in France, this measure of traffic may be overestimated since the figure is calculated on the

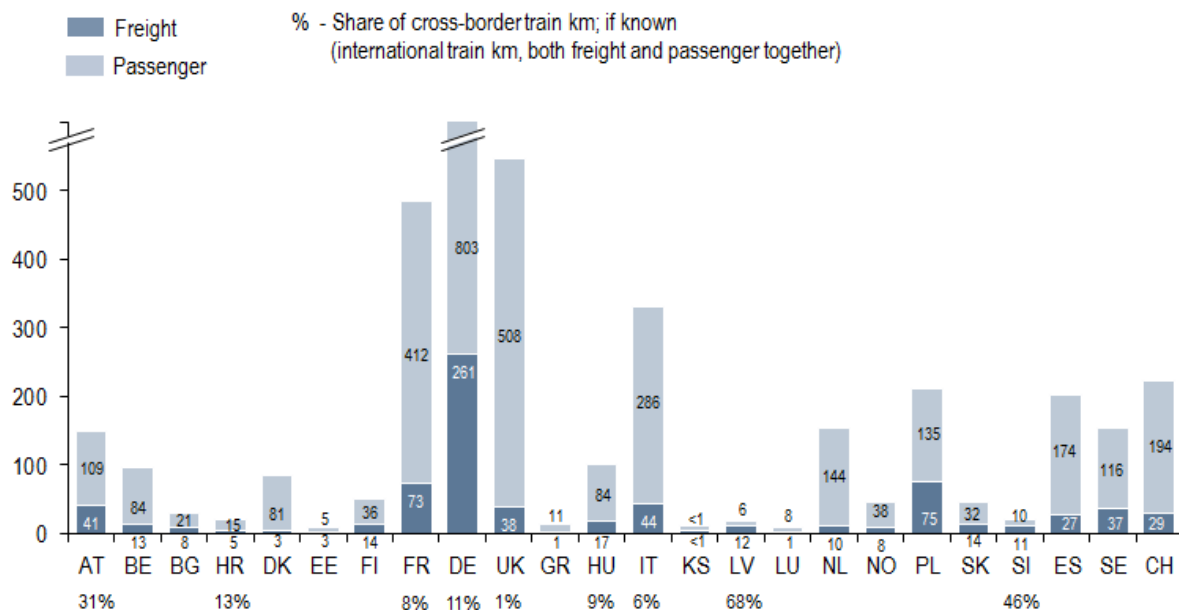
basis of reservations of capacity from the railway undertakings, not on the basis of actual train kilometres.

Figure 3 - Total rail traffic in million train kilometres in 2014



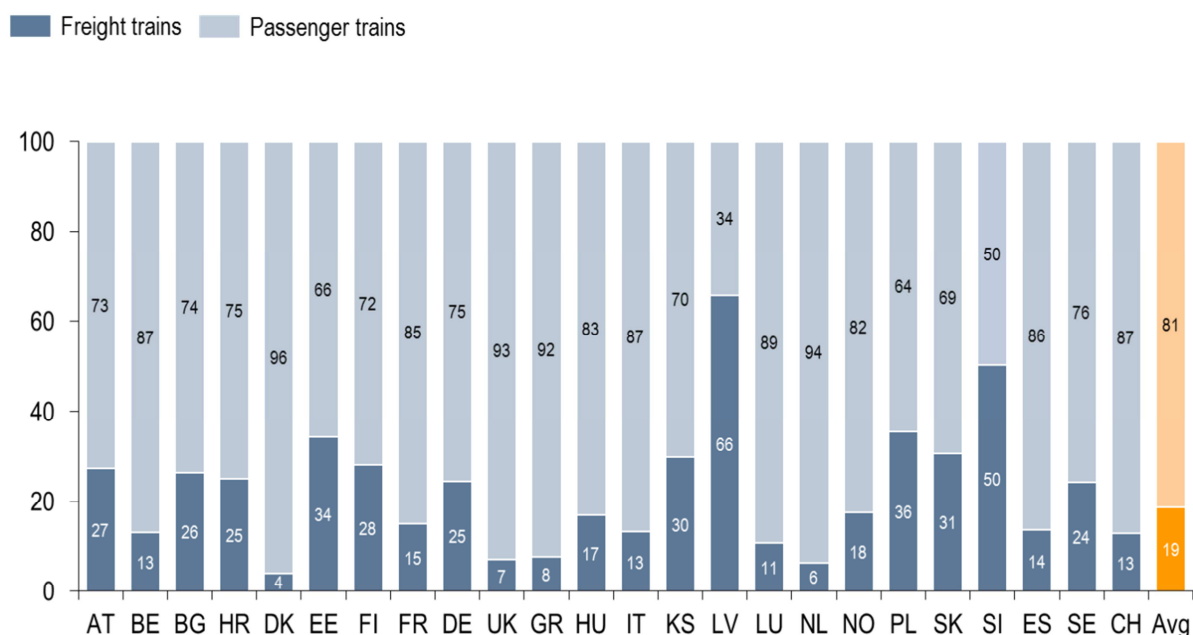
37. Figure 4 shows the respective size of railway markets in terms of train kilometres with a division into freight and passenger transport.
38. In terms of passenger train kilometres, Germany constitutes the biggest market, followed by the United Kingdom, France and Italy. Switzerland stands out as the fifth biggest passenger market while its population is of only 8.2 million. Switzerland, Spain, Poland, Sweden and Austria have passenger traffics between 100 and 200 million train kilometres.
39. Taking the freight train kilometres into consideration, the German market is by far the biggest, followed by Poland and France as the second and third biggest markets respectively.
40. Most countries did not provide data about the share of international train kilometres, but it is worth noting that in Latvia it constitutes almost 68% of all train kilometres and in Slovenia 46%. In both countries most of the international traffic comes from freight train kilometres and both countries have a high domestic share of freight train kilometres in their markets.

**Figure 4 - Freight and passenger train km; percentage of international train km**  
**Mio. train kilometres in 2014**



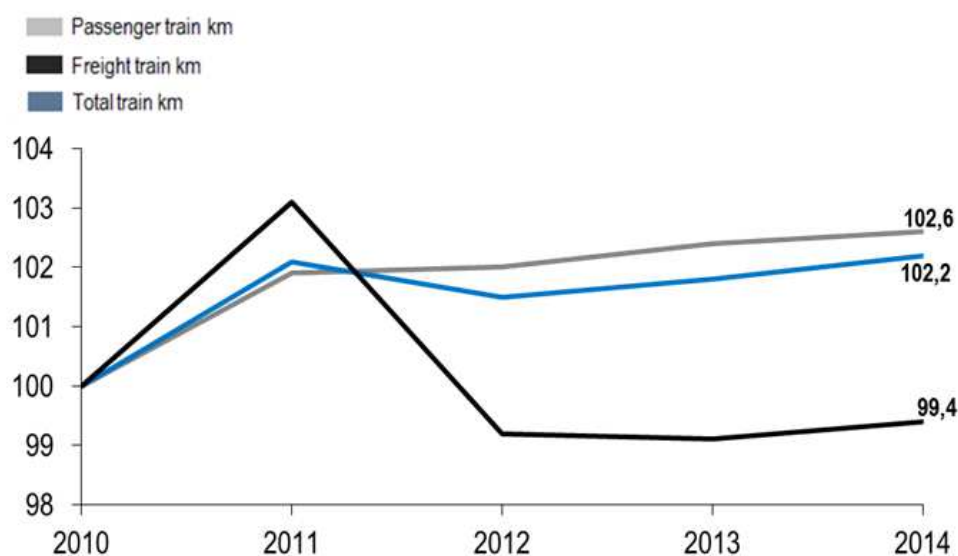
41. Figure 5 shows the relative weight of passenger and freight transport in terms of train kilometres. The network in most of the countries monitored is dedicated predominantly to passenger services. Traditionally only Latvia has a bigger share of freight transport (66% of all train kilometres were performed by the freight sector in 2014). This represents a 4% increase on 2010; however this share has decreased by 1% for each of the last two years following a peak at a 68% market share in 2012. The reverse trend can be observed in Slovenia, with the share for freight train kilometres increasing by 7% between 2012 and 2013 and a further 1% between 2013 and 2014. In Sweden the share of freight transport has fallen by almost 6% since 2010, which is the largest decrease observed across all monitored countries.
42. Overall in 2014 the share of freight traffic was at 19% of total train kilometres. It was lower than 10% in the United Kingdom, Denmark, the Netherlands and Greece.

**Figure 5 - Network use by type of traffic**  
Percentages (by train kilometres)



43. Taking into consideration all the countries that provided data for the years 2010-2014, the total traffic has increased by 2.2% since 2010 and by 0.4% between 2013 and 2014. The increase was due to passenger traffic, which has risen by 2.6% since 2010 and by 0.2% between 2013 and 2014. Freight train kilometres increased between 2013 and 2014, however since 2010 total freight traffic has fallen by 0.6%.

**Figure 6 - Global evolution of train km<sup>4</sup>**  
Weighted; indexed (2010=100)



44. Considering total train kilometres to 2013, the sharpest decreases in 2014 took place in Croatia (7.5%) and in Latvia (5%). Between 2010 and 2014, the largest declines have been in Greece (28%) and in Croatia (17.5%). Despite a decrease in both passenger and freight

<sup>4</sup> Figure 6 covers all monitored countries with the exception of Kosovo, Estonia, Luxembourg and Spain.

train kilometres between 2013 and 2014, Latvia has seen the biggest growth in total train kilometres since 2010 (12%). In Sweden, total train kilometres increased by almost 9% despite a decrease in freight train kilometres. In 2014, Spain experienced the largest growth in traffic (almost 8%) compared to 2013, as both passenger and freight train kilometres increased. Figure 7 and Figure 8 below provide details about national evolution of traffic in terms of passenger and freight train kilometres.

**Figure 7 - Evolution of train kilometres**

**Mio. Train kilometres; Weighted; Indexed (2010=100)**

<b>Country</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
LV	100,0	112,7	120,7	117,6	111,9
SE	100,0	104,7	103,7	107,3	108,8
NO	100,0	101,5	100,9	107,7	107,3
SI	100,0	101,8	100,0	102,3	107,0
FR	100,0	110,5	110,4	108,4	106,9
NL	100,0	101,6	103,1	105,3	105,7
CH	100,0	100,8	101,6	103,7	105,7
UK	100,0	102,6	103,3	103,6	104,2
<b>Total</b>	<b>100,0</b>	<b>102,1</b>	<b>101,5</b>	<b>101,8</b>	<b>102,2</b>
IT	100,0	98,0	97,7	102,4	102,2
DE	100,0	101,5	100,4	100,0	101,6
DK	100,0	102,2	100,5	101,9	101,2
HU	100,0	100,9	97,8	98,1	100,2
SK	100,0	97,8	97,2	98,4	99,7
FI	100,0	100,1	99,8	98,9	97,4
BE	100,0	100,8	98,9	96,9	96,6
PL	100,0	101,6	99,5	96,7	95,4
AT	100,0	96,5	95,4	94,1	94,6
BG	100,0	102,0	90,7	92,0	94,0
HR	100,0	96,0	98,2	89,4	82,6
GR	100,0	73,9	72,2	69,5	71,7

45. For passenger train kilometres, Hungary and Sweden saw from 2013 to 2014 a visible growth of 3%. The biggest increases since 2010 have been seen in Sweden (18%) and Norway (11%). In these two countries each year of data collect has seen an increase in passenger kilometres because of growing regional traffic systems. This year-on-year increasing trend can also be observed for the Netherlands, Switzerland and the United Kingdom.
46. Greece has seen the biggest decrease in passenger train kilometres over the time period considered (almost 30%). However the downward trend was reversed between 2013 and 2014. In Croatia there has been a decrease of 18% since 2010, with passenger train kilometres falling considerably in each of the last two years as a result of reductions in the number of trains in timetables. In Bulgaria passenger kilometres have fallen by more than 10% since 2010. However the level of traffic remained constant between 2013 and 2014. Both Slovenia and Poland have recorded decreases of around 8% since 2010. In 2014 the traffic levels in Slovenia started to recover, while in Poland the fall continued due to large scope of infrastructure works and reductions of long-distance services. In Slovenia however passenger kilometres fell significantly in 2014, which is explained in more detail in the chapter about passenger market.



**Figure 8 - Evolution of passenger train kilometres**  
**Mio. Train kilometres; Weighted; Indexed (2010=100)**

<b>Country</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
SE	100,0	105,8	108,0	115,2	118,1
NO	100,0	102,4	103,9	110,7	110,7
FR	100,0	113,4	112,5	110,6	108,9
NL	100,0	102,5	103,6	106,8	107,4
CH	100,0	100,9	102,3	103,9	105,8
UK	100,0	102,2	102,8	103,0	103,8
<b>Total</b>	<b>100,0</b>	<b>101,9</b>	<b>102,0</b>	<b>102,4</b>	<b>102,6</b>
IT	100,0	97,4	97,2	102,5	102,1
FI	100,0	101,5	102,9	103,0	101,8
DK	100,0	101,4	100,5	102,0	101,6
DE	100,0	100,1	100,6	100,0	100,8
SK	100,0	97,6	99,0	99,0	100,6
LV	100,0	101,6	102,0	100,5	99,9
HU	100,0	102,8	97,9	96,4	99,5
AT	100,0	96,2	98,7	97,9	97,7
BE	100,0	100,1	99,4	98,0	97,6
PL	100,0	98,3	97,3	93,9	92,2
SI	100,0	100,2	99,0	90,4	91,7
BG	100,0	99,2	85,3	89,8	89,7
HR	100,0	98,1	98,1	90,1	81,9
GR	100,0	73,0	71,8	69,8	70,3

47. For freight train kilometres over the last four years, none of the countries have showed a constant increasing trend. Freight train kilometres in Slovenia have increased by 28% since 2010. In 2014, the government prioritised freight transport after an ice storm destroyed traction current on the economically important line to the port of Koper. The biggest growth year-on-year in 2014 was seen in Greece (30%), which suffered a drop of 35% during the previous three years because of the economic crisis. In 2014 Greek freight railway undertaking started to perform operations based on new cooperation agreements. Significant increase could be observed in Bulgaria (9%). The increase in Bulgaria was a return to the level of traffic in 2012, following a fall in 2013. The United Kingdom recorded a 2% decrease in freight traffic in 2014, following increases in each of the previous year. Nevertheless freight traffic in 2014 was 10% higher than in 2010. In Latvia, freight traffic in 2014 showed an increase of almost 20% compared to 2010, but was lower than in 2012 when freight traffic was 32% higher than 2010.
48. In 2014, Latvia suffered the biggest year-on-year drop in freight train kilometres, followed by Denmark with 5% reduction. For Latvia it should be noted that tonne kilometres remained stable, showing that the average load of trains increased. Denmark recorded a 19% growth in 2011 but freight traffic has been falling since then. Sweden, Croatia, Hungary and Finland reported year-on-year decreases of almost 3% in 2014, with both Sweden and Finland showing reductions of 12.5% compared to 2010. In Finland the freight train kilometres have been falling each year since 2010. However, tonne kilometres have been increasing for the last two years, reflecting an increase in efficiency of goods transportation of national railway undertaking. In Sweden tonne kilometres fell by 10% since 2010, but increased in 2014, which also might be a sign of efforts to improve efficiency, possibly as a result of growing competition from road sector. In Croatia, the decrease in freight train kilometres since 2010 has exceeded 15%, which is the largest reduction in the monitored countries. In Austria, there has been a 12.5% decrease in freight traffic since 2010, however there was a rise of 3% between 2013 and 2014, halting the downward trend which had been a result of the railway undertaking discontinuing uneconomic train services with low freight volume. The freight traffic in Belgium remained stable between 2013 and 2014, but has decreased by

10% since 2010, because of the economic stagnation caused by euro crisis. In Norway freight train kilometres have fallen by 6.5% since 2010.

**Figure 9 - Evolution of freight train kilometres**

**Mio. Train kilometres; Weighted; Indexed (2010=100)**

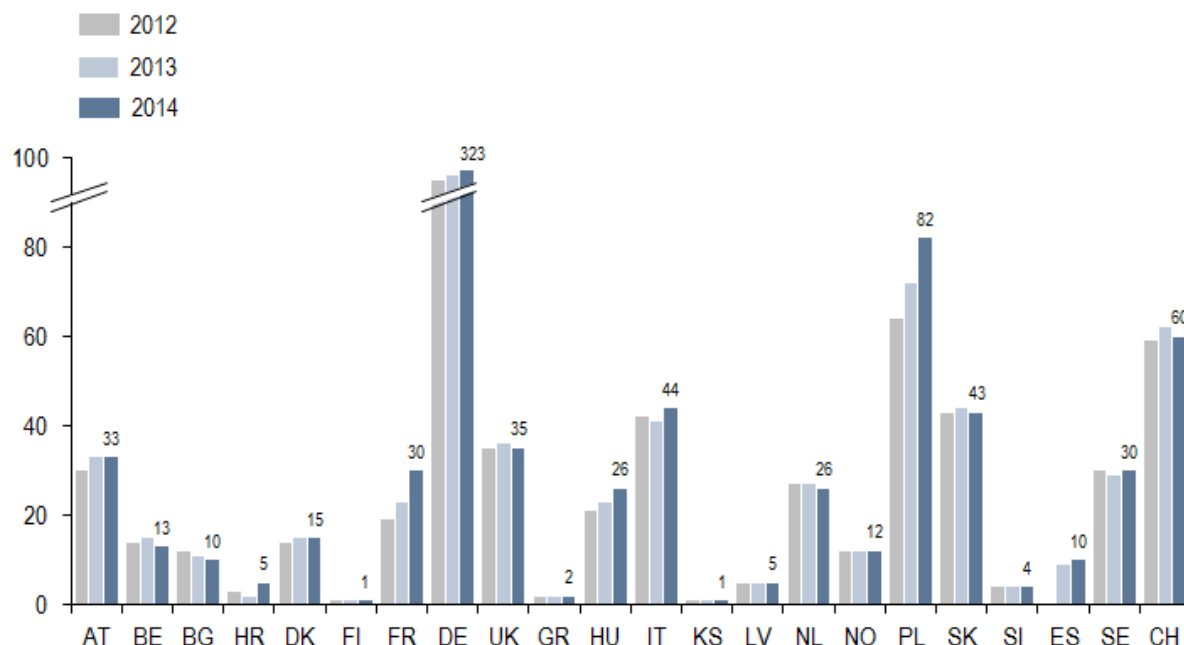
<b>Country</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
SI	100,0	104,0	101,4	118,8	128,1
LV	100,0	119,5	132,4	128,3	119,4
UK	100,0	108,1	109,1	112,5	110,4
BG	100,0	111,5	108,9	99,3	108,6
CH	100,0	100,4	97,0	102,2	105,2
HU	100,0	90,7	96,9	106,6	103,8
IT	100,0	101,8	101,4	101,5	102,8
PL	100,0	108,2	103,7	102,5	101,9
DE	100,0	106,2	99,6	100,0	101,2
<b>Total</b>	<b>100,0</b>	<b>103,1</b>	<b>99,2</b>	<b>99,1</b>	<b>99,4</b>
SK	100,0	98,1	93,4	96,9	97,9
FR	100,0	95,5	100,3	97,4	97,0
GR	100,0	88,8	78,5	64,6	94,4
NO	100,0	97,7	88,8	95,7	93,4
DK	100,0	119,2	100,7	98,1	92,9
BE	100,0	105,0	95,8	90,0	90,1
FI	100,0	97,1	92,8	90,0	87,7
SE	100,0	102,2	93,6	89,9	87,4
AT	100,0	97,4	87,8	85,0	87,4
NL	100,0	90,7	87,3	88,6	85,9
HR	100,0	89,7	98,4	87,4	84,9

49. Figure 10 shows the number of active railway undertakings in each country over the period between 2012 and 2014. Germany has by far the highest number of undertakings. The number of active railway undertakings in 2014 grew in eight countries, did not change in eight and decreased in six. Poland is the only country where there was an increase in the number of railway undertakings for both the passenger and freight markets between 2013 and 2014. Of the countries that provided data for 2014, Finland and Kosovo are the only markets with a single railway undertaking.<sup>5</sup>

<sup>5</sup> Note that this information deals only with the number of railway undertakings, without consideration of market shares. This isolated information does not reflect the effective level of competition in the markets.

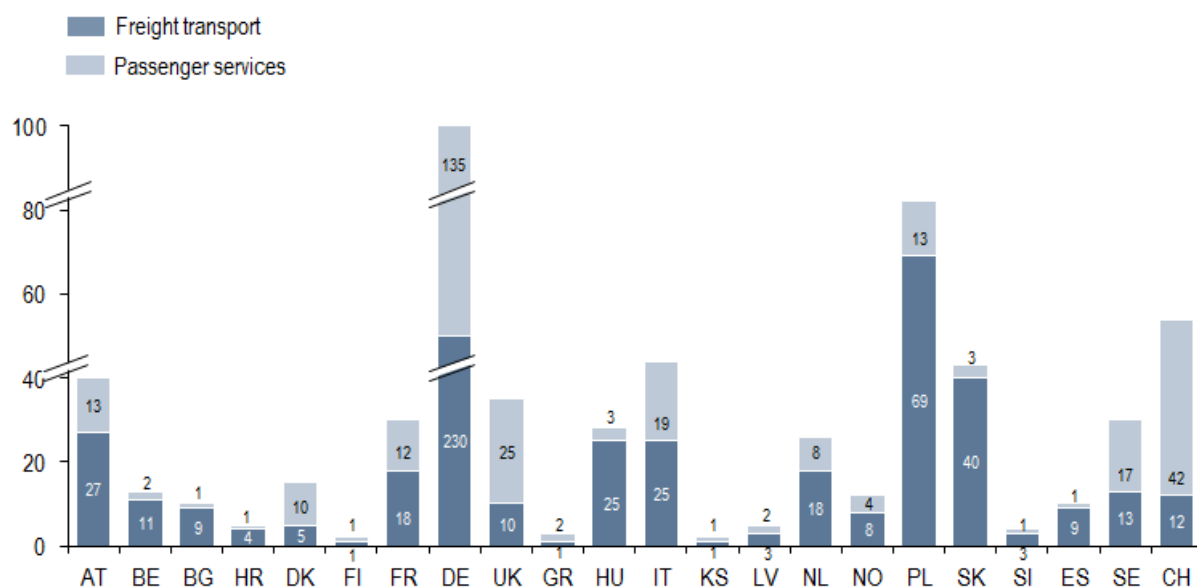


Figure 10 - Total number of active railway undertakings



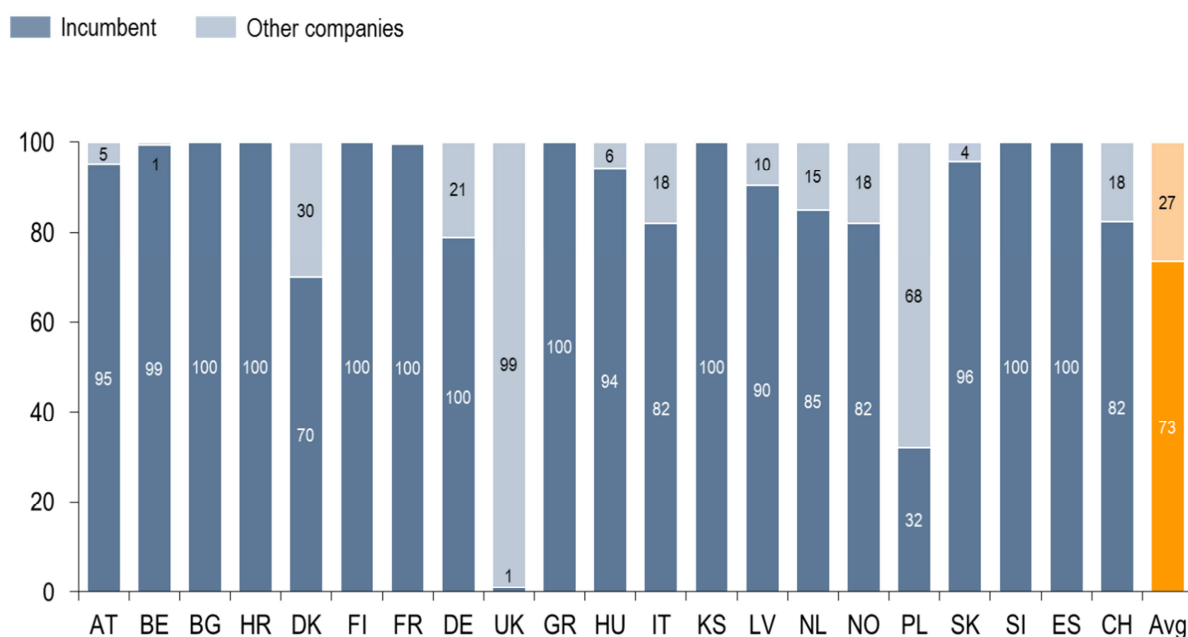
50. Considering the number of active railway undertakings by type of traffic gives a deeper insight into the market characteristics. Generally the freight market segment is more diversified and open than the rail passenger segment. In 2014 rail freight undertakings represented almost 66% of all active undertakings in the countries that provided data for both segments. The United Kingdom, Sweden, Denmark, Switzerland and Greece were the only countries where freight operators were a minority. In Croatia the number of freight undertakings grew from one to four between 2013 and 2014.
51. In France the rise in the number of passenger undertakings is due to a change in reporting practices, rather than the entry of new railway undertakings. Until 2013 only undertakings with a safety certificate were included in the total. From 2014 onwards all undertakings providing a railway transport service for passengers are included. This includes undertakings managing the commercial partnership between two incumbents for joint traffic (e.g., SNCF and DB within Aléo), undertakings operating under the incumbent's safety certificate (e.g., Thalys for long-distance), or undertakings run by regional or local authorities on secondary railway networks (e.g. CFC for Corsica).
52. In Hungary, the upward trend in the number of freight undertakings continued with a rise from 21 to 25 operators. Similarly, in Poland eight new freight competitors have started operations on the market in 2014.
53. In several countries, some undertakings participated in both passenger and freight market segments. Therefore for these countries the totals in Figure 11 are greater than the number of companies shown in Figure 10, as Figure 11 counts each company twice (once for passenger, once for freight).

Figure 11 - Number of active railway undertakings in 2014 by type of traffic



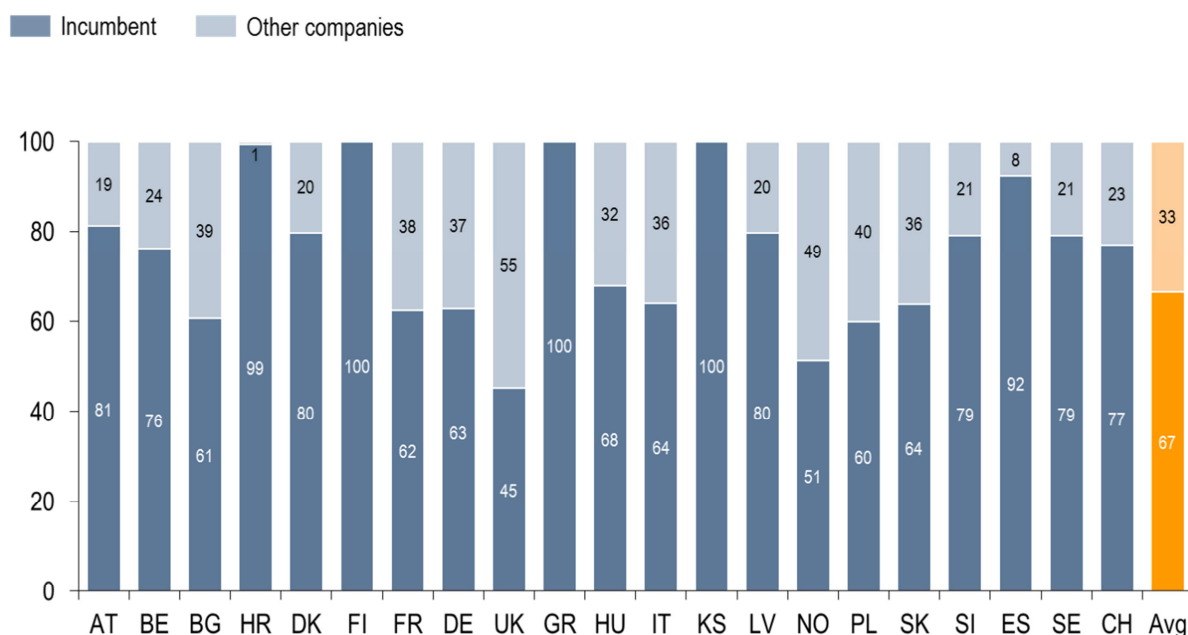
54. Passenger traffic in most countries is dominated by incumbent companies. Further commentary is provided in the passenger market chapter. Moreover, the legal liberalisation process is provided in Annex 3, with the date of liberalisation of freight and passenger markets as well as the date of first new entrant.

Figure 12 - Market shares in passenger trains.km  
Percentage of passenger train.km in 2014



55. The United Kingdom is the only country where the incumbent railway undertakings have less than a 50% share of freight traffic. For most of the countries observed, non-incumbent companies have a higher percentage share of the freight market than the passenger market.

**Figure 13 - Market shares in freight trains.km**  
**Percentage of freight train.km in 2014**



## 4. Infrastructure

56. This chapter considers how the railway infrastructure is used in each of the monitored countries, reporting on the intensity of trains running over each network and the amount of revenue received by infrastructure managers through track charges. Annex 4 provides additional information about the share of total track access charge revenue received by railway undertakings from the passenger and freight market segments.

### 4.1. Network usage

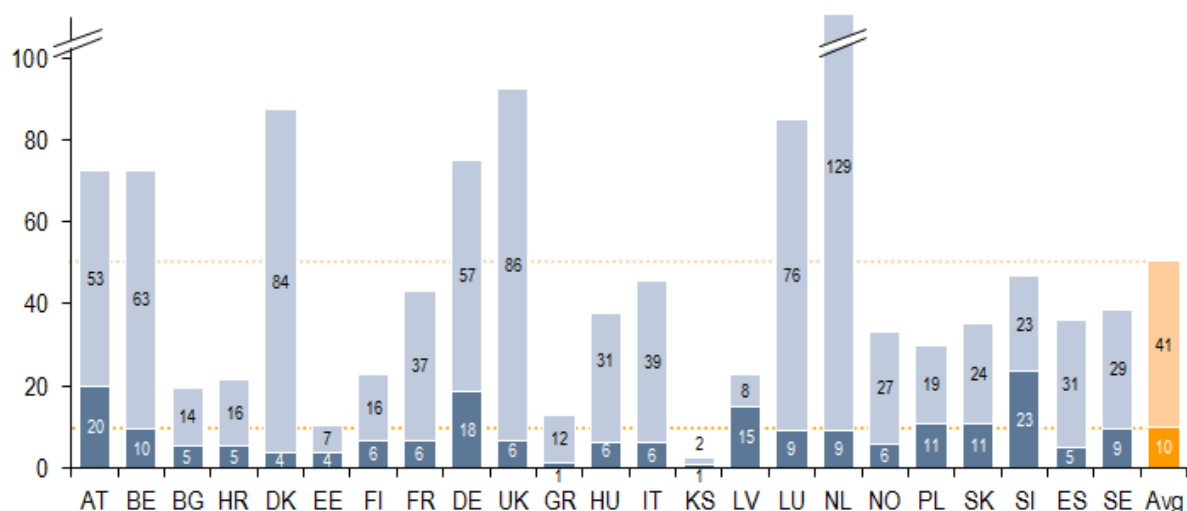
#### 4.1.1. Network usage intensity

57. Figure 14 shows the network usage intensity in each of the monitored countries. This measure is calculated by dividing the total train kilometres by the route length and number of days to obtain the average number of trains per route kilometre per day. The highest usage intensity is seen in the Netherlands where there are 138 trains per route kilometre per day. This is almost 50 times greater than in Kosovo, which has the lowest network usage intensity. The low usage intensity in Kosovo may be due in part to a high proportion of the rail network not currently being used for passenger traffic.
58. For the majority of countries passenger traffic contributes to a very high proportion of the usage of the network. However, for Slovenia the usage is evenly split between passenger and freight traffic. Slovenia has the highest network intensity of freight trains of any of the monitored countries. This is likely to be due to Slovenia's positioning as a transit country, providing an intersection between two of the pan-European rail freight corridors. Latvia is the only country where the network usage intensity for freight services is greater than that for

passenger services, with approximately two freight trains for every passenger service on the network.<sup>6</sup>

**Figure 14 - Network usage intensity**  
Trains per route kilometre per day

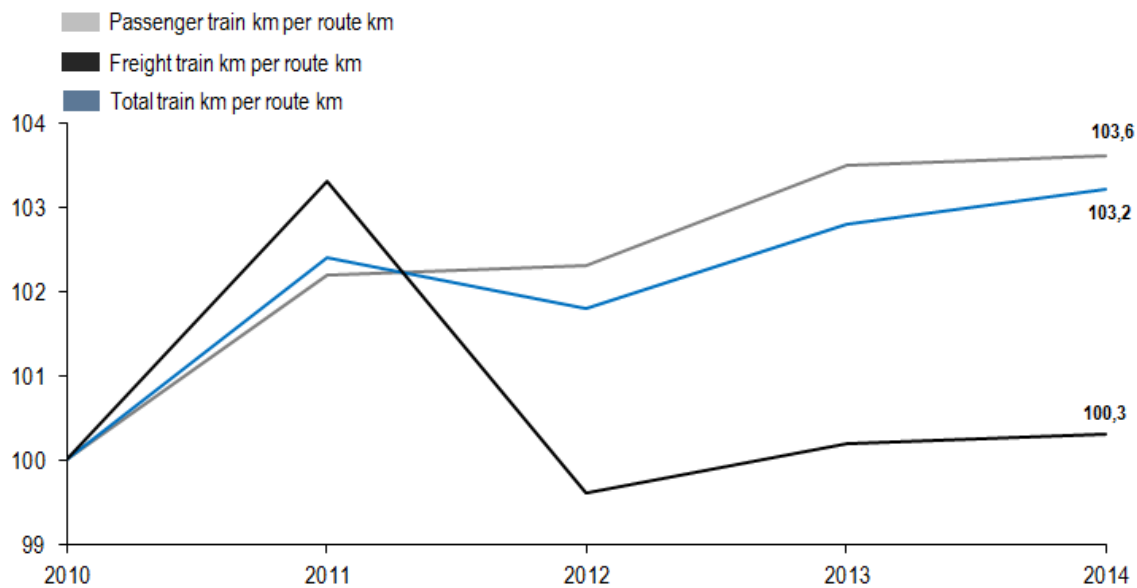
■ Freight trains ■ Passenger trains



59. Across all of the monitored countries the network usage intensity has increased by 3.2% between 2010 and 2014. The network usage intensity for freight traffic has increased by 0.3% over this time period, while for passenger services the usage intensity has increased by 3.6%, reflecting that, overall, passenger traffic has grown more than freight traffic over this time period.

<sup>6</sup> This average indicator does not reflect the situations where some parts of the network are saturated.

**Figure 15 - Global evolution of network usage intensity<sup>7</sup>**  
**Weighted; Indexed (2010=100)**



60. For overall network usage intensity, Latvia has seen the biggest increase (14.3%) since 2010; this is being driven by the large increase in usage intensity for freight traffic and reflects the high proportion of freight traffic in that country compared to passenger services. For the majority of other countries the overall change in network usage intensity is in line with the change in intensity for passenger services, which would be expected as the majority of networks carry more passenger traffic than freight.

**Figure 16 - Evolution of network usage intensity by country (total)**  
**Total trains per route kilometre per day; indexed (2010=100)**

Country	2010	2011	2012	2013	2014
LV	100,0	112,7	123,3	120,1	114,3
SE	100,0	104,3	103,9	109,3	111,6
NO	100,0	101,5	100,9	109,3	109,6
FR	100,0	110,5	110,6	109,0	107,8
SI	100,0	101,8	100,0	102,3	107,0
UK	100,0	102,8	103,4	103,8	104,3
NL	100,0	100,9	103,2	103,9	104,3
<b>Total</b>	<b>100,0</b>	<b>102,4</b>	<b>101,8</b>	<b>102,8</b>	<b>103,2</b>
DK	100,0	102,8	101,2	103,1	102,4
IT	100,0	97,9	97,5	102,2	102,1
DE	100,0	101,6	100,6	100,5	101,9
SK	100,0	97,8	97,2	98,3	99,6
PL	100,0	101,5	99,8	100,6	99,3
HU	100,0	100,9	96,7	97,1	99,1
AT	100,0	100,9	98,6	97,8	98,3
FI	100,0	99,7	99,4	98,5	97,0
BG	100,0	102,6	91,3	93,5	95,7
HR	100,0	96,0	98,2	89,4	86,3
GR	100,0	73,8	72,2	78,4	71,0

<sup>7</sup>Figure 15 covers all monitored countries with the exception of Kosovo, Estonia, Luxembourg, Spain; Belgium and Switzerland.

61. Compared to 2010 the largest increases in freight trains per route kilometre and per day were seen in Slovenia and Latvia, with increases of 28.1% and 21.9% respectively. Both of these countries provide important routes for the transport of cargo, and the large increase in network usage is likely to be due to a recovery in business following the recession. In addition, following an ice storm that caused significant damage to the railway infrastructure in Slovenia in February 2014 passenger services were suspended on a section of track between Ljubljana and the Port of Koper in order to allow transshipment of freight using diesel locomotives. This may have contributed to the increase in the network usage intensity for freight traffic in Slovenia between 2013 and 2014.
62. The largest falls in network usage intensity for freight was observed in the Netherlands, Sweden, Croatia and Finland, with all four countries having seen a decrease in usage intensity of greater than 10% since 2010. For Finland this decrease in intensity can be attributed to an increase in the efficiency of rail freight transportation, which was achieved by running longer trains, and therefore enabled individual freight trains to carry more freight than before.

**Figure 17 - Evolution of network usage intensity by country (freight)**

Freight trains per route kilometre per day; indexed (2010=100)

Country	2010	2011	2012	2013	2014
SI	100,0	104,0	101,4	118,8	128,1
LV	100,0	119,5	135,2	131,0	121,9
BG	100,0	112,1	109,7	100,9	110,6
UK	100,0	108,3	109,3	112,7	110,5
PL	100,0	108,1	104,1	106,6	106,1
HU	100,0	90,7	95,8	105,5	102,7
IT	100,0	101,7	101,2	101,3	102,7
DE	100,0	106,3	99,9	100,5	101,4
<b>Total</b>	<b>100,0</b>	<b>103,3</b>	<b>99,6</b>	<b>100,2</b>	<b>100,3</b>
FR	100,0	95,5	100,5	98,0	97,8
SK	100,0	98,1	93,4	96,9	97,8
NO	100,0	97,7	88,8	97,1	95,5
DK	100,0	120,0	101,4	99,3	94,0
GR	100,0	88,7	78,4	72,8	93,5
AT	100,0	101,7	90,6	88,3	90,8
SE	100,0	101,7	93,8	91,5	89,6
HR	100,0	89,7	98,4	87,4	88,7
FI	100,0	96,7	92,5	89,7	87,4
NL	100,0	90,1	87,4	87,4	84,8

63. The largest increase in network usage intensity for passenger trains was seen in Sweden where there was an increase of 21.1% between 2010 and 2014. Over the same time period Norway saw an increase of 13.1%; this is a result of the introduction of a new model of train paths around Oslo in December 2012 alongside a new and more extensive PSO contract for the incumbent railway operator. Only six countries saw a decrease in network usage intensity for passenger trains, the largest fall being 30.4% for Greece. Croatia saw a fall of 14.4%, which is in part due to the introduction of an amended timetable in April 2014 that saw the removal of some weekend services and of other daily services. Slovenia, the country with the largest increase in network usage intensity for freight traffic, has seen the network usage intensity for passenger traffic fall by 8.3% between 2010 and 2014. Similarly, the network usage intensity for passenger traffic in Latvia has increased by 2% over this time period, a much smaller growth than that seen for freight.

**Figure 18 - Evolution of network usage intensity by country (passengers)**  
**Passenger trains per route kilometre per day; indexed (2010=100)**

<b>Country</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
SE	100,0	105,4	108,3	117,3	121,1
NO	100,0	102,4	103,9	112,4	113,1
FR	100,0	113,5	112,7	111,2	109,8
NL	100,0	101,8	103,8	105,3	106,0
UK	100,0	102,4	103,0	103,1	103,9
<b>Total</b>	<b>100,0</b>	<b>102,2</b>	<b>102,3</b>	<b>103,5</b>	<b>103,6</b>
DK	100,0	102,0	101,2	103,2	102,8
LV	100,0	101,6	104,1	102,6	102,0
IT	100,0	97,3	97,0	102,3	102,0
AT	100,0	100,5	101,9	101,8	101,5
FI	100,0	101,1	102,5	102,6	101,4
DE	100,0	100,2	100,9	100,5	101,0
SK	100,0	97,6	99,0	98,9	100,4
HU	100,0	102,8	96,9	95,4	98,4
PL	100,0	98,2	97,7	97,6	95,9
SI	100,0	100,2	99,0	90,4	91,7
BG	100,0	99,8	85,9	91,3	91,3
HR	100,0	98,1	98,1	90,1	85,6
GR	100,0	72,9	71,8	78,7	69,6

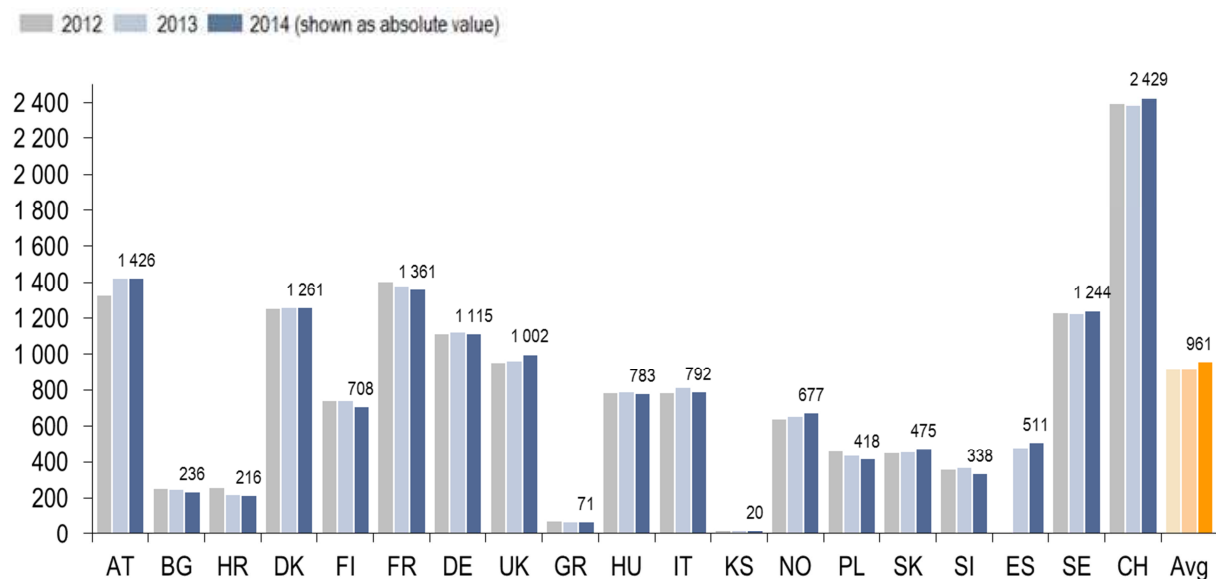
#### 4.1.2. Distance travelled

64. Figure 19 shows the average distance travelled per resident per year, which is calculated by dividing the total passenger kilometres by the number of residents. The average distance travelled per resident across the monitored countries was 961 kilometres. Switzerland, Austria, France, Denmark and Sweden show the highest average distance travelled per resident in 2014.
65. There are a number of reasons why Switzerland has the highest distance travelled per resident. Switzerland is a relatively small country with a high density of population. Compared to other countries the biggest towns (Berne, Basel, Zurich, Lausanne, Geneva) are close to each other and can easily be reached by train. As highways between these cities are regularly congested, public transport is a highly viable alternative for commuters. The country also has very dense and high quality railway infrastructure that is used intensely. Other important explanations are synchronized timetables, high frequency of service and a flexible ticketing system.
66. France had the third highest passenger kilometres per resident in 2014, albeit at a lower level than in previous years. This decreasing trend for 2014 can be partly explained by a strike in June that led to a high train cancellation rate for conventional speed (non high-speed) trains. Performance in terms of cancellations of both long distance and regional trains was particularly low in comparison to previous years.
67. The high distance travelled per resident in Denmark can be explained by both a developed rail infrastructure system that functions well and is coordinated with bus services, and by high taxation on cars when compared to other countries, making rail a transport mode relatively cheap for passengers.
68. In Sweden, distance travelled per resident in 2014 was 1244 passenger kilometres per resident. The geographical layout and distribution of population in Sweden makes for large labour-market regions and there is also a high propensity for workers to commute long distances in order to obtain better job positions, especially for higher-end jobs in the services sector. Therefore services that may be considered longer distance travel in other countries may in Swedish terms be considered regional. Also, the regional authorities that manage the

PSO-traffic usually subsidize traffic covering geographically longer distances in relative European terms.

**Figure 19 - Distance travelled per resident per year**

**Total passenger kilometres per resident**



69. Figure 20 shows the average distance travelled per resident per year, over the last five years. On average there was a 1.2 % increase in the distance travelled per resident across the monitored countries. The United Kingdom and Slovakia reported the highest increases over the period.
70. Austria, who has the second highest passenger kilometres per resident in 2014, has observed a considerable increase from 2012 to 2013 due to the opening of the new Wien - St. Pölten high speed line, which led to considerable decreases in journey time in long distance passenger traffic and therefore increased the use of rail transport by passengers.

**Figure 20 - Evolution of distance travelled per resident**

**Total passenger kilometre per resident, weighted; indexed (2010=100)**

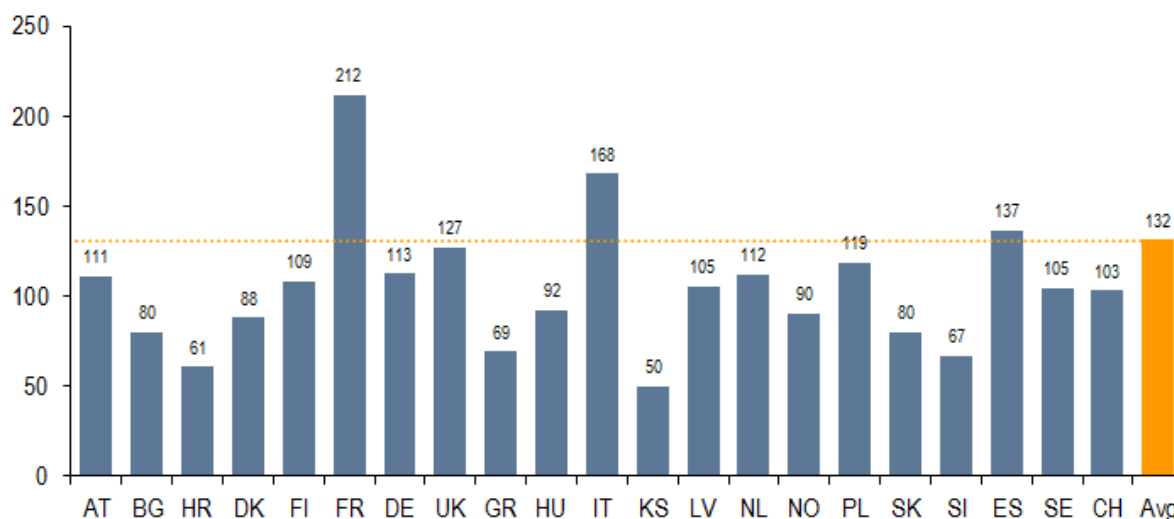
Country	2010	2011	2012	2013	2014
UK	100,0	103,9	107,2	108,6	112,5
SK	100,0	105,3	107,3	108,2	112,0
AT	100,0	101,3	104,2	111,6	111,6
DE	100,0	103,0	107,4	108,0	107,1
DK	100,0	104,3	105,9	106,3	106,1
SE	100,0	101,3	104,2	103,8	105,0
NO	100,0	95,0	99,1	101,0	104,3
HU	100,0	101,8	102,4	103,1	102,0
IT	100,0	98,8	100,7	104,5	101,3
<b>Total</b>	<b>100,0</b>	<b>100,8</b>	<b>101,9</b>	<b>101,9</b>	<b>101,2</b>
CH	100,0	100,5	98,3	98,1	99,7
FR	100,0	102,9	102,5	100,7	99,2
FI	100,0	97,6	100,9	100,9	96,1
PL	100,0	101,4	99,7	93,8	89,8
SI	100,0	94,9	90,8	92,8	85,0
BG	100,0	99,8	91,8	89,9	84,3
GR	100,0	69,2	61,7	56,6	57,2
HR	100,0	85,3	63,4	54,5	53,3



#### 4.1.3. Passenger kilometres and train kilometres

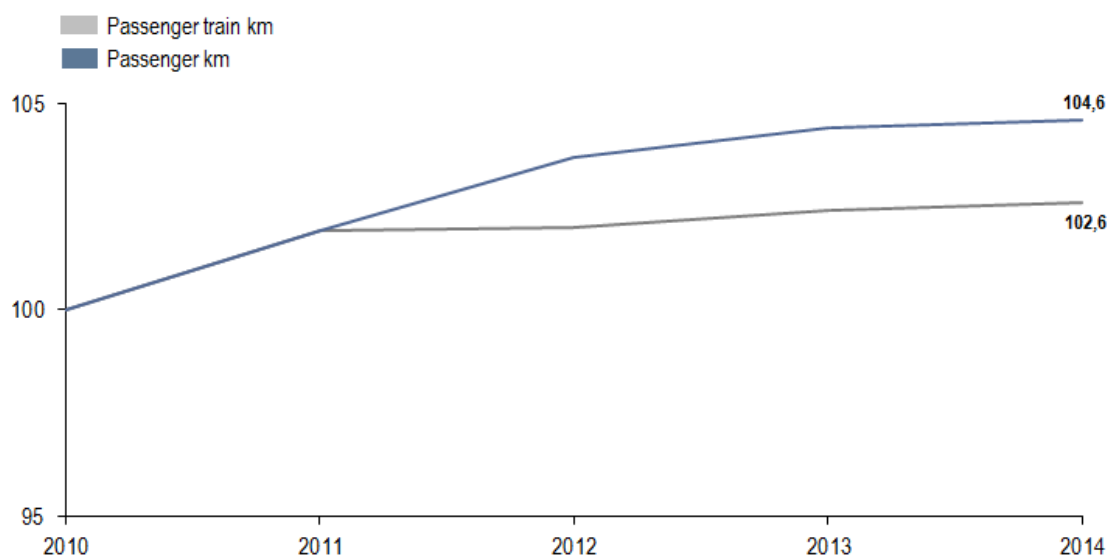
71. Figure 21 shows the average number of passenger kilometres per train kilometre, a ratio that can approximate the average occupancy of trains. The average occupancy across the countries monitored was 132 passengers per train, a level similar to the year before. France has the highest train occupancy with 212 passenger kilometres per train kilometre.

**Figure 21 - Passenger kilometres per train kilometres**  
Average Number of Passengers per Train



72. Figure 22 shows the average evolution of passenger kilometres and passenger train kilometres across the monitored countries, between the years 2010-2014. During this period passenger train kilometres increased on average by 2.6% across the monitored countries, while passenger kilometres increased by 4.6%, possibly suggesting that passenger demand has grown at a faster rate than the provision of services, or that services in some countries are being used more efficiently.

**Figure 22 - Evolution of passenger kilometres and train kilometres<sup>8</sup>**



<sup>8</sup> Figure 22 covers all monitored countries with the exception of Kosovo, Estonia and Luxembourg for both indicators and Belgium and the Netherlands for passenger km.

## 4.2. Infrastructure manager revenue

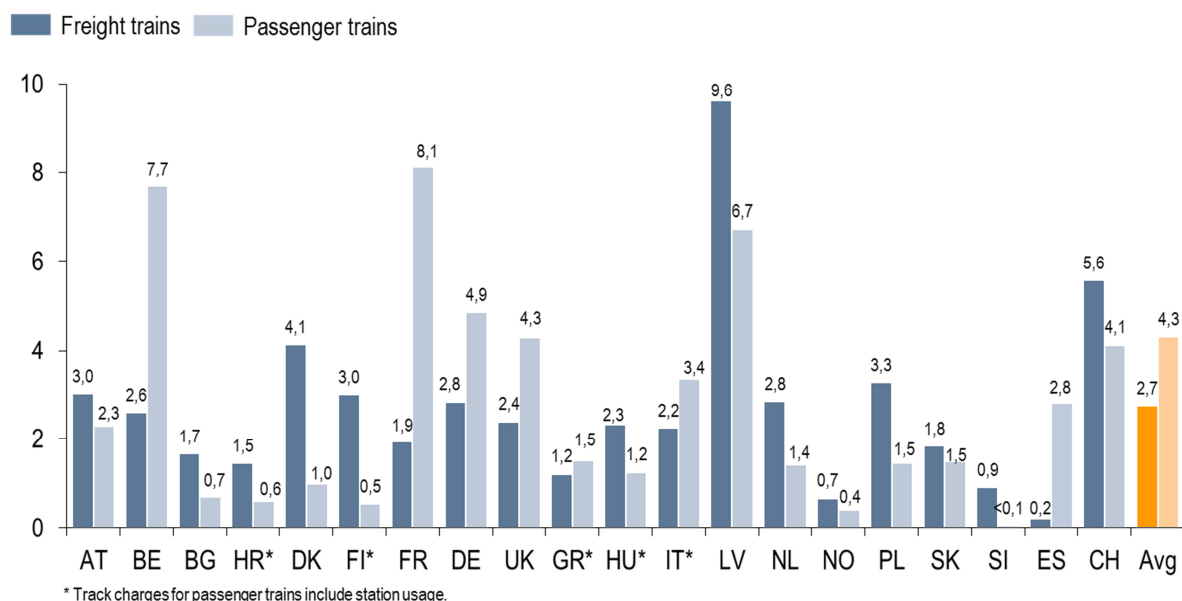
73. Figure 23 shows the average revenue from track charges (for the minimum access package) per train kilometre for freight and passenger services. For freight this is calculated by dividing the total revenue from track charges for freight services by freight train kilometres for each country. Similarly for passenger charges the average revenue is the revenue from passenger train track charges divided by the total passenger train kilometres. It is important to remember that this is an average value to give an indicator for comparisons between countries. For each country charges for specific types of trains and/or specific lines could be very different from the average charge; in addition there may be a deflating effect in the average for some countries where companies or services are excluded from the charges but are counted in the total train kilometres.<sup>9</sup>
74. Latvia has the highest revenue from track charges to freight services, with average revenue of €9.62 per freight train kilometre. This is over 50% greater than the revenue per kilometre for the next highest country, which is Switzerland with an average revenue of €5.6 per freight train kilometre. The lowest revenue from track charges to freight services is in Spain where the average revenue is €0.21 per freight train kilometres.
75. The average revenue from track charges to passenger services is the highest in France and Belgium with average revenues of €8.1 and €7.68 per passenger train kilometre respectively. Note that France has a large proportion of high speed lines in comparison with other European countries. These lines generate in France higher total direct costs that are passed on in track charges. These lines are also subject to higher mark-ups than other lines.
76. In Slovenia passenger trains which operate under public service contracts are exempt from track access charges. This explains the very low revenue from track access charges of less than €0.01 per passenger train kilometre as this figure only takes into account the revenue from train services which are not covered by public service contracts.
77. The biggest difference between the average revenue from track charges for passenger services and for freight traffic is in Spain, where the average revenue of €2.80 per passenger train kilometre is almost 14 times greater than the average revenue per freight kilometre of €0.21. The largest absolute difference is in France where the average revenue of €8.1 per passenger train kilometre is €6.2 greater than the average revenue per freight kilometre. The relationship is opposite in Denmark and Finland where the average revenues per freight train kilometre are approximately 4 and 5.5 times greater than the respective charges per passenger kilometre.

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<sup>9</sup> For instance, in Norway the charge for the minimum access package for both passenger and freight transport is set at 0. The only exceptions are for heavy freight transports above 25 tonne axle weight and for trains running on the line between Oslo and Oslo Airport.

**Figure 23 - Average infrastructure manager revenue from track charges per train kilometre, for the minimum access package<sup>10</sup>**

**Euro per train kilometre**



78. Figure 24 shows the development of revenue from access charges to passenger service per kilometre. Note that evolutions showed in this figure can be due both to evolutions in the absolute amount of access charges and/or to evolutions of traffic in train kilometres.
79. Overall the average revenue has increased by 1.7% compared to 2010. Of the 15 countries in the time series, 8 have seen an increase in the average revenue while 7 have seen a decrease.
80. Norway has seen the largest increase in average revenue from charges to passenger services, with average revenue up 48.4% compared to 2010. This is due to an increase in the tariff on the Gardermoen line (line between Oslo and Eidsvoll, running to Oslo airport), which is the only line in Norway to which passenger train track access charges apply.
81. The two countries with the largest fall in average revenue from charges to passenger services are Bulgaria and Slovakia, with the average revenue for these two countries having fallen 38.6% and 25.8% respectively.

<sup>10</sup> In some countries the access charges may be completed with sector specific public compensation. Therefore the overall charges levied by infrastructure managers could be higher than those shown.

**Figure 24 - Evolution of infrastructure manager's revenue for passenger services**

**Per passenger train kilometre in national currency (real values); Weighted, Indexed (2010=100)**

<b>Country</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
BG	100,0	93,2	88,7	77,6	61,4
SK	100,0	77,8	71,7	72,4	74,2
UK	100,0	118,2	98,6	93,5	80,3
PL	100,0	96,6	95,1	101,8	83,7
SI	100,0	84,5	83,3	99,5	87,9
DK	100,0	98,8	95,3	91,0	91,0
FI	100,0	97,9	98,4	96,2	91,3
<b>Total</b>	<b>100,0</b>	<b>103,1</b>	<b>100,6</b>	<b>102,9</b>	<b>101,7</b>
DE	100,0	99,4	100,2	100,9	103,9
FR	100,0	94,7	98,5	100,3	108,1
BE	100,0	102,5	105,8	106,9	108,6
AT	100,0	101,2	98,9	107,3	110,2
LV	100,0	102,6	111,0	120,1	127,5
CH	100,0	112,2	116,0	144,1	142,6
HR	100,0	140,2	165,1	174,1	143,9
NO	100,0	93,8	113,7	109,8	148,4

82. Figure 25 shows the development of the average revenue from track charges to freight services per freight train kilometre. Across all of the monitored countries there has been a 1.9% drop since 2010. There is a high degree of variation between countries and years; overall seven countries have an average revenue per kilometre in 2014 that is lower than the corresponding value in 2010. Eight other countries have a higher average revenue than in 2010.
83. Norway has the largest increase average revenue per freight train kilometre compared to 2010. Track charging for freight transport in Norway is limited to one line in Northern Norway (Ofotbanen). An increase in the volume of iron ore transport on this line in 2014 can explain most of the growth in revenue in Norway compared to the previous year.
84. The second largest increase compared to 2010 is for Croatia, where the average infrastructure manager revenue per freight train kilometres in 2014 is 42.7% greater than the start of the time series. However this is a fall compared to 2013 when the average revenue was 76.7% greater than in 2010.
85. In 2014 the average revenue per freight train kilometre in Slovakia was 18.7% of the 2010 revenue; there was a sharp fall in 2011 after which the average revenue remained relatively constant until 2014. There were structural changes to charges in Slovakia in 2010 which could explain the decrease seen in recent years. Bulgaria has had the second largest percentage drop in the average revenue from freight services, with revenue per train kilometre in 2014 having fallen to 37.3% of the 2010 value. These reductions are greater than the equivalent reductions in average revenue from passenger services in these two countries.

**Figure 25 - Evolution of infrastructure manager's revenue for freight services**  
**Per freight train kilometre in national currency (real values); Weighted; Indexed (2010=100)**

<b>Country</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
SK	100,0	37,2	33,8	33,7	18,7
BG	100,0	89,6	80,6	56,2	37,3
PL	100,0	96,8	82,2	86,3	63,0
AT	100,0	86,4	88,5	87,6	86,0
SI	100,0	95,7	106,1	96,1	93,6
DK	100,0	96,4	93,4	94,9	94,0
<b>Total</b>	<b>100,0</b>	<b>98,9</b>	<b>99,0</b>	<b>99,0</b>	<b>98,1</b>
LV	100,0	100,5	101,7	88,7	98,2
FI	100,0	96,7	96,1	96,7	100,5
CH	100,0	100,9	102,6	105,1	101,0
DE	100,0	100,9	101,4	102,1	103,5
BE	100,0	108,1	110,2	108,8	108,4
FR	100,0	103,8	95,4	93,3	109,8
UK	100,0	108,0	143,6	141,0	139,6
HR	100,0	157,0	139,9	176,7	142,7
NO	100,0	97,3	121,2	112,9	157,3

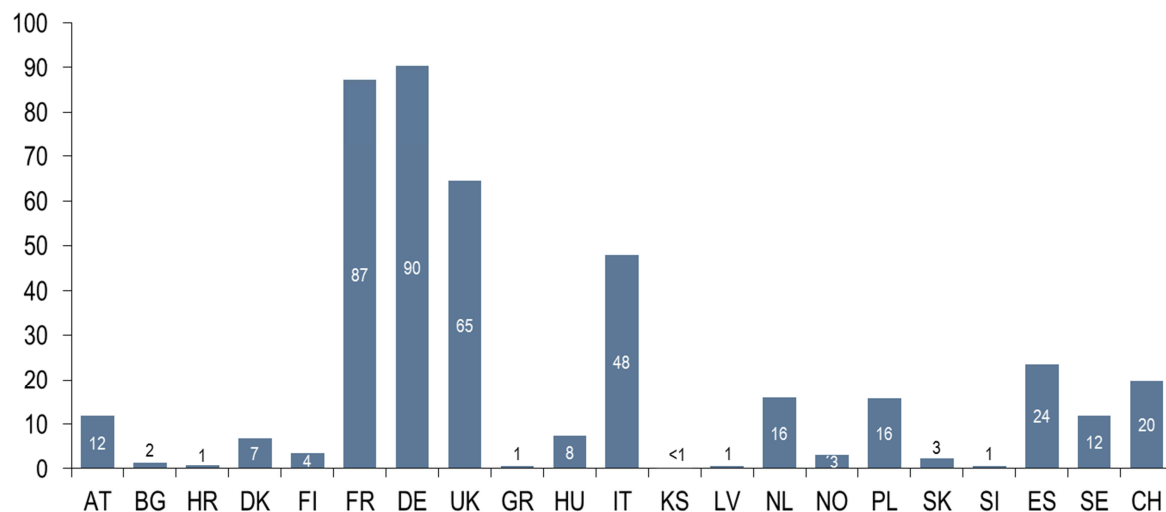
## 5. Passenger market

86. This chapter analyses the passenger rail market from a demand perspective, i.e. by focusing mainly on indicators calculated on the basis of passenger kilometres. The analysis deals first with the passenger traffic and its evolution as an approximation of demand levels in rail markets. The market shares of incumbent and non-incumbent railway undertakings are shown as an indication of the degree of liberalization in each country. This chapter also offers comparisons and evolutions of railway undertakings' revenue and analyses of revenues' sources, focusing on levels and evolutions of fares for passengers as well as the average distance travelled per resident. Finally, an approximation of train utilisation is proposed by showing the level of passenger kilometres per train kilometre and the relative evolution of these two indicators. Annex 5 provides additional information about the correlation between passenger kilometres and population and revenues of passenger railway undertakings in €-cent per passenger kilometres.

### 5.1. Passenger traffic

87. With regard to passenger kilometres, four countries (France, Germany, the United Kingdom and Italy) stand out as having much larger demand compared to the other countries considered in 2014, partly due to their large population.

**Figure 26 - Passenger traffic**  
Billion passenger kilometres



88. Figure 27 shows the evolution of passenger kilometres between 2010 and 2014. Since 2010, there has been an average growth of 4.6% in passenger kilometres across the monitored countries. The United Kingdom, Austria, Slovakia, Norway, Sweden, Denmark, and Germany have shown higher than average growth, while Switzerland, Italy, France and Hungary have experienced some growth, albeit slightly lower than average. The remaining seven countries (Finland, Poland, Latvia, Slovenia, Bulgaria, Greece and Croatia) reported a decrease in passenger kilometres over the period.
89. The United Kingdom has seen the largest growth (15.9%) since 2010, with several underlying factors explaining the increase in passenger numbers, amongst others a strong economic growth, high population growth and increasing congestion in other transport modes.
90. The increase of 13% in passenger kilometres in Austria since 2010 has been mostly due to improvements in suburban train services and ongoing restrictions for road commuter traffic in urban areas. In addition, the opening of the Wien-St. Pölten high speed line has led to an increase in passenger figures on the Wien-St. Pölten-Salzburg line.
91. Slovakia has reported a growth of 12.4% since 2010, with an increase from 2013 to 2014 of more than 3%. The growth has been influenced by application of changes in carriage conditions and tariffs for selected groups of passengers in transport services operated under Public Service Obligation (PSO), which has led to children, students and seniors being entitled to use zero-fare public rail passenger transport.
92. The growth of 9.6% in passenger kilometres in Norway can for the most part be explained by a new model of pre-planned train paths in the Oslo area that was introduced in December 2012. The new model significantly increased the number of passenger train departures per hour. This also coincided with a new and more extensive PSO-contract for the incumbent. The high population growth rate in Norway, especially in and around the major cities, was one of the reasons behind the need for a new model of pre-planned train paths, and also contributed to the increase in passenger kilometres.
93. Croatia has recorded the biggest drop in passenger kilometres since 2010, due to reductions in the number of trains in the scheduled timetables. In the scheduled timetable for 2012/2013 there was a reduction in the number of international trains from 56 to 24 trains compared to the previous timetable of 2011/12. There were further reductions in the amended timetable

for 2014 with the cancellation of 26 trains and changes to 252 trains meaning that they would no longer run on the weekends.

94. Slovenia has shown a decrease in passenger kilometres of 14.3% since 2010, with most of the decrease coming in 2014. This was due to an ice storm in February 2014, which caused damage to the railway infrastructure, particularly between Ljubljana and the economically important coastline where the Port of Koper is located. Prioritizing freight transport, the government restricted passenger transport by rail during the reconstruction period of the damaged railway infrastructure, which caused a decrease in passenger traffic in 2014.
95. In Poland, the long distance segment of passenger services has suffered over the four year period due to infrastructure works that disrupted traffic on many main railway lines, and due to competing services offered by new bus (coach) companies. Meanwhile, the suburban segment, mainly in the Warsaw metropolitan area, grew rapidly during the period as it offered good services during peak hours and ticket integration with municipal transport. Therefore, even though passenger kilometres in Poland fell by 10.3% over between 2010 and 2014, the number of passengers during the same period actually increased by 2.8%.

**Figure 27 - Evolution of passenger traffic**  
In passenger.km, Weighted; Indexed (2010=100)

Country	2010	2011	2012	2013	2014
UK	100,0	104,7	108,9	111,0	115,9
AT	100,0	101,6	104,8	112,4	113,0
SK	100,0	105,3	107,3	108,5	112,4
NO	100,0	96,3	101,7	105,0	109,6
SE	100,0	102,0	105,7	106,3	108,7
DK	100,0	104,8	106,7	107,6	107,9
DE	100,0	101,2	105,8	106,7	106,2
<b>Total</b>	<b>100,0</b>	<b>101,9</b>	<b>103,7</b>	<b>104,4</b>	<b>104,6</b>
CH	100,0	101,5	100,4	101,4	104,3
IT	100,0	99,3	99,1	103,3	102,1
FR	100,0	103,4	104,0	102,6	101,5
HU	100,0	101,6	101,6	102,0	100,6
FI	100,0	98,1	101,9	102,4	97,9
PL	100,0	101,4	99,7	93,7	89,7
LV	100,0	98,9	96,8	97,3	86,7
SI	100,0	95,1	91,2	93,5	85,7
BG	100,0	98,0	89,1	86,8	80,9
GR	100,0	69,3	61,6	56,0	56,2
HR	100,0	85,3	63,3	54,4	53,2

## 5.2. Market shares of railway undertakings

96. Figure 28 shows the ratio between the passenger transport performed by incumbent and by non-incumbent passenger railway undertakings. Across the monitored countries, 73% of passenger kilometres were on average covered by incumbent operators in 2014, while 27% were covered by non-incumbent operators. However, it is important to note that in some countries a legal monopoly is still in place for the provision of rail domestic services. Annex 3 provides more information about the liberalisation of national markets.
97. In Bulgaria, Croatia, Finland, France, Greece, Kosovo, Slovenia and Spain the incumbent operator covers 100% of passenger kilometres.<sup>11</sup> Two countries stand out; the United Kingdom with a market share of less than 1% for incumbent railway undertakings and Poland

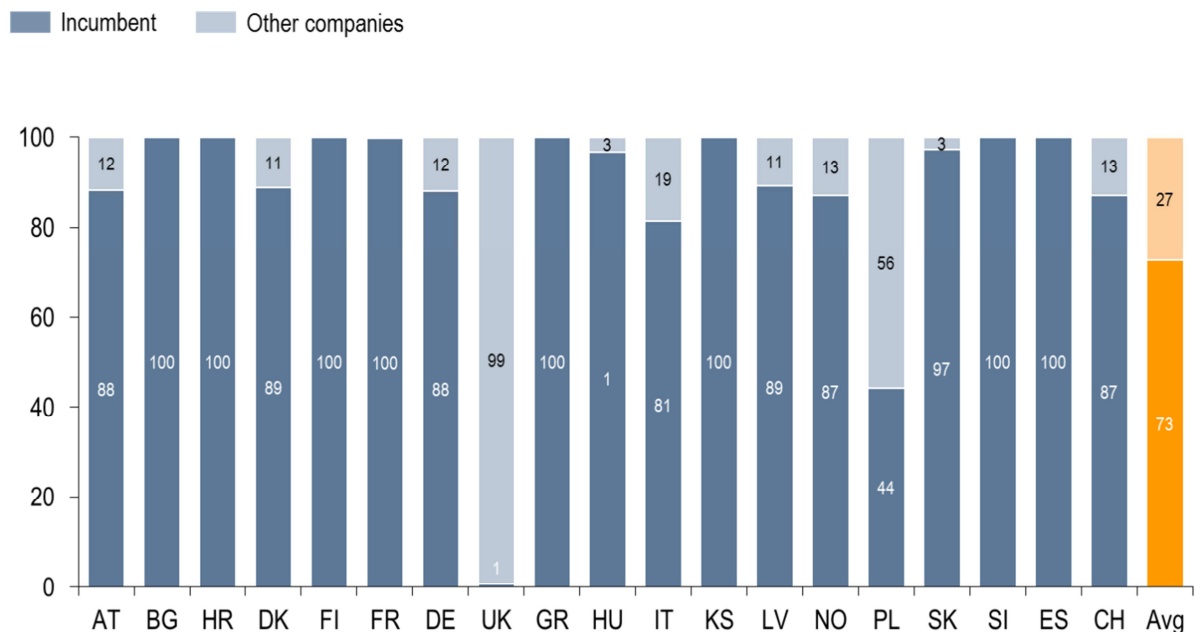
<sup>11</sup> In France, there is another railway undertaking, with a market share of 0.3%.



with a market share for the non-incumbent of 56%. There are two reasons for such a situation in Poland. Firstly, the biggest regional operator (30% of the market) stems from the incumbent undertaking, but has been owned by regional authorities since 2009 and therefore qualifies as non-incumbent. The second reason is due to market developments: new region-owned companies are developing and increasing their market share at the expense of the incumbent long-distance undertaking which has been losing passengers.

98. Since privatization of the rail industry in the United Kingdom in the mid-90s, rail passenger services have been franchised to private train operating companies who must win a competitive tender process in order to operate services. This franchising applies to all of England, Scotland and Wales and thus the majority of passenger kilometres are classed as non-incumbent. The small percentage of incumbent passenger kilometres is for Northern Ireland railways, which are State owned, and represent a very small network compared to the rest of the United Kingdom.
99. The relatively high market share of non-incumbent undertakings in Italy can partly be explained by the introduction and increasing use of high speed lines operated by new entrants.

**Figure 28 - Market shares of passenger trains undertakings (%)**  
Market shares in passenger.km



100. Figure 29 shows the development since 2010 of the market shares of non-incumbent passenger railway undertakings. Most of the monitored countries have market shares for non-incumbent companies below 15%, a trend that seems stable across the period. The exceptions in 2014 are the United Kingdom, Poland and Italy. Low market share for non-incumbent operators strengthens the argument that the market for passenger transportation by rail still has relatively high entry barriers across much of Europe.
101. The countries that experienced notable changes over the period in market shares of non-incumbent passenger railway undertakings were Austria, Denmark and Poland. Austria and Poland have seen the most notable increases since 2010, with non-incumbents' share rising in both countries by 7%. In Austria, a new high speed line was opened in December 2012 between Wien and St. Pölten, reducing travelling time from Wien to St. Pölten, Linz and Salzburg. At the same time the new entrant WESTbahn introduced an hourly service to Salzburg, whereas previous departure intervals were up to two hours. As a result,



WESTbahn attracted more new passengers than ÖBB and so the market share of the new entrants increased significantly.

102. In Poland, the incumbent passenger railway undertaking has been losing market shares since 2010. There are two main reasons for this development. Firstly, there have been improvements in infrastructure across the country, especially in roads, leading to increased competitiveness of road transport in the market for long distance passenger transport, where the incumbent mostly operates. Meanwhile, due to ongoing modernization of railway infrastructure that led to significant disruptions on the network, long travel times and delays, the competitiveness of rail transport has further worsened during the period. The second reason has been that the market share of regional passenger railway undertakings owned by regional authorities has increased reflecting the development of the market segment for regional and suburban services in Poland over the last years, especially around the Warsaw area.
103. In Denmark there was a decrease in market shares of non-incumbent passenger railway undertakings due to a takeover of some of the non-incumbent train routes by the incumbent between 2011 and 2012.

**Figure 29 - Evolution of market shares of non-incumbent passenger railway undertakings  
In % passenger kilometres**

Country	2010	2011	2012	2013	2014
AT	5,10	5,60	8,80	11,04	11,78
DK	35,00	36,00	10,80	11,73	11,26
FR	-	-	0,20	0,24	0,22
DE	9,00	9,80	10,40	11,70	12,00
UK	99,25	99,27	99,27	99,24	99,21
HU	1,90	2,00	2,90	3,28	3,25
IT	-	-	-	21,24	18,64
LV	10,60	11,00	11,70	12,20	10,94
NO	14,00	11,00	13,00	13,00	13,00
PL	48,31	49,50	51,41	53,06	55,75
SK	-	-	1,85	2,57	2,83
CH	-	12,57	12,87	12,78	12,96

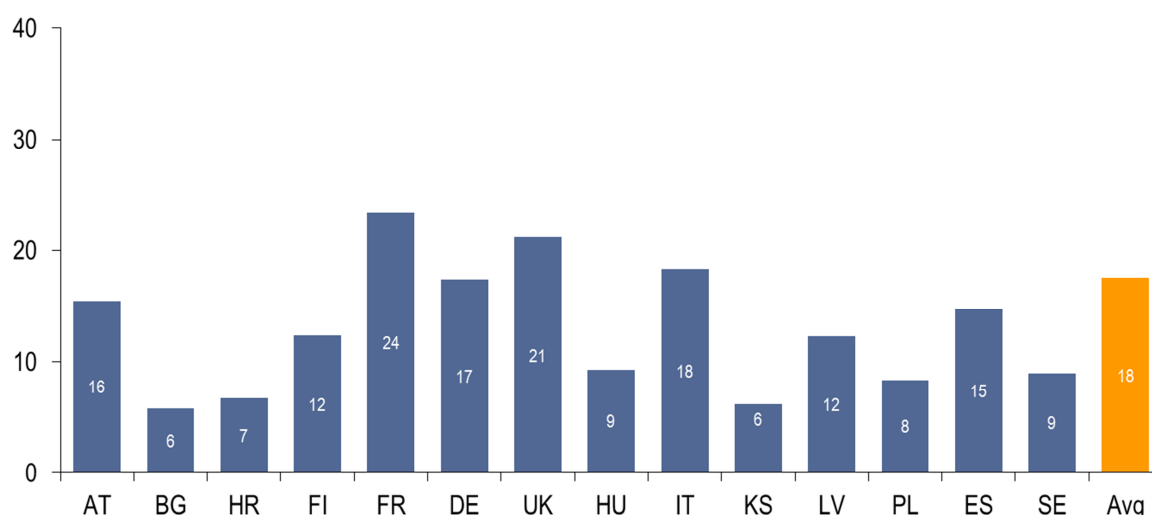
### 5.3. Revenue of railway undertakings

104. Figure 30 shows the average revenue of railway undertakings per passenger train kilometre in 2014. It has been calculated by dividing the total revenue of passenger railway undertakings (revenue from fares and subsidies) by the number of kilometres performed by passenger trains.<sup>12</sup>
105. In 2014 the average revenue per passenger train kilometre was €18 across the monitored countries, an increase from the previous year. France had the highest revenue with €24 per passenger train kilometre. The second highest was the United Kingdom with €21 per train kilometre, followed by Italy and Germany with €18 (aligned with the average value) and €17 per train kilometre respectively. For most monitored countries the revenue per passenger train kilometre was stable when compared to the previous year.

<sup>12</sup> Caution is needed to avoid wrong interpretations of the indicator. For instance, it is difficult to draw conclusions about the size of revenues of passenger railway undertakings from this indicator alone. The indicator does not infer anything about the level of profits of passenger railway undertakings.

106. There is a possible explanation for the relatively high level of revenue per passenger train kilometre in France. A significant share of passenger train kilometres in France is covered by high speed trains in 2014. In comparison with conventional speed rail (both regional and long distance), the decrease of high speed passenger traffic has been moderate, making the impact of high speed trains on the ratio revenue/passenger train kilometre especially important since they also generate higher direct costs than other types of trains, and therefore also higher revenues as the costs are passed on in ticket prices.

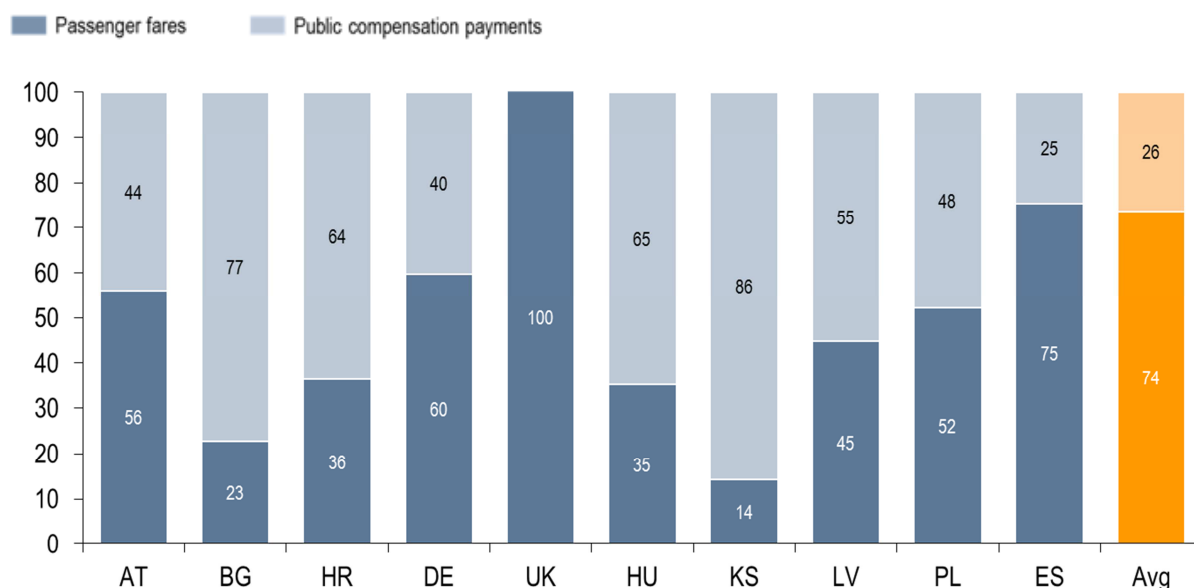
**Figure 30 - Revenue of passenger railway undertakings**  
 € per train km performed by passenger trains



107. Figure 31 shows the share of revenue received by railway undertakings from fares and State subsidies. In 2014, the average percentage of total revenues of passenger railway undertakings coming from passenger fares was 74% across the monitored countries, a level similar to the previous year. However, this average seems to be driven by countries that perform the most passenger kilometres, namely Germany, the United Kingdom and Spain, which have a higher proportion of revenue from fares. In five of the ten countries monitored, public compensation payments represented the largest proportion of revenue for passenger railway undertakings. These countries were Bulgaria, Croatia, Hungary, Kosovo and Latvia. Only the United Kingdom had 100% share from passenger fares, while Austria, Germany, Poland and Spain showed a higher share of revenues coming from passenger fares than from public compensation payments.

108. In the United Kingdom train operating companies are allowed to operate on the network according to franchise agreements with the government. As part of these agreements some undertakings will receive subsidies from the government while others will pay premiums to the government. As passenger revenue has increased, more train operating companies return a premium to the government and thus in recent years the government has received a net payment from the operating companies, receiving more money in premium payments than it paid out in subsidy. The net payment by operators to the government in 2014 was however lower than in 2013.

**Figure 31 - Sources of revenues of passenger railway undertakings**  
**Percentage of total revenues of passenger railway undertakings**



109. Figure 32 shows the evolution since 2010 of the revenues of passenger railway undertakings per passenger train kilometre. Since 2010, the revenue per passenger train kilometre has on average shown a real value growth of 3.7 % across the monitored countries. Croatia, Austria, Poland and the United Kingdom reported an increase above the average, while Germany and Latvia also reported an increase albeit lower than the average. Hungary, Italy and Bulgaria reported real value decreases of the revenues of passenger railway undertakings per passenger train kilometre.
110. After a period of decreasing revenues per passenger train kilometre for passenger railway undertakings, Croatia reported the highest increase in 2014. The increase of 29.8% from 2013 to 2014 can partly be explained by changes in the financing of Public Service Obligation (PSO) passenger railway traffic.
111. Austria had the second highest real value growth in revenue per passenger train kilometre, an increase of 11.1% since 2010. This can be explained by an increase in highly utilized suburban train services, while at the same time there have been reductions of less utilized train services in rural areas. Furthermore, at the beginning of 2014 the incumbent increased standard fares by 2%, whilst the inflation rate was at 1.5 %.

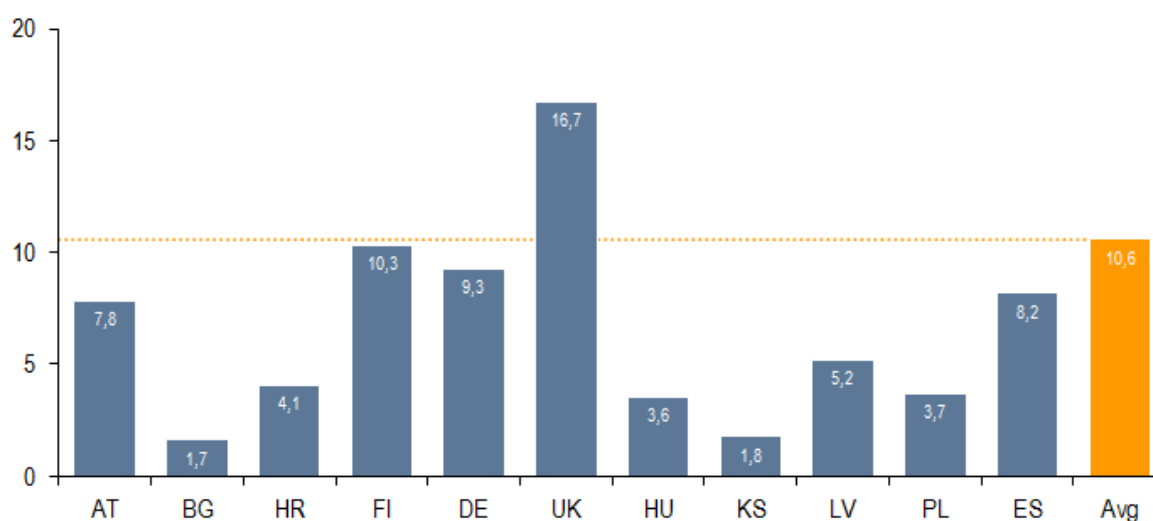
**Figure 32 - Evolution of revenues of passenger railway undertakings**  
**Per passenger train km in national currency; Weighted; Indexed (2010=100)**

Country	2010	2011	2012	2013	2014
HR	100,0	100,0	89,9	94,0	123,8
AT	100,0	102,3	104,8	108,8	111,1
PL	100,0	107,7	109,5	108,2	109,8
UK	100,0	94,8	99,4	99,3	108,0
<b>Total</b>	<b>100,0</b>	<b>98,1</b>	<b>101,7</b>	<b>100,9</b>	<b>103,7</b>
DE	100,0	100,5	102,9	102,5	102,2
LV	100,0	93,9	104,8	108,3	100,8
HU	100,0	97,4	100,2	95,8	97,1
IT	100,0	90,2	97,8	95,0	96,7
BG	100,0	100,9	109,9	96,4	91,0

## 5.4. Fare for passengers

112. Figure 33 shows the average rail travelling fare for passengers. It is calculated by dividing undertakings revenue from ticket sales by the total number of passenger kilometres. The average amount across the monitored countries was 10.6 cents per passenger kilometre, an increase from the year before. The United Kingdom had the highest average travelling fare in 2014, with an average of 16.7 cents per passenger kilometre. The second highest average was in Finland with 10.3 cents per passenger kilometre. Bulgaria and Kosovo had the lowest average travelling fares for passengers in 2014, with 1.7 cents and 1.8 cents per passenger kilometre respectively.
113. The income from ticket sales includes all tickets sold (monthly, annual tickets). Ticket prices will be very dependent on the type of train for which the ticket has been purchased (e.g. high speed services are likely to cost more) and may also be different depending on the area where the ticket is purchased (e.g. state subsidies for certain regions or services).
114. One possible explanation for variation in travelling fares could be differences in the percentage of total revenue of passenger railway undertakings coming from public compensation payments. In 2014 the United Kingdom had 0% of revenue coming from public compensation payments, while Bulgaria and Kosovo had 77% and 86% of revenue coming from public compensation payments respectively. This explanation seems to be strengthened when also looking at the average rail travelling fare for passengers in Germany, Spain and Austria, who had the third, fourth and fifth highest travelling fares per passenger kilometre, but also had a higher percentage share of revenue coming from fares than from public compensation payments. Another important explanation could be differences in GDP per inhabitant in each country.

**Figure 33 - Rail travelling fare for passengers**  
Average passenger fare in Cent per passenger km



115. Figure 34 shows the evolution since 2010 of rail travelling fares for passengers. Since 2010 rail fares for passengers per passenger kilometre have on average shown a real value growth of 2% across the monitored countries. Croatia, Hungary, the United Kingdom and Latvia had an increase over the period above the average, while Austria also showed an increase, albeit below the average. Rail fares for passengers in Poland and Bulgaria have decreased since 2010, implying that rail transport for passengers in these two countries has become relatively cheaper, while in Germany rail fares for passengers remained mostly stable across the period.

116. Croatia showed by far the highest real value increase in rail fare per passenger kilometre, a real value increase of 33.7%.

**Figure 34 - Evolution of rail travelling fare for passengers**

**Fare per passenger km in national currency (real values); Weighted; indexed (2010 = 100)**

Country	2010	2011	2012	2013	2014
HR	100,0	112,3	128,7	139,1	133,7
HU	100,0	103,0	100,2	97,4	110,0
UK	100,0	101,0	103,6	105,3	105,3
LV	100,0	98,4	102,9	104,1	102,5
<b>Total</b>	<b>100,0</b>	<b>100,1</b>	<b>101,6</b>	<b>101,0</b>	<b>102,0</b>
AT	100,0	95,2	100,8	99,3	101,2
DE	100,0	99,9	100,5	99,1	100,2
PL	100,0	99,3	99,9	97,4	96,0
BG	100,0	96,7	98,2	88,8	86,2

## 6. Freight Market

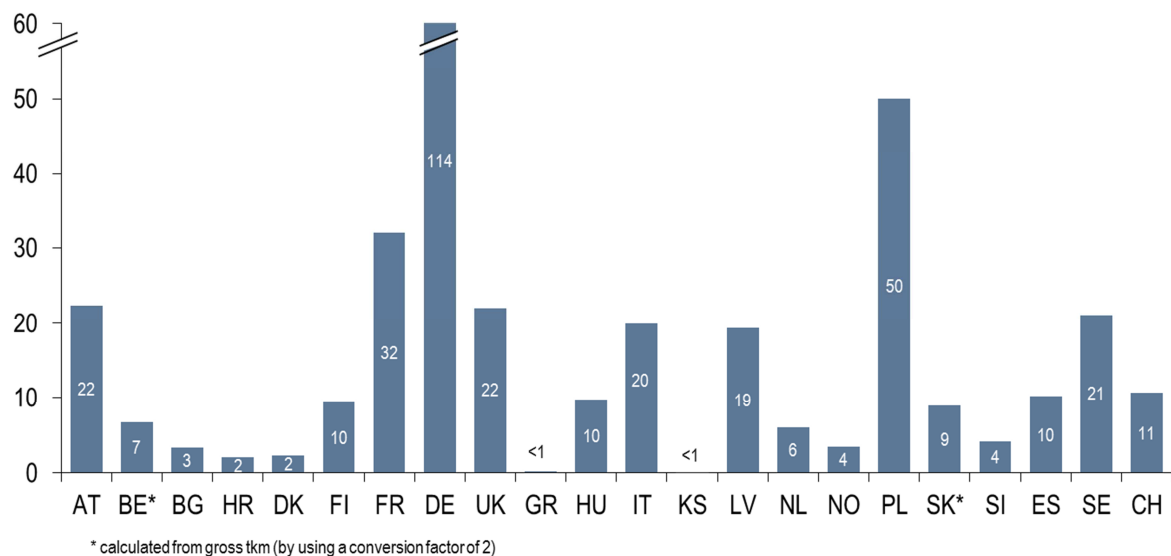
117. This chapter analyses the freight rail market from a demand perspective, focusing mainly on indicators calculated on the basis of tonne kilometres. The analysis deals first with the freight traffic and its evolution as an approximation for the level of demand on rail markets. The market shares of freight railway undertakings and their evolutions are shown as a way of assessing the degree of market liberalization in each country. Finally, the total revenue of freight railway undertakings in each country is presented and compared, alongside the evolution of revenue over time. Annex 6 also provides information about the load factor for freight trains.

### 6.1. Freight traffic

118. Figure 35 shows the freight traffic in 2014 in billion net tonne kilometres for each monitored country. For countries where the respective data is only available for gross tonne kilometres a conversion to net weight has been used based on a factor of 2<sup>13</sup>. The comparison of all countries monitored shows that in 2014, Germany had by far the highest traffic followed by Poland, France, Austria, the UK and Sweden.

<sup>13</sup> Net tonnes are not available from all countries and so in some cases an estimate has been calculated based on gross tonnes. IRG Rail uses the following ratio: Net tonne kilometres = Gross tonne kilometres/2. Analysis of the net/gross ratio from several data sources reveals that this ratio does not vary greatly; therefore we can estimate net tonnes with some confidence.

**Figure 35 - Freight traffic**  
Billion net tonne kilometres



119. The development of rail freight traffic between 2010 and 2014 varies across the different countries. The United Kingdom reported the largest growth over this time period (19.2%). Latvia has had the second largest growth (13.2%), followed by Hungary (11.7%) and Switzerland (9.6%). Total freight traffic across the monitored countries grew between 2013 and 2014 continuing the positive trend from 2013 and is now 3% higher than in 2010. Overall 12 countries have had an increase in net freight tonne kilometres between 2010 and 2014, while eight countries have seen a decrease during this period.
120. Between 2010 and 2013 there was a large drop in rail freight traffic for both Croatia and Greece, however both markets have seen a recovery in 2014. Between 2013 and 2014 the biggest increases in net tonne kilometres relative to their market in 2010 have been reported by Greece, Bulgaria, Austria, Italy and Hungary.

Figure 36 - Evolution of freight traffic

Traffic in net tonne.km; Weighted; Indexed (2010=100)

Country	2010	2011	2012	2013	2014
UK	100,0	112,9	115,6	120,6	119,2
LV	100,0	124,9	127,4	113,7	113,2
HU	100,0	105,7	107,7	106,7	111,7
CH	100,0	103,7	99,4	104,8	109,6
DK	100,0	116,7	101,7	109,3	109,5
SI	100,0	105,5	98,7	109,7	109,2
BG	100,0	112,9	101,8	102,6	109,2
IT	100,0	106,3	108,7	102,3	107,8
FR	100,0	114,1	108,6	106,8	107,5
DE	100,0	105,8	102,6	104,4	105,3
NL	100,0	107,6	103,7	102,6	104,1
<b>Total</b>	<b>100,0</b>	<b>107,2</b>	<b>101,9</b>	<b>101,8</b>	<b>103,0</b>
AT	100,0	98,7	95,9	94,3	100,1
SK	100,0	98,8	95,0	96,7	98,6
FI	100,0	96,4	95,1	97,1	98,4
NO	100,0	102,9	97,0	96,9	94,9
PL	100,0	111,7	92,0	95,4	93,9
BE	100,0	107,0	95,6	90,0	91,8
SE	100,0	97,4	93,9	88,5	90,4
HR	100,0	92,3	85,4	76,4	77,6
GR	100,0	57,2	45,9	38,5	55,7

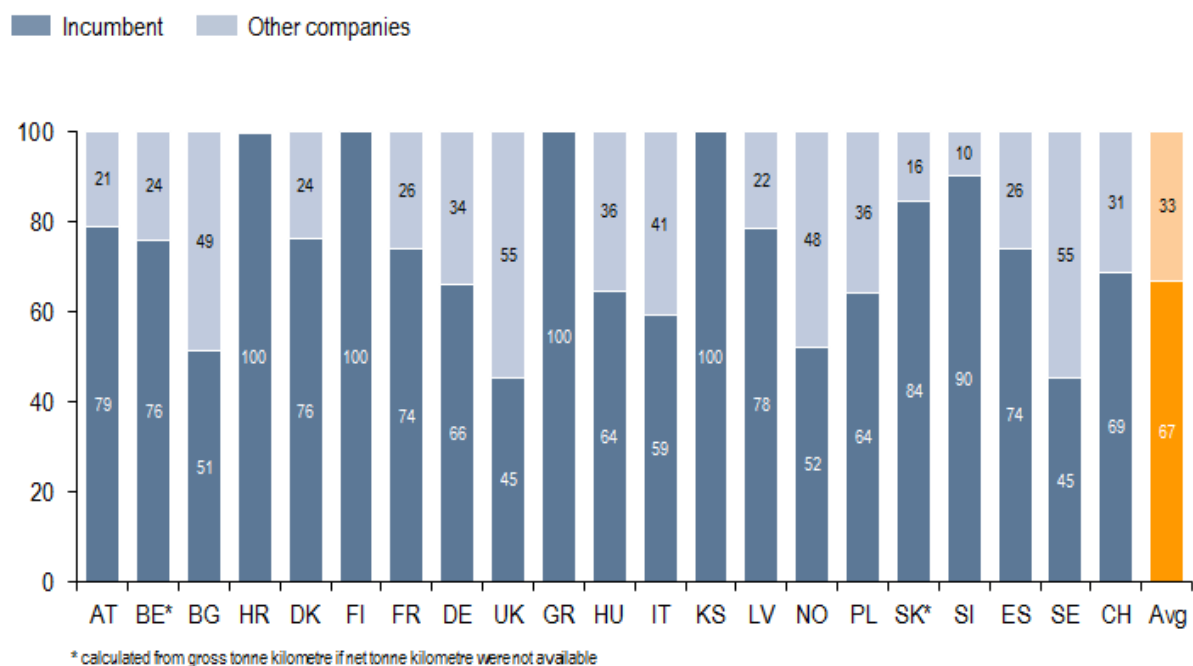
## 6.2. Market shares of railway undertakings

121. Figure 37 shows the market shares of incumbent and non-incumbent freight operators in 2014. The shares of non-incumbent freight railway undertakings were in general higher compared to those in the passenger market.
122. The United Kingdom has the largest market share for non-incumbent rail freight operators, although market shares dropped slightly since 2013. Seven countries<sup>14</sup> reported an increase in the market shares of new entrants whilst five countries<sup>15</sup> reported a decrease.

<sup>14</sup> Bulgaria, Hungary, Austria, Germany, Slovenia, Poland and the United Kingdom

<sup>15</sup> France, Norway, Sweden, Latvia and Switzerland

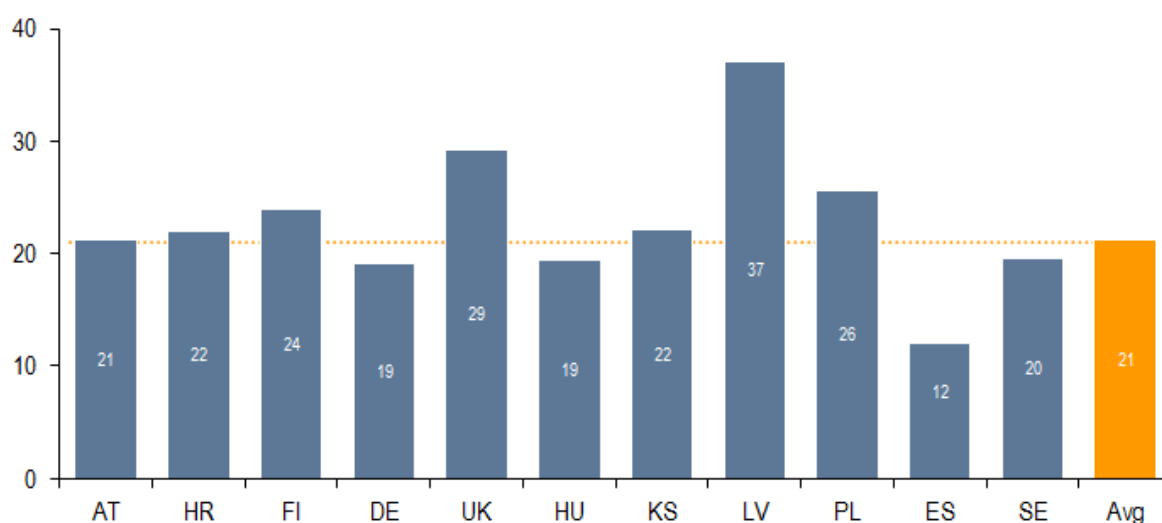
**Figure 37 - Market shares of freight railway undertakings**  
**Percentage of net tonne kilometres\***



### 6.3. Revenue of railway undertakings

123. Whilst freight traffic increased between 2013 and 2014, freight revenue per train kilometre remained stable in 2014. While some countries showed a moderate rise in revenue (Germany, Hungary, Latvia and the United Kingdom), revenues in Poland, Croatia and Austria dropped. The high revenue per train kilometre in Latvia can be explained by the different technical specifications of their broad gauge network which allows a much higher average weight of trains.

**Figure 38 - Revenue of freight railway undertakings**  
**€ per train km**



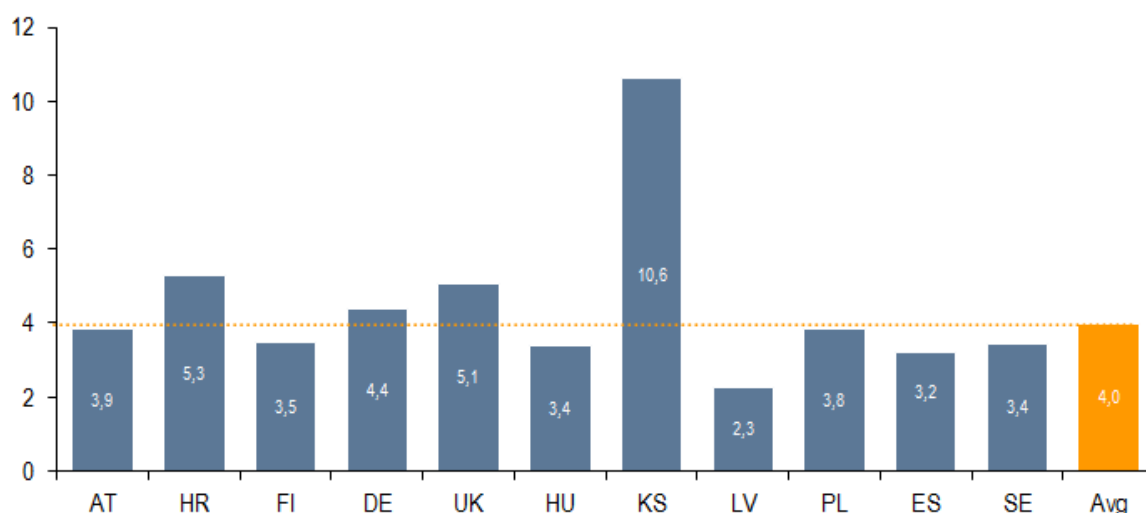


**Figure 39 - Evolution of revenues of freight railway undertakings**  
Per train km in national currency; Weighted; Indexed (2010=100)

Country	2010	2011	2012	2013	2014
LV	100,0	107,8	108,0	100,7	107,7
DE	100,0	99,6	103,0	104,1	105,4
<b>Total</b>	<b>100,0</b>	<b>100,1</b>	<b>101,5</b>	<b>100,7</b>	<b>101,2</b>
UK	100,0	99,1	99,6	93,5	96,6
PL	100,0	100,7	95,6	98,0	96,0
HU	100,0	94,9	100,9	88,7	93,2
HR	100,0	106,1	99,5	94,8	93,2
AT	100,0	102,1	103,6	97,0	90,6

124. The total revenue per net tonne kilometre fell in most of the countries monitored between 2013 and 2014. It should be noted that in the table inflation rates have been taken into account and developments since 2010 have therefore been based on real values. The large drop in revenue per net tonne kilometre in Austria is due to increasing competition in the Austrian rail freight market.

**Figure 40 - Revenue of freight railway undertakings**  
€-Cent per net tonne km



**Figure 41 - Evolution of revenues of freight railway undertakings**  
Per net tonne km in national currency; Weighted; Indexed (2010=100)

Country	2010	2011	2012	2013	2014
LV	100,0	103,1	112,4	113,6	113,7
PL	100,0	97,5	107,8	105,3	104,2
HR	100,0	103,1	114,7	108,5	102,0
DE	100,0	99,9	100,0	99,7	101,3
<b>Total</b>	<b>100,0</b>	<b>98,6</b>	<b>101,5</b>	<b>99,4</b>	<b>99,1</b>
UK	100,0	94,9	94,1	87,2	89,4
HU	100,0	81,4	90,7	88,7	86,6
AT	100,0	100,7	94,8	87,5	79,1

## 7. Service facilities

125. This section of the report presents the findings of IRG-Rail on the monitoring of several service facilities; namely passenger stations, freight terminals, marshalling yards, maintenance facilities and refuelling facilities. The indicators for the description of the market in service facilities started to be collected in 2012. Data on service facilities in Italy are included for the first time in this report.
126. The evaluations of service facilities are mainly based on three indicators; the number of facilities, the number of operators and the type of operators.
127. Operators of service facilities are divided into two types:
- 1) Incumbent railway undertaking or a company which is related to this incumbent railway undertaking. This can for instance include an integrated infrastructure manager, another company that is under direct control of the incumbent railway undertaking or a sister company.
  - 2) All other companies. This can cover:
    - an infrastructure manager not related to any railway undertaking;
    - an integrated railway undertaking and infrastructure manager that is not an incumbent railway undertaking. An example is the freight terminal Bilk, in Hungary, that belongs to the Austrian integrated railway group ÖBB;
    - a railway undertaking that is not an incumbent railway undertaking;
    - a service operator that is not a railway undertaking or an infrastructure manager.
128. This classification is aimed at highlighting the cases where incumbent railway undertakings operate service facilities, as they may have economic incentives to limit access to those facilities for competitors.
129. In some cases there may be joint ownership or daily management of a service facility by an incumbent railway undertaking and another company, for example an independent but not related infrastructure manager. In these cases, classification is done according to the company which actually grants and refuses access to the service facility.
130. Additional information is provided in Annex 7, notably correlation figures.

### 7.1. Passenger stations

131. A passenger station is defined as any location where passengers can embark or disembark the train. For the purposes of this report we define the operator of the station as the company granting a railway undertaking access to the track and platforms of a station. This might be a different company than the company granting access to the spaces in station used by a railway undertaking for ticketing sales or passenger assistance. The data refers, when available, to all operators that are providing services<sup>16</sup> to railway undertakings within the stations. In Sweden and in Italy the infrastructure manager operates, directly or through controlled companies, the larger stations but smaller stations have often a more complex

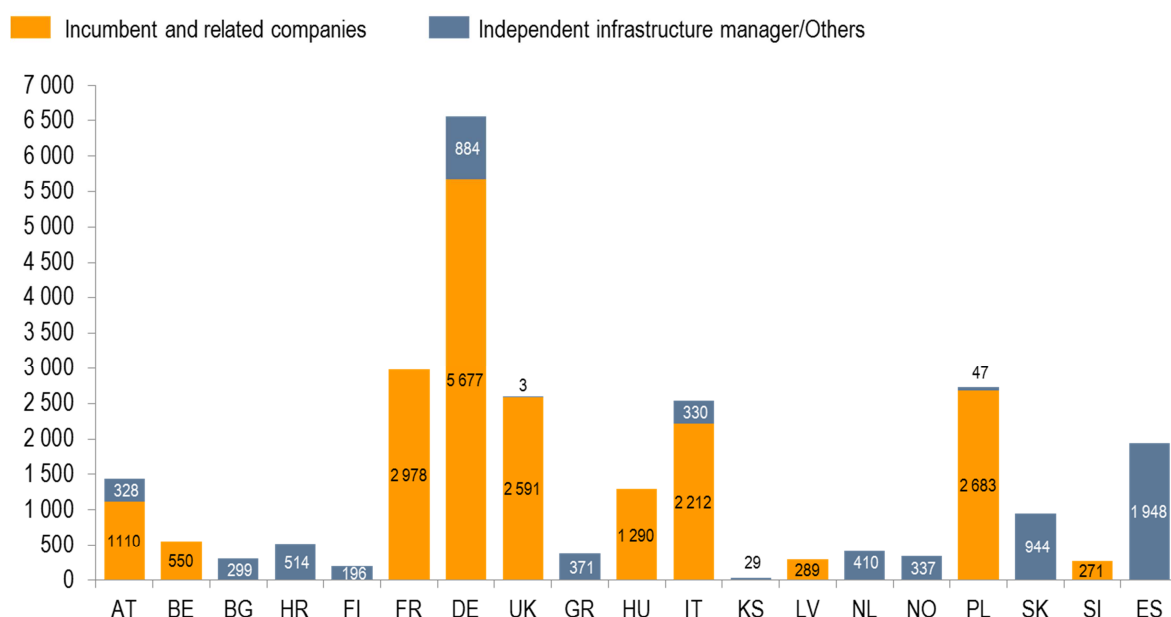
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<sup>16</sup> These are the services listed in Directive 2012/34/EU establishing a single European railway area (the Recast)

picture of ownership and management with local government entities in combination with the infrastructure manager operating stations<sup>17</sup>.

132. Figure 42 shows that in five countries out of 19, stations are exclusively operated by the incumbent railway undertaking or related companies. There are eight countries where stations are run by independent operators and six cases where both incumbent and independent types of operators are present. In Finland the infrastructure manager (Finnish Transport Agency) manages all 196 stations. In the UK stations are owned by the infrastructure manager, but most of them are leased and operated by a railway undertaking.
133. Compared to 2013 only one country has seen the number of stations changed by more than 2%: this was Bulgaria with a decrease of 3%. In three countries the number of stations decreased (France, Greece and Latvia) by 1%, whereas in the Netherlands the number increased by 1%.

**Figure 42 - Number of passenger stations**

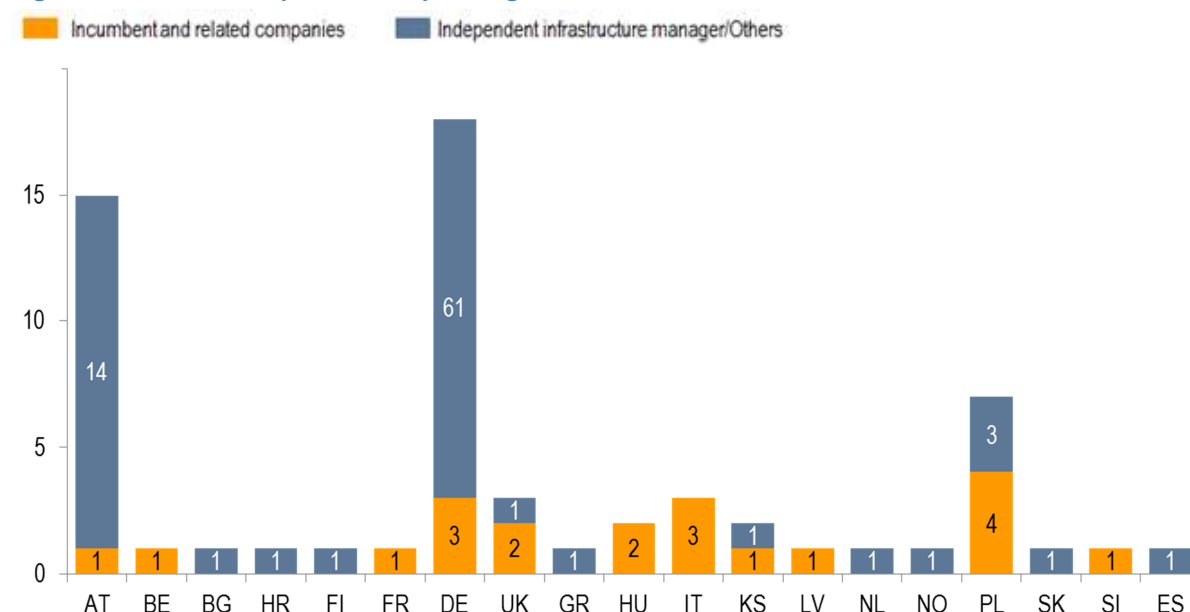


134. Figure 43 shows that Austria<sup>18</sup> and Germany have the largest number of operators of stations, 15 and 64 respectively. The majority of other countries (16 out of 19) have no more than three operators of stations.

<sup>17</sup> For Italy the data displayed in Figure 42 refer to the stations served by the national railway network, and do not include stations of the local regional railway networks.

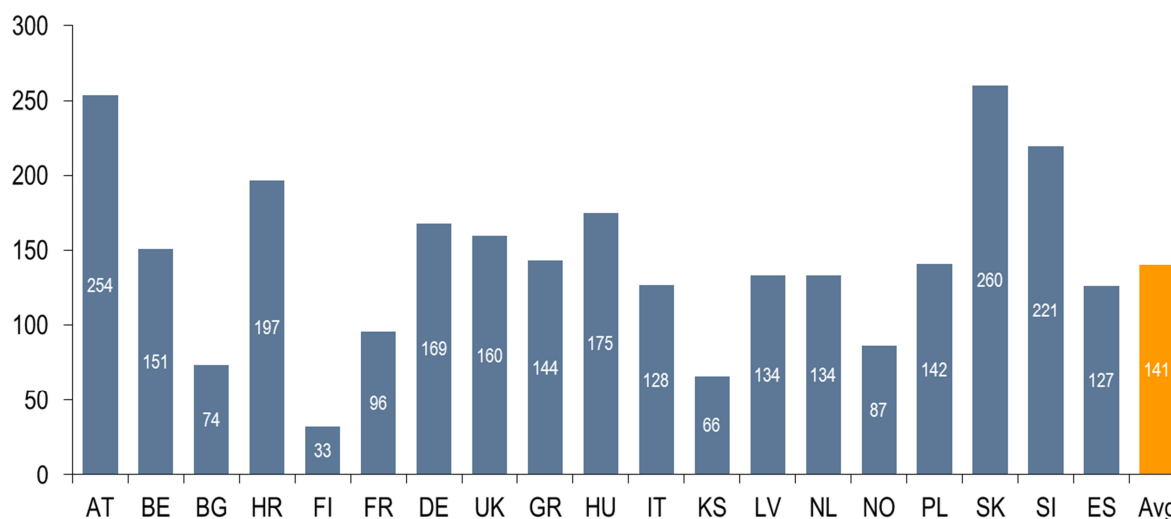
<sup>18</sup> In Austria there are nine integrated railway undertakings with their own infrastructure and stations. These are not related to the incumbent and therefore listed separately.

**Figure 43 - Number of operators for passenger stations**



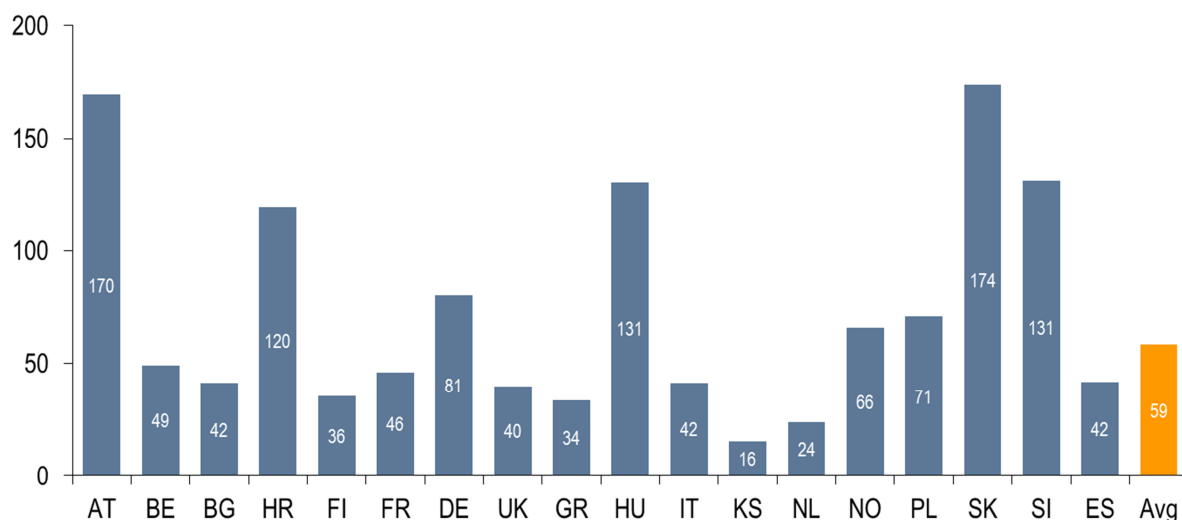
135. The average station density amongst the countries monitored is 141 stations per thousand route kilometres. The highest density is displayed by Slovakia (260) and Austria (254). Bulgaria, Finland, Kosovo and Norway show a relatively low station density, meaning that the distance between stations is long. This is an expected result in large countries with a low population density, for example Finland and Norway.

**Figure 44 - Station density in relation to network length**  
Number of passenger stations per thousand route kilometre



136. Figure 45 shows that the average station density amongst the countries measured is 59 stations per million residents. The highest values are displayed for Slovakia (174), Austria (170), Hungary and Slovenia (131) while Croatia shows 120 stations per million residents. The majority of the other countries are closer to the mean value (59), with the exception of Kosovo (16), Greece (34) and Finland (36).

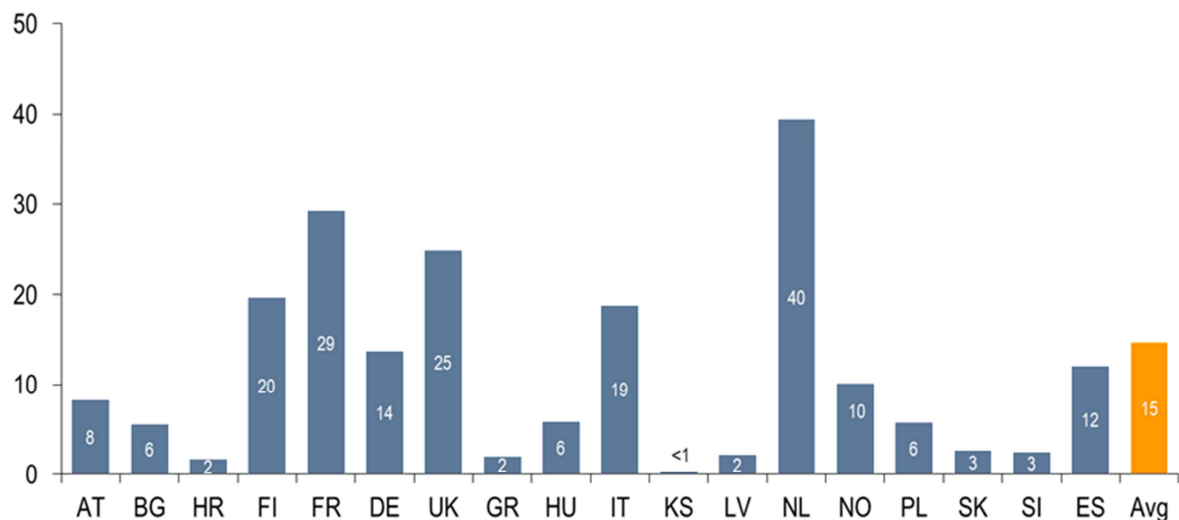
**Figure 45 - Stations density in relation to population**  
**Number of passenger stations per Mio. residents**



137. Figure 46 shows the passenger stations travelling intensity.<sup>19</sup> A high station travelling intensity means that there are relatively large numbers of passengers (passenger train kilometres) that are served by the stations in that country. On average, there are 15 million passenger train kilometres per year per passenger station in the countries measured, which is consistent with the previous year.
138. In general, it can be noticed that countries characterised by higher station density display a lower value of station travelling intensity; for example countries such as Austria, Croatia, Hungary, Slovakia and Slovenia.
139. For Kosovo both indexes are low, meaning that in 2014 fewer passengers travelled by train compared to the other countries. The low use of rail by passengers might be due to a low frequency of trains on the main lines (two trains per day), which encourages commuters onto other forms of transport.

<sup>19</sup> For France and the United Kingdom the numbers may be biased by the very large stations of London and Paris. As a consequence, the average passenger station travelling intensity for stations outside Paris and London may be much lower than the figure presented. For Italy, the number of passenger train kilometres refers only to national railway network, as well as the number of stations.

**Figure 46 - Average million passenger kilometres per station**  
**Mio. Passenger km per passenger station**



140. Annex includes correlations between the total passenger train kilometres and the number of passenger stations, and also between total passenger kilometres and the number of passenger stations.

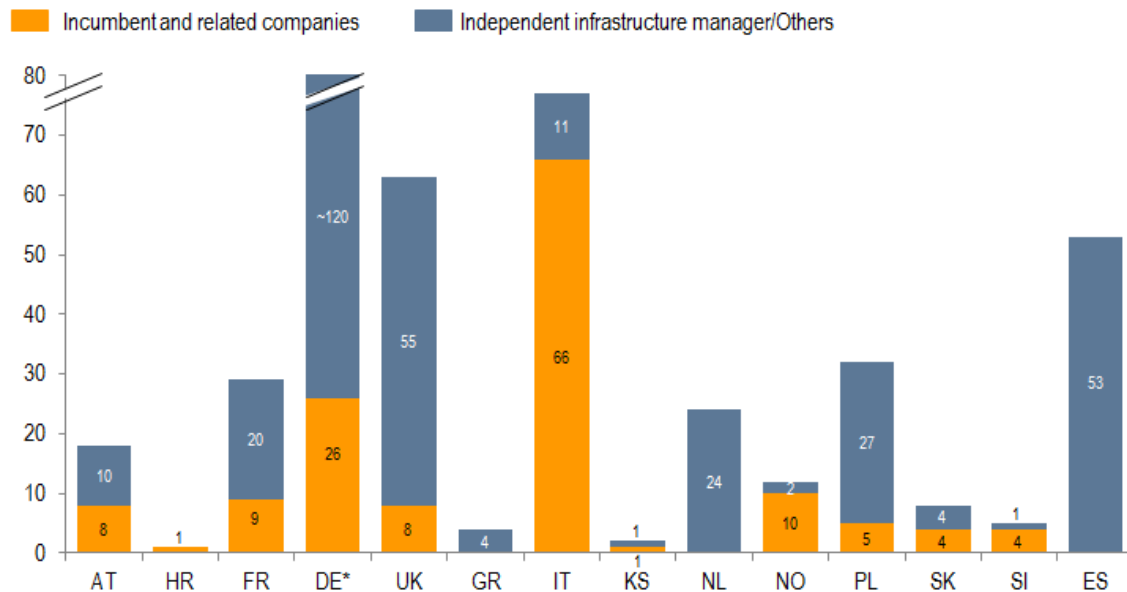
## 7.2. Freight terminals

141. IRG-Rail has collected the number of specifically built intermodal freight terminals as a distinct indicator from the more general indicator of freight terminals. The data are illustrated in Figure 47 and Figure 48 below.

142. Germany has the highest number of intermodal terminals (with about 140), followed by Italy (with 77). There is a high degree of variation in the number of intermodal freight terminals between the countries displayed in the Figure 47 , ranging from 1 in Croatia to about 140 in Germany.

143. Croatia, Kosovo, Greece and Slovenia have relatively few intermodal terminals (5 or fewer). These countries also have relatively few freight train kilometres. Norway also has relatively low volume of freight traffic; however there are 16 intermodal freight terminals. In France, the 29 terminals refer to combined rail/road transport sites in usage (18), rail motorways (rolling roads) (2) and harbours (9). These terminals appear in the network statement.

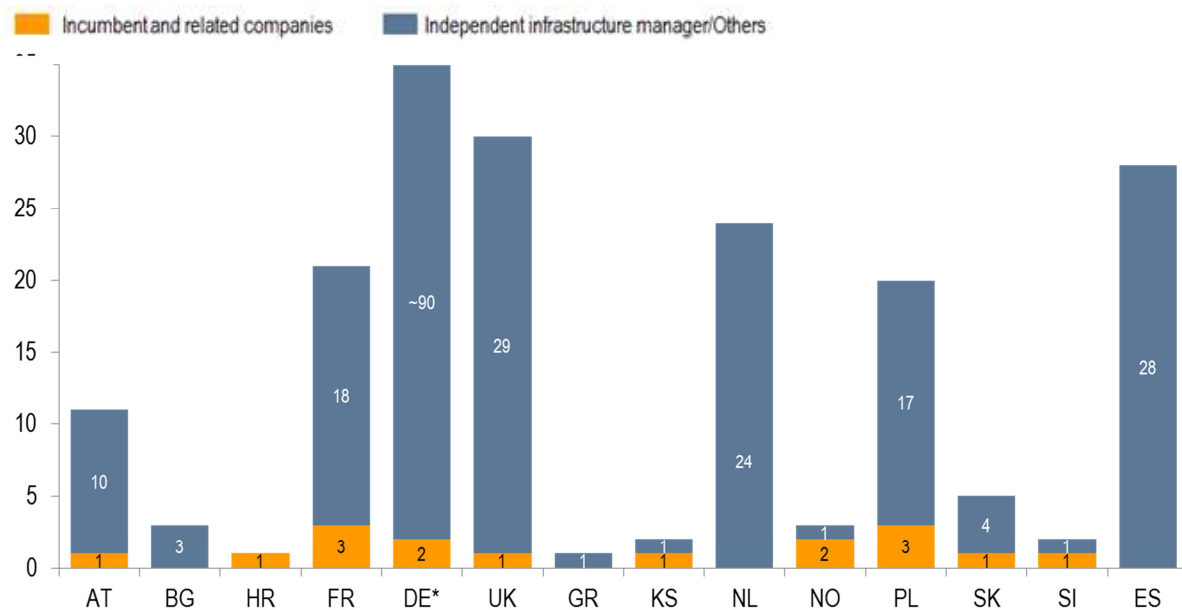
**Figure 47 - Number of Intermodal Freight Terminals**



\* About 140 – 160 intermodal terminals (thereof 26 Incumbent). The exact number is not known as most terminal operators didn't participate in the market survey yet.

144. For the majority of countries there are many other organisations with ownership of intermodal freight terminals, compared to a small number of incumbent operators. Croatia is the exception to this, where the only intermodal terminal is operated by the incumbent railway undertaking. In Bulgaria, Spain, the Netherlands and Greece, all the terminals are operated by companies which are not related to the incumbent railway undertaking.
145. In Poland, the market is quite dispersed: there are port terminals, terminals belonging to the incumbent operator (PKP), PKP-related companies, terminals owned by non-incumbent railway undertakings groups and by private logistics companies.
146. In Norway the activity of the intermodal freight terminals has been affected by a major change in 2014. Previously the incumbent railway undertaking owned most of the tracks on the terminals, while the incumbent infrastructure manager owned at least one track on each terminal. In addition two terminals were fully owned by the infrastructure manager. By the end of 2014 ownership of all of the intermodal freight terminals had been transferred to the infrastructure manager. The transfer of responsibility for operating the terminals is still ongoing.
147. In 2014 the Norwegian incumbent railway undertaking (CargoNet) was the biggest operator, and operated through its two daughter companies (RailCombi and Terminaldrift) on all freight terminals except for one. Cargolink, another freight railway undertaking, operated on 5 terminals in 2014 through its daughter company Motortransport; at four terminals Cargolink operated alongside the incumbent and as the only operator on one terminal. In general these two companies perform their own services, but to some extent also sell services to other railway undertakings.
148. In Sweden the market is vertically separated to a fairly high degree. The State owned company Jernhusen owns many of the intermodal terminals, although there have been many new entries on this market. There are 23 intermodal terminals in total, nine of which are owned by Jernhusen. The rest are owned and operated by various other companies.

**Figure 48 - Number of Intermodal Freight Terminal Operators**

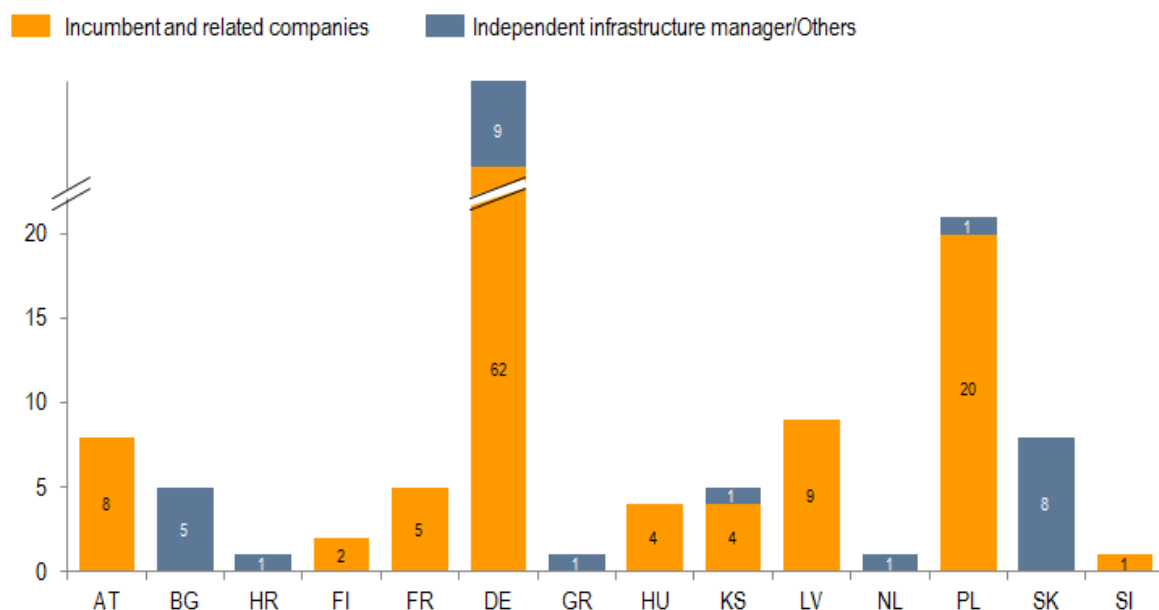


### 7.3. Marshalling yards with gravity hill

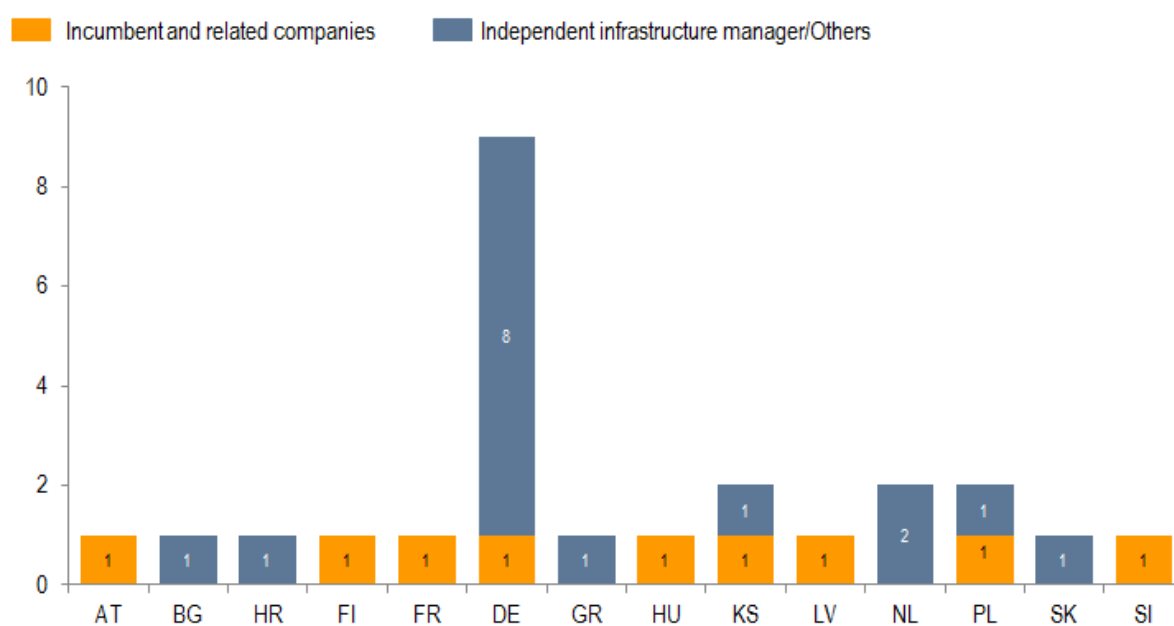
149. To facilitate the comparison of marshalling yards, IRG-Rail has identified the number of marshalling yards with gravity hills. This is a technology used to prepare freight trains, in which wagons are moved to their destination train using the influence of gravity.
150. There has been no significant evolution in the number of marshalling yards or in the management of those facilities in European countries since 2012.
151. Gravity hill technology can causes premature wear of tracks due to the free fall of heavy wagons on the same tracks, especially at turnouts. Therefore the marshalling yards require some renewal maintenance, and can be a relatively costly technology for the preparation of freight trains. However they remain in use in countries where there is a dynamic rail freight market, such as Germany or Poland. Conversely, such countries as Norway, with a moderate market of rail freight, no longer use this technology.



**Figure 49 - Number of marshalling yards with gravity hill**



**Figure 50 - Number of operators of marshalling yards with gravity hill**

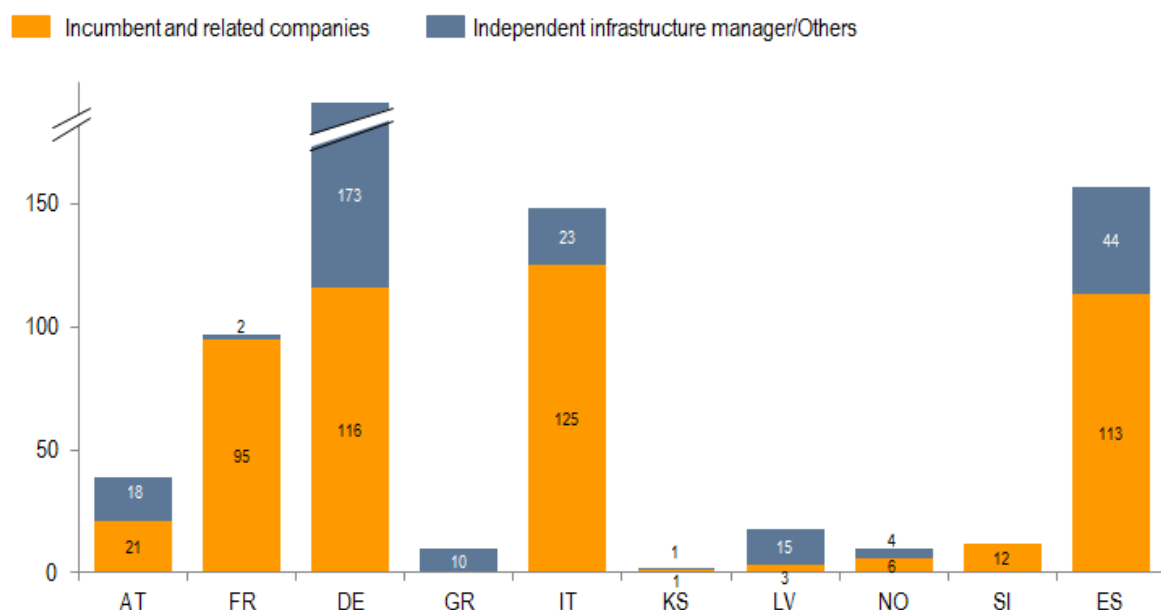


## 7.4. Maintenance facilities

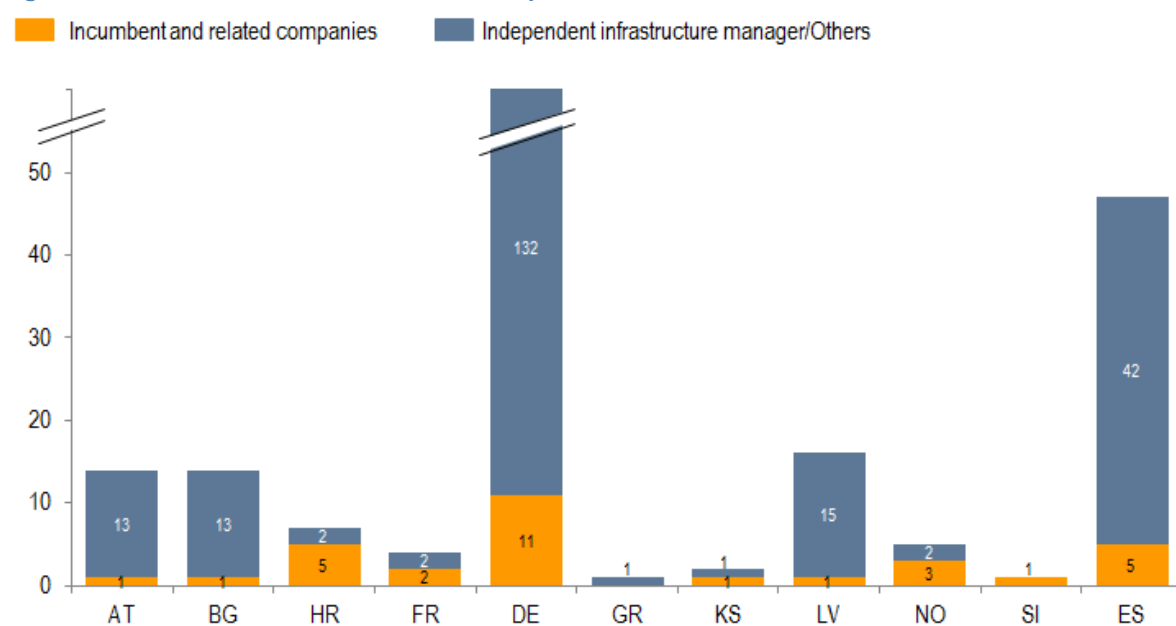
152. The number of maintenance facilities and the management of these facilities have not changed significantly since 2012 in the countries being monitored.
153. Compared to marshalling yards, there seems to be more competition in the provision of maintenance facilities. In most responding countries, independent operators of maintenance facilities outnumber the incumbent operator and its subsidiaries, although, with the exception of Germany and Latvia, they only operate a limited number of facilities.
154. Incumbent infrastructure managers may operate maintenance facilities directly or through a technical subsidiary. Incumbents and their railway undertakings subsidiaries tend to prioritise the use of their own maintenance facilities, notably when they operate abroad: trains affected

to international service are usually maintained in the home country and not through a commercial agreement in the foreign country.

**Figure 51 - Number of maintenance facilities**



**Figure 52 - Number of maintenance facilities operators**



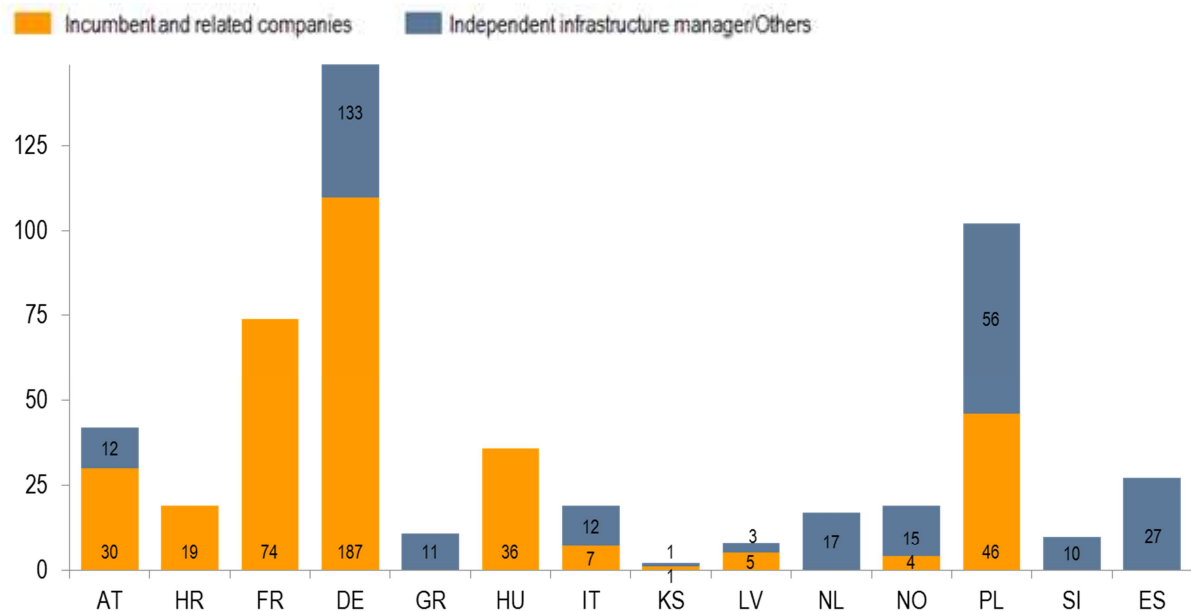
## 7.5. Refuelling facilities

155. There has not been any significant evolution in the number of refuelling facilities or in the management of these facilities since 2012 in the countries being monitored.
156. This market appears to be more competitive than marshalling yards, taking into account the fact that a majority of these facilities are operated by independent infrastructure managers. In Bulgaria, Greece, Slovenia and Spain refuelling facilities are operated exclusively by an independent infrastructure manager. Among responding countries, only France, Croatia and Hungary have no facilities operated by independent infrastructure managers.

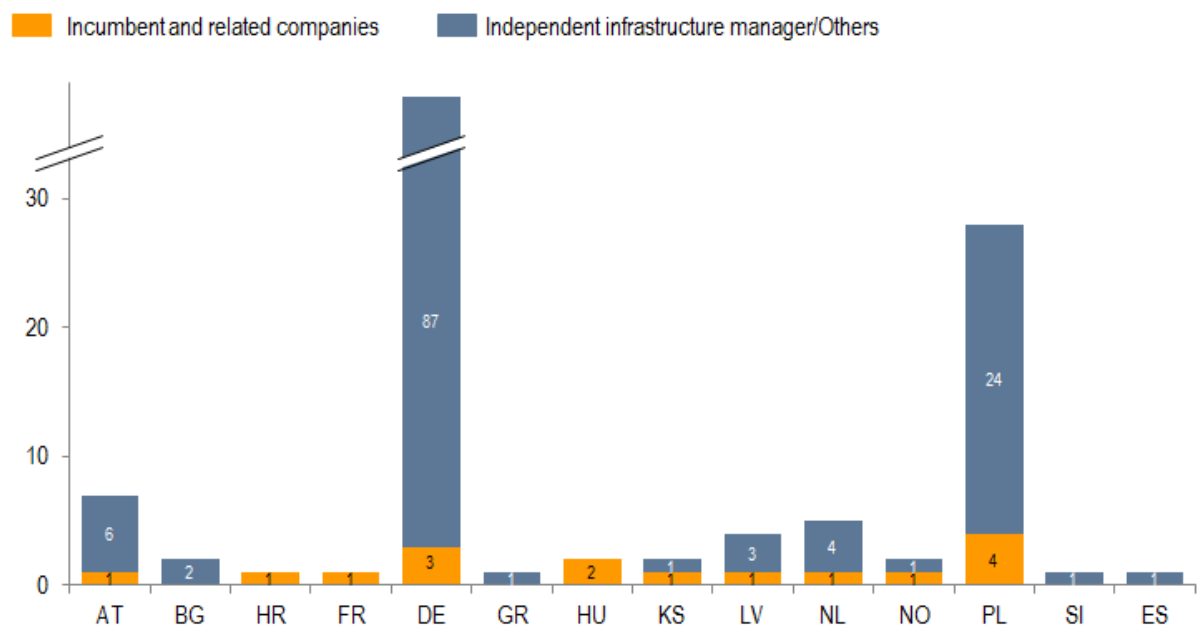
157. Among alternative operators, countries such as Poland have noted that some railway undertakings operate their own refuelling facilities that are usually not accessible to their competitors.

158. From the demand perspective, it should be noted that some railway undertakings do not exclusively use refuelling facilities for their supply. For example, reports from Norway indicate that some railway undertakings often use services of 'on-demand' tank trucks for refuelling, in addition to dedicated refuelling facilities.

**Figure 53 - Number of refuelling facilities**



**Figure 54 - Number of refuelling facilities operators**



## 8. Key regulatory decisions

159. This chapter summarizes the key decisions made by the regulatory bodies in 2014. More detailed descriptions of the decisions are given in Annex 8.




160. Regulatory bodies have adopted decisions on the following topics during the year 2014. Topics are classified by order of importance, i.e. the number of regulators having investigated or adopted a decision related to the topic.

Capacity allocation	AT - DE - FR - HU - IT - NO - PL – SI – ES - UK
Charges Service facilities	DK – HR – IT – KS – PL AT – BE – DK – HR – IT – ES - UK
Accounting separation / Finance	BE – DK – FR – IT
Framework agreement Performance regime	FR – HR – IT AT – IT – UK - ES
Safety Traffic development (RU)	BE – DE – HR PL - UK
Access to advertising spaces Tickets	IT BG

161. Note that the scope of functions covered by regulatory bodies participating in IRG-Rail differs among member states, which impacts the topics addressed in regulatory decisions.

162. The following definitions were adopted for the topics:

- ✓ **Capacity allocation:** decisions related to route planning, slot allocation and track access agreements, that either raised suspicions of discrimination between railway undertakings or that invited the infrastructure manager to implement better practices, for example access for maintenance works.

	<b>Example in Hungary</b>
The regulatory body had a procedure on track access agreements. According to national legislation, upon the request of the infrastructure managers, the regulatory body may approve the contracting parties' request to deviate from the Network Statement in the agreement. The regulatory body carried out ex-officio procedures in the area of capacity allocation: according to Hungarian law infrastructure managers must request capacity for maintenance work. The regulatory body investigated if the infrastructure manager had complied with that obligation successfully.	
	<b>Example in France</b>
Several decisions relating to path allocation were intended to provide reciprocal incentives to the infrastructure manager and railway undertakings to secure the allocation of paths. Some freight undertakings notably complained that time periods allocated to rail maintenance works were often given priority over the allocation of train paths to freight undertakings.	
	<b>Example in Germany</b>
DB Netz AG and the largest German transshipment terminal operator, Deutsche	

Umschlaggesellschaft Schiene Straße mbH (DUSS), which belongs to the DB Group, wanted to conclude usage agreements with railway undertakings only, thus cutting out the shippers.

This arrangement was prohibited by the Bundesnetzagentur, which considered that it was an unacceptable restriction of the shippers' right of access, a right which is expressly granted under section 14(2) paragraph 2 of the General Railway Act (AEG). Such exclusive agreements would deprive shippers of an essential basis for implementing their business models reliably and economically and prevent them from choosing freely between railway undertakings for the transport freight by rail. The Federal Administrative Court, as the court of last resort, confirmed the view of the Bundesnetzagentur.



#### Example in Italy

ART's Decision 70/2014 stated several requirements:

- The network statement (NS) shall include the following information for each path and slot:
  - a) infrastructure capacity;
  - b) share of capacity already allocated with existing Framework agreements;
  - c) share of capacity that is allocated to the railway undertakings during the current year.
- The infrastructure manager shall update the NS, taking into account the following criteria:
  - a) deletion of the 70% threshold on the network-wide total capacity that can be allocated under Framework Agreements;
  - b) new threshold of 85% for the network capacity (for each path and slot) that can be allocated under Framework agreements;
  - c) 100% of available capacity that is allocated to the same railway undertaking when there are no request left unsatisfied;
  - d) safeguard clauses in the Framework agreements to protect the right of new entrants to access the railway infrastructure in terms of capacity.

- ✓ **Charges:** decisions related to the level and method of calculation of charges for accessing the railway network.



#### Example in Poland

The decision approving the charges of the national infrastructure manager (PKP PLK) took into account the new Polish regulations (The Regulation of the Minister of Infrastructure on Terms of Access and Use of Infrastructure of 16 June 2014). This regulation implemented Directive 2012/34/EU. The President of UTK (regulatory body) made 10 decisions refusing to approve the charges (of which one was for PKP PLK). In these cases, the last approved charges were applicable.



#### Example in Italy

ART's Decision 70/2014<sup>20</sup> specified that:

<sup>20</sup> On 13 November 2015, ART issued a new regulation on the access charges for the minimum access package for the national infrastructure network and services facilities (Decision 96/2015). As for the latter, it was distinguished between services facility operators with a significant market power, subject to a stricter regulatory regime, and other services facility operators with less regulatory requirements. After a transitional regime, the new access charges will be applied by the IM from 10 June 2017 to the end of the regulatory period, i.e. 9 December 2021.

Based on Decision n. 61/2015 of 31 July 2015, ART submitted to public consultation a set of measures to define the criteria for determining access charges (fees) for the use of the rail infrastructure so as to connect the charges with the costs and investments net of Government funding, based on principles of transparency, accountability and accounting separation.

These measures concern not only the criteria for determining access charges for the use of the railway infrastructure, both on the conventional network and on high speed/high capacity networks (so-called "Minimum Access Package" services), but also

- For the calculation of access charges, the infrastructure manager shall consider – in addition to the infrastructure management cost, properly re-modulated - only the following annual financial costs for investment suitably optimized in line with the best market conditions:
  - a) the annual share of the financial cost directly borne by the infrastructure manager for investments made as at 31/12/2013, not covered by public funding;
  - b) the annual share of the financial cost for investments made after 31/12/2013, net of public funding.
- Based on the above criteria, the actual access charge for high-speed lines has been set by the infrastructure manager at 8.2 euro/km (with a decrease of 36%).
- The infrastructure manager shall reduce the access charges for high speed passenger services for empty rolling stock movements (non-commercial trains).

- ✓ **Service facilities:** decisions related to the regulation or dispute settlement regarding access to railway service facilities.



#### Example in Austria

A dispute involved a railway undertaking that was refused the use of a maintenance facility because it wanted to deploy its own personnel. The enterprise that operated the maintenance facility did not agree as it wanted to offer its maintenance facility only in combination with the performance of the maintenance services with its own personnel, rather than just give access for the use of the maintenance facility as such. Following negotiations before Schienen-Control Kommission (the Austrian regulatory body), an agreement was reached settling the dispute and the procedure was therefore closed.



#### Example in Italy

ART's decision 70/2014 specified that:

- After consultation with the stakeholders, the infrastructure manager shall publish a Model Agreement for the provision of shunting services to be signed by the Facility Operator and the railway undertaking, based on the following criteria:
  - a) binding timeframe for dealing with requests for access to the facility;
  - b) detailed list of the main services provided by the Facility Operator and their characteristics (train terminalisation with or without composition/decomposition, coupling/uncoupling locomotive, addition/removal of carriage/wagon, piloting/towing train locomotives, etc.);
  - c) SLA, monitoring system of the quality of the services, adequate system of penalties where the quality levels offered are below the agreed standard.
- After consultation with the stakeholders, the infrastructure manager shall draw up and publish a draft locomotive lease agreement for the provision of shunting services to other railway undertakings, under fair and non-discriminatory conditions as regards fees and timeframes, either by direct supply of the services by the leaseholder or by delivery of locomotives to other railway undertakings for the time required for carrying out the shunting services.

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the criteria for setting the charges for RUs' access to other facilities and services, such as those at passenger stations and terminals for freight transport. The consultation period ended on 25 September 2015.

- ✓ **Accounting separation / finance:** decisions related to the control and regulation of financial accounting separation of activities within the incumbent and/or the infrastructure manager.



#### Example in Denmark

The regulatory body determined supervisory measures related to how the incumbent railway company (DSB) ensures adequate separation between the main business areas within the DSB Group, where rail transport is carried out as public service traffic, and DSB Group's commercial and competitive lines of business (JN36-00003). The Board of the Regulatory Body concluded that:

- the DSB management documents specified methods of setting prices for transactions within the Group under the arm's length principles were consistent with the generally accepted methods of determining market prices,
- the methods for price setting combined with the DSB established procedures for documentation relating to contracts were sufficient to meet the documentation requirements laid down by the regulatory framework,
- DSB's procedures with respect to implementing internal controls involving the company's internal trade team, its finance department, the checking of costing etc. were suitable for the support thereof also over extended periods of time.

- ✓ **Framework agreement:** decision related to the assessment and regulation of the network statement.



#### Example in Croatia

HŽ Passenger transport appealed against Network Statement (NS) 2015. Complainants were arguing the following: every fact in the NS 2015 should be evidenced with certain public documents; that there was no transparent use of storage sidings for rolling stock, that the charges for the minimum access package were not valid as they were not produce as the result of negotiations and there was no decision on the level of charges on fuel supply. The Croatian regulatory body (HAKOM) partially accepted this complaint and as a result annulled the provisions of the NS 2015 regarding refuelling facilities and the supply of fuel in these facilities because the provision of these services was not transparently described.



#### Example in Italy

ART's decision 70/2014 specified that:

- The infrastructure manager shall adopt a Model Framework Agreement to be used by undertakings to request capacity for operating railway passenger transport services provided under PSOs. Such model shall comply with the following principles:

- duration in line with the service contract entered into with the Railway Undertakings operating local public transport services;
- definition of a structured system of services, if necessary characterized by schedules and connections at network nodes and integrated with other transport modes;
- network maintenance;
- priority in the annual capacity allocation;
- reduced penalties for failure to enter into contract or use paths;
- asset registry of service facilities;
- conditions concerning reduced penalties for failure to enter into contract or use paths;
- quality indices for the services provided by the infrastructure manager (e.g.

commercial speed guaranteed for each track/path).

- ✓ **Performance regime:** decisions related to performance regime of the infrastructure managers (e.g., performance-based fee components).



#### Example in the United Kingdom

ORR, the regulatory body, published the conclusion of its investigation of Network Rail's performance against funded obligations between 2009 and 2014 for Scotland, England and Wales. ORR's analysis identified a number of successes, but also found some significant shortfalls, in particular the performance of passenger services and progress of enhancement projects. The 15.5% efficiency savings reported were 8.0 percentage points lower than the 23.5% efficiency savings that Network Rail had agreed to deliver. This meant that Network Rail faced a greater challenge to deliver the further 19.4% of efficiency savings on operations, maintenance and renewals that the company had been funded to deliver by 2019. National train punctuality was 89.1% (0.7% short of the expected level). Network Rail also delivered less work than it planned in both maintaining and renewing the network. Network Rail failed to make the expected progress in the early stages of certain enhancements projects. ORR requested that Network Rail produce an improvement plan to demonstrate how it would make up for these delays.



#### Example in Italy

ART's decision 70/2014 stated that:

-The infrastructure manager shall implement a new *Performance Regime*, namely a new incentive scheme, to discourage delays in accordance with the following criteria:

- registration of delays not only at the final destination, but also in other intermediate stations/points of the network;
- no tolerance thresholds for delays;
- increased penalty computed for each minute of delay, that can be differentiated depending on the type of traffic (freight or passengers);
- application of an increased penalty after a delay of 60 minutes and another increased penalty after a delay of 120 minutes;
- transparency-oriented criteria for calculating delays and allocating responsibility between the infrastructure manager and/or the railway undertakings;
- assignment of a conventional delay of 120 minutes for each deleted train.

The new *Performance Regime* should follow a consultation process with the stakeholders, including consumers' associations.

- ✓ **Safety:** decisions related to evolutions of network management in the framework of a railway accident or related to license attributions.



#### Example in Belgium

The regulatory body adopted its Decision no D-2014-02-S of 19 December 2014 concerning the monitoring mission of a possible transfer of railway infrastructure capacity between NMBS Logistics and DB Schenker Rail Nederland in the framework of the railway accident at Wetteren.



#### Example in Croatia



The regulatory body carried out two ex-officio investigations, both concerning the process for obtaining a safety certificate and a licence. Under this process the railway undertaking had demanded from both monopolistic operators cooperation on test driving, but this request had been rejected. The problem was related to training on two locomotives which is one of the conditions for obtaining part B of the safety certificate. The railway undertaking decided to rent two authorised locomotives from a specialized company. This situation was resolved and the potential undertaking was able to test drive the locomotives and got a safety certificate and licence.



#### Example in Germany

In 2014 the Bundesnetzagentur continued to be concerned with problems related to the staffing of signal boxes and resulting impairments of access to the rail network. The impairments that were due to understaffing at the Mainz Central Station signal box were followed by proceedings which were brought to a successful conclusion once the DB Netz AG's necessary staff qualifications plan was drawn up and implemented. The notice issued by the Bundesnetzagentur to DB Netz AG on 15 August 2013 became legally valid.

- ✓ **Traffic development:** decisions related to the authorization or restrictions of railway undertakings traffic development (open access or franchised).



#### Example in the United Kingdom

ORR approved an application from Virgin Trains to extend some of its existing services operating between London and the Midlands, to provide direct trains to Shrewsbury and Blackpool from December 2014.

- ✓ **Access to advertising spaces:** decision related to the access of advertising spaces in railway stations.



#### Example in Italy

ART's decision 70/2014 determined that:

Each railway undertaking operating passenger services is entitled to promote its services and access advertising spaces in the required station under sustainable and non-discriminatory conditions compared to competing railway undertakings.

- ✓ **Tickets:** decision related to an identified problem of ticket issuing and consumer information in railway stations.



#### Example in Bulgaria

A scheduled inspection on the activities of BDZ - Passenger Services Ltd. was performed by the Railway Administration Executive Agency (RAEA) investigating problems in the issuing of tickets, lack of information, poor quality of services, poor hygiene conditions and overcrowding on trains. After an inspection, a determination was made to eliminate the problems. This required non-performing stations and stops to ensure information is placed at a visible location and in appropriate manner, establishing the possibility of purchasing tickets via telephone or the internet or on board the train, and setting a procedure for such

purchases, as well as information on the nearest station with an available ticket office, in accordance with article 9 paragraph 5 of Regulation 1371/2007.

A scheduled inspection was performed by RAEA on the activities of the infrastructure manager (NRIC), as described in the Network Statement. As a result, a decision was issued to eliminate some irregularities. Currently an inspection for the implementation of the prescription is being performed. The inspections of BDZ - Passenger Services Ltd. on the rights and obligations of passengers have been carried out.