



IRG-Rail (15) 2

Independent Regulators' Group – Rail

IRG–Rail

3rd Annual Market Monitoring Report 2014

3 April 2015

Index

List of figures.....	3
Country abbreviations	5
1 Summary of Findings.....	6
2 Introduction.....	8
3 Aim of the Report.....	9
4 Methodology	10
5 Findings.....	12
5.1 Market Structure	12
5.2 Infrastructure	19
5.3 Passenger Market.....	25
5.4 Freight Market	31
5.5 Service facilities.....	35
5.5.1 Passenger Stations.....	36
5.5.2 Freight Terminals.....	40
5.5.3 Marshalling Yards.....	41
5.5.4 Maintenance Facilities	43
5.5.5 Refuelling Facilities.....	45
5.6 Key decisions of Regulatory Bodies.....	47

List of figures

Figure 1: Total rail traffic	12
Figure 2: Freight and passenger train kilometres; share of international train kilometres	13
Figure 3: Development of freight and passenger train kilometres	14
Figure 4: Network use by type of traffic	16
Figure 5: Number of active railway undertakings in the years 2011-2013.....	17
Figure 6: Number of active railway undertakings in 2013 by type of traffic	18
Figure 7: Route length in kilometres.....	19
Figure 8: Route length - Percentage electrified and percentage incumbent	20
Figure 9: Network usage intensity	20
Figure 10: Average revenue from track access charges from the minimum access package	21
Figure 11: Development of average infrastructure manager revenue from track charges per kilometre for freight	23
Figure 12: Development of average infrastructure manager revenue from track charges per kilometre for passenger services	24
Figure 13: Market shares of passenger train companies	25
Figure 14: Passenger traffic performance	26
Figure 15: Evolution of passenger transport performance 2010-2013	27
Figure 16: Revenue of passenger railway undertakings.....	28
Figure 17: Sources of revenues of passenger railway undertakings.....	28
Figure 18: Rail travelling costs for passengers.....	29
Figure 19: Distance travelled per resident per year.....	30
Figure 20: Freight tonne kilometres.....	31
Figure 21: Evolution of freight transport performance 2010-2013.....	32
Figure 22: Market shares of freight railway undertakings	33
Figure 23: Revenue of freight railway undertakings	34
Figure 24: Revenue of freight railway undertakings per net tonne kilometre	34
Figure 25: Number of passenger stations	36
Figure 26: Number of operators for passenger stations	36
Figure 27: Station density in relation to network length	37
Figure 28: Correlation between route length and number of passenger stations	38
Figure 29: Station density in relation to population	38
Figure 30: Average million passenger kilometres per passenger station	39
Figure 31: Number of Intermodal Freight Terminals	40
Figure 32: Number of Intermodal Freight Terminal Operators	40
Figure 33: Number of marshalling yards with gravity hill	41
Figure 34: Correlation between freight traffic and number of marshalling yards with gravity hills	42
Figure 35: Number of operators of marshalling yards with gravity hill.....	42
Figure 36: Number of maintenance facilities	43
Figure 37: Number of operators of maintenance facilities	43

Figure 38: Number of refuelling facilities 45

Figure 39: Number of operators of refuelling facilities 45

Figure 40: Correlation between total train kilometres and
 number of refuelling facilities 46

Country abbreviations

AT	Austria
BE	Belgium
BG	Bulgaria
HR	Croatia
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
DE	Germany
UK	United Kingdom (Great Britain and Northern Ireland)
GR	Greece
HU	Hungary
KS	Kosovo
LV	Latvia
LU	Luxembourg
MK	FYROM (Former Yugoslav Republic of Macedonia)
NL	Netherlands
NO	Norway
PL	Poland
SK	Slovakia
SI	Slovenia
SE	Sweden

1 Summary of Findings

1. IRG-Rail welcomes the participation of another three countries to the market monitoring report with Kosovo, Bulgaria and Spain providing data for the first time, therefore this year's report is based on the data of 20 countries.
2. Overall both freight train kilometres and passenger kilometres decreased by 0.5 percentage points compared to 2012 whilst infrastructure managers' average revenues from track access charges increased both for freight (+0.3 percentage points) and for passenger (+0.5 percentage points) train kilometre.

Charges

3. In 2013, most countries had higher revenues from track access charges per freight train kilometre than per passenger train kilometre. Nevertheless the average of all reported figures was € 2.87 per freight train kilometre and € 4.31 per passenger train kilometre. This disparity might be due to the fact that the three largest countries in terms of train kilometres had higher passenger charges than freight charges. Compared to the base year 2010, revenues from track access charges per freight train kilometre fell by 2.2 % whilst charges per passenger train kilometre increased by 8.2 %

Passenger

4. 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.
5. In respect of passenger train kilometres in 2013, Sweden had the strongest growth (+7.2 %). The largest decrease was in Croatia (-8 %) due to a decline in international traffic.
6. In most countries the market share of the incumbent passenger operator declined in 2013. The strongest growth of non-incumbent operators was registered in Austria and Poland. Generally the ratio is heterogeneous within the reporting countries. Overall the share of the non-incumbent increased to 30 %. This average is largely driven by the United Kingdom with 1 % incumbent and Poland with 47 % share of the incumbent.
7. Compared to 2012, passenger transport performance (passenger kilometres) in most countries was stable or increased. This could be due to various factors, including longer trains and more seats occupied. Most countries also noticed an increase or stabilisation in the number of train kilometres.
8. There was no general trend in the evolution of revenues of passenger railway undertakings. In the majority of the countries monitored, public compensation payments represented the large proportion of revenue for railway undertakings. The most notable change took place in the United Kingdom which was the only country with a negative value for public compensation payments because the government received a net payment from train operating companies.

Freight

9. In 2013, 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 freight transport performance in tonne kilometres is 1.8 % higher than the value of the base

year (2010) and only saw a marginal increase compared to 2013. The only country to see growth in all years since 2010 is the United Kingdom. The biggest growth in freight train performance in 2013 was observed in Slovenia where growth exceeded 10 % and the market of railway freight transport is developing well.

10. The market share of competitors increased in the majority of countries with competitors holding a 32 % share of the market. The highest competitor market share was observed in the United Kingdom with 55 %.
11. The revenue per freight train kilometre and per net tonne kilometre was either stable or decreased in most countries monitored in 2013.

Service facilities

12. In most countries 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 Belgium, France, Hungary and Slovenia only incumbent railway undertakings operate passenger stations implying that competitors depend on these operators for access.
13. On average in 2013 there were 137 passenger stations per thousand route kilometre and 61 stations per million residents. Higher passenger station density was observed in countries where population is spread over a larger area like Austria, Slovakia and Slovenia.
14. Unlike 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. Exceptions are Croatia and Slovenia, where all four intermodal terminals are operated by the incumbent railway undertaking or a related company.
15. 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.

2 Introduction

16. 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.
17. 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.
18. The present report is the third market monitoring report of IRG-Rail and covers the year 2013 unless stated otherwise. Besides the focus on market monitoring results of certain rail-related services, this years' report concentrates on the development of charges.

3 Aim of the Report

19. 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.
20. 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 detailed source of information for stakeholders.

4 Methodology

21. 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 were the focus of last year's report. This third IRG-Rail report on the data of 2013 sets the focus on charges.
22. 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 process¹. Further work and exchange was done in 2014 with regards to data quality standards.
23. The next period of data collection is scheduled for summer 2015. In next year's market monitoring report IRG-Rail intends to continue and intensify the implementation of time series analyses in the railway market, covering data from 2010 to 2014. Furthermore IRG-Rail will seek to improve the analysis of service facilities. IRG-Rail plans to expand the focus to more types of facilities as well as identify and evaluate systematically the differences between national markets.
24. 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.
25. In total there are almost 100 indicators used to evaluate the European rail market. The main focus has been on competition and on infrastructure charges. In addition IRG-Rail has used the indicators to derive further key figures (e.g. average number of passengers per train). An overview of the indicators for rail transport and for rail-related services can be found in Annex 2 to this report.
26. As mentioned above, this third monitoring report focuses in particular on the analysis of track access charges. IRG-Rail emphasises that for the purpose of this report, track access charges are understood as the total revenues from track access charges for the minimum access package divided by the total passenger/freight train kilometres.
27. 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. Not all regulatory bodies participated in the survey. Consequently the report does not cover the Eurostat EU28. On the other hand the IRG-Rail report includes some countries outside EU28 such as Macedonia² and Norway. Several countries have not been able to provide a full set of data to IRG-Rail and this is mentioned in the conclusions of this report. 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 are given on an indicative basis and may not always cover the whole phenomena.

¹ Available at <http://www.irk-rail.eu/public-documents/2013/>

² The official name of Macedonia is FYROM (Former Yugoslav Republic of Macedonia). The name Macedonia will be used for FYROM from this point.

28. 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.
29. In the previous report time-series analyses were carried out for the first time. These time-series have been updated and are presented in development tables either as absolute values or as indexed values. The financial data used for time-series analyses in this report is in nominal 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 developments³. For the countries where Euro is not the national currency, average exchange rates for the respective years have been used for conversion. Evolution over time is shown as the actual value of 2013 compared to 2012 with a trend indicator. In this report, besides a descriptive statement 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.
30. 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. Therefore averages may be driven by one or two countries with large railway infrastructure and train kilometres. Developments from the previous reporting year to the actual reporting year are shown as arrows above the graphs. The arrow points up at a threshold of +2 % and down at -2 %. For all other values within this range the arrow will remain in a neutral position.

³ Hungary for example calculated the charges per train kilometre using the official HUF/EUR exchange rate of the given year (yearly average), which showed significant fluctuations in recent years. Thus changes observed in charges for Hungary are more the consequence of different exchange rates than changes in the level of charges.

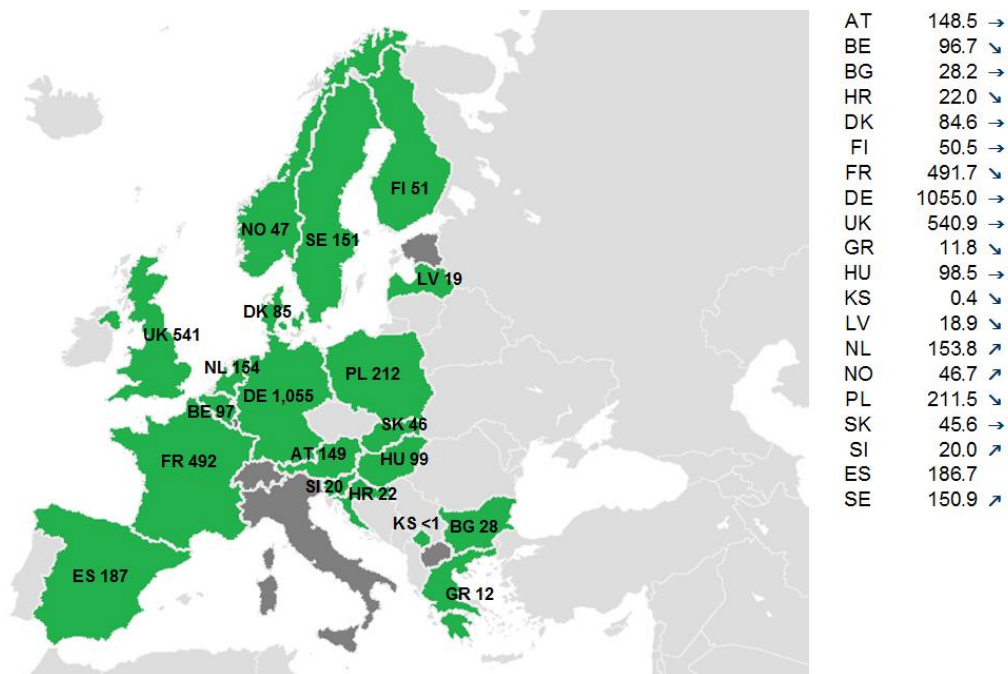
5 Findings

5.1 Market Structure

31. This section provides some background information on the current status of rail markets in the countries monitored. It mainly covers figures concerning train kilometres, their division into freight and passenger markets and developments, not only in relation to 2013, but over the period 2010-2013. At the end of the section, data about the number of active railway undertakings (divided for the first time in IRG-Rail report into freight and passenger) can be found. This can be treated as one of the indicators of openness of respective markets.

Figure 1: Total rail traffic

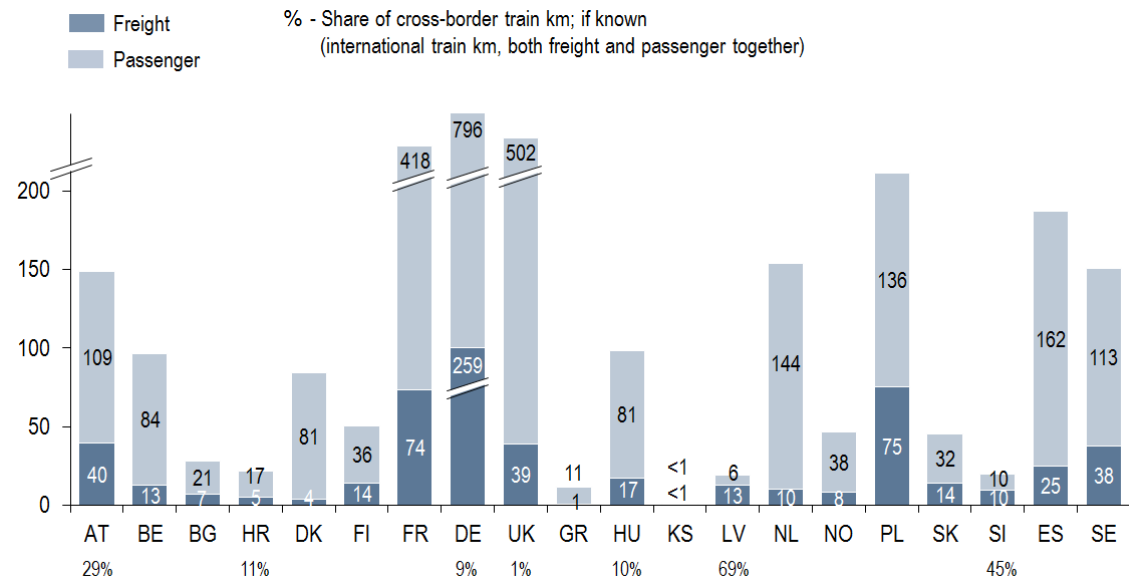
In mio. train kilometre



32. The figure above 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.

Figure 2: Freight and passenger train kilometres; share of international train kilometres

In mio. train kilometre



33. Figure 2 shows the national railway markets in terms of train kilometres with a division into freight and passenger transport. Germany constitutes the biggest passenger market, followed by the United Kingdom and France. Those three nations consistently have the highest volume of passenger train kilometres. Excluding those three, Spain's market is the largest in terms of passenger train kilometres and after an increase in the Netherlands and a decrease in Poland, the passenger market of the former became bigger than of the latter.
34. In terms of freight train kilometres, the German market is the biggest, with Poland and France the next largest markets. Most countries did not provide data about the share of international train kilometres, but it is worth noting that in Latvia it constitutes almost 70 % of all train kilometres.

Figure 3: Development of freight and passenger train kilometres

Weighted index; 2010 = 100

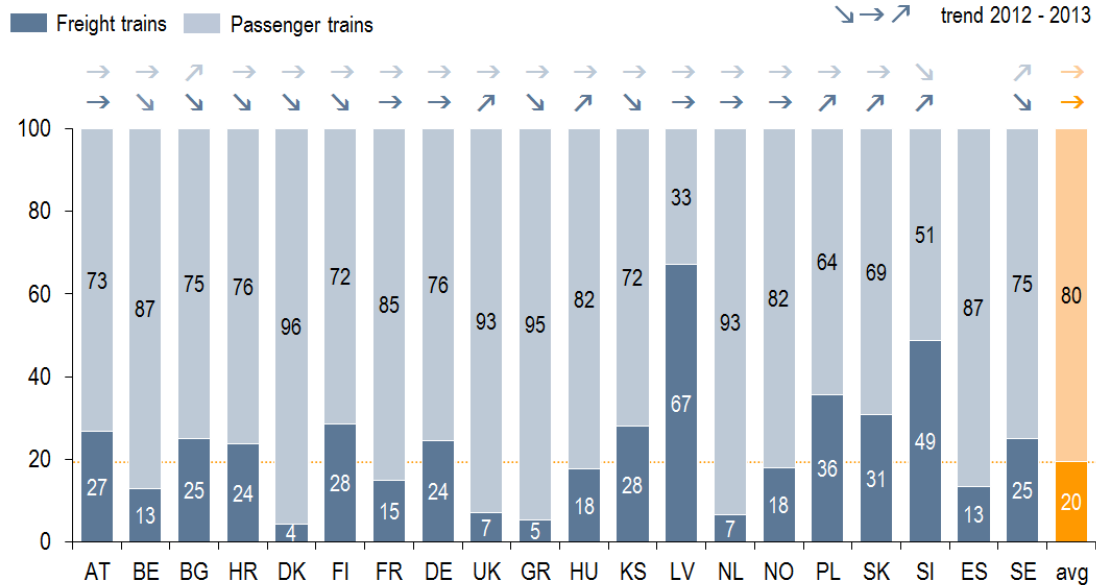
Freight train km					Passenger train km				
Country	2010	2011	2012	2013	Country	2010	2011	2012	2013
LV	100.0	119.5	132.4	128.3	SE	100.0	105.8	108.0	115.2
SI	100.0	104.0	101.4	118.8	NO	100.0	102.4	103.9	110.7
UK	100.0	109.3	109.8	112.5	NL	100.0	102.5	103.6	106.8
HU	100.0	90.7	96.9	106.6	FI	100.0	101.5	102.9	103.0
PL	100.0	108.2	103.7	102.5	UK	100.0	102.2	103.2	102.7
BG	100.0	111.5	108.9	100.7	FR	100.0	104.3	104.8	102.7
DE	100.0	106.2	99.6	100.0	DK	100.0	101.4	100.5	102.0
Total	100.0	103.4	99.2	98.7	Total	100.0	101.2	101.5	101.0
DK	100.0	119.2	100.7	98.1	LV	100.0	101.6	102.0	100.5
FR	100.0	95.5	100.4	97.5	DE	100.0	100.1	100.6	100.0
SK	100.0	98.1	93.4	96.9	SK	100.0	97.6	99.0	99.0
NO	100.0	97.7	88.8	95.7	BE	100.0	100.1	99.4	98.0
FI	100.0	97.1	92.8	90.0	AT	100.0	96.2	98.7	97.9
BE	100.0	105.0	95.8	90.0	HU	100.0	102.8	97.9	96.4
SE	100.0	102.2	93.6	89.2	PL	100.0	98.3	97.3	92.7
NL	100.0	90.7	87.3	88.6	SI	100.0	100.2	99.0	90.4
HR	100.0	89.7	98.4	87.4	HR	100.0	98.1	98.1	90.1
AT	100.0	97.4	87.8	85.0	BG	100.0	99.2	85.3	89.4
GR	100.0	88.8	78.5	64.6	GR	100.0	73.0	71.8	69.8

35. Looking at freight train kilometres over the last four years, the United Kingdom is the only country showing increases in each year, although the pace of growth has slowed down since 2011. United Kingdom has imported more coal as most of its coal mines closed, so the distance on which the commodity has been transported increased. Freight train kilometres in Latvia were growing rapidly and have increased by 28.3 % since 2010, but compared with 2012, this figure fell by around 3 %. The biggest growth in 2013 was observed in Slovenia (17 %), which was in contrast to their passenger train kilometres, which fell by almost 9 %. Such an increase in freight train kilometres can be explained by a substantial growth of transshipment in the port of Koper. Apart from Slovenia, freight train kilometres grew significantly in Hungary (10 %) and in Norway (almost 8 %). In Hungary the market recovered after a decline in 2011, as a result of a combination of factors such as a stronger economy, investment in rail infrastructure and growing demand for rail transport. In Norway, growth followed after a continuous drop between 2010 and 2012 but was not accompanied by an increase in tonne-kilometre.
36. The most significant reductions in the number of freight train kilometres in 2013 were observed in Greece and Kosovo (almost 18 %). In Greece the figure has been falling steadily because of the economic crisis, and has shrunk by 35 % since 2010. In Bulgaria freight train kilometres suffered a drop of more than 7.5 %, and in Croatia there was a drop of 11 %. In Croatia this decline was mainly due to the change in methodology in 2013. Freight train kilometres have been decreasing constantly since 2010 in Finland and Austria. In the latter country the share of transit rail traffic has not recovered since the economic crisis. Additionally the incumbent freight operator reduced its activities by increased bundling of single wagonload traffic. In the Netherlands, although the dedicated Betuwelijn showed an increase in traffic between 2008 and 2011, overall freight train kilometres in the country have decreased since 2008. The market stabilized in 2013, but there was no recovery yet. In Sweden freight train kilometres have fallen by 18 % since 2008 as the sector was hit by lower demand for raw materials and heavy industrial goods from emerging Asian economies. The Swedish export fell in domestic ports, but increased in the Norwegian port of Narvik.

Both in Sweden and Norway, smaller railway undertakings increased their services and expanded their activities while the incumbent downsized for the third year in a row.

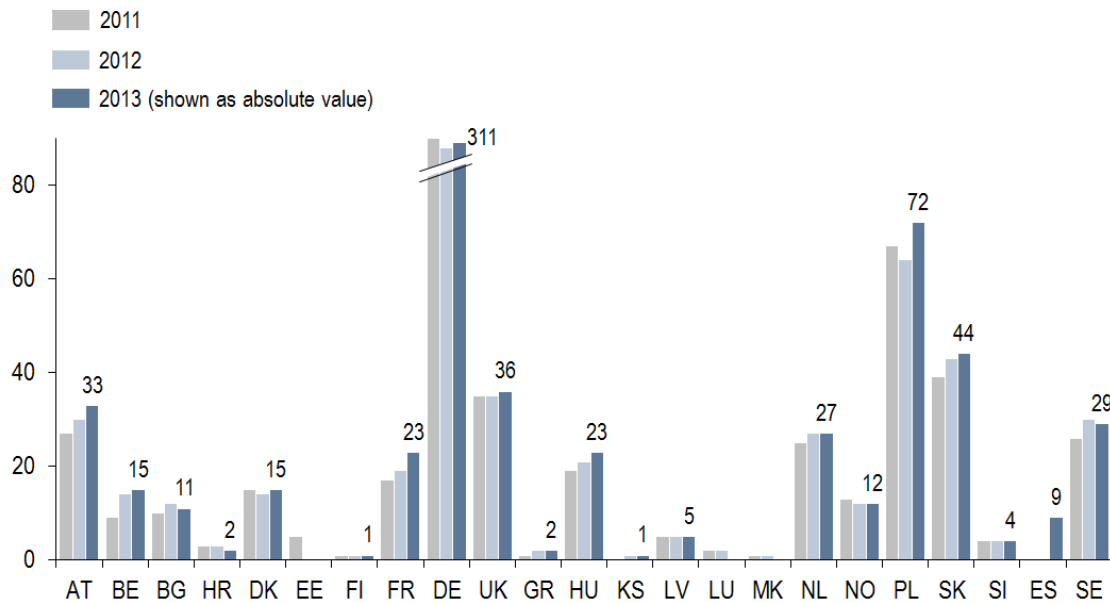
37. As far as passenger train kilometres are concerned, the biggest increases were recorded in the Nordic countries of Sweden and Norway, both up by 6.6 %. In both countries, these growths are part of an increasing trend as, since 2010, passenger train kilometres have increased by more than 15 % in Sweden and 10 % in Norway. In both countries more train services were introduced to meet growth of the population in agglomerations. In Sweden the distance travelled by commuters grew as labour market regions became larger. However the increase in train kilometres was bigger than the increase in passenger kilometres. In Norway a new traffic plan was introduced in December 2012 in the Oslo area, taking into consideration the growing population and therefore increasing train frequency and capacity. This also coincided with a new and more extensive Public Service contract for the incumbent operator. In the Netherlands the growth of passenger train kilometres has been steady since 2008. It is worth noting that the growth for non-incumbent railway undertakings (20 %) has been stronger than for the incumbent operator (4 %). Bulgaria recorded a 4.8 % growth compared to 2012, recovering after a sharp decline in 2012. However it must be noted that passenger transport performance fell in this country between 2010 and 2013.
38. The biggest decrease over the analysed period occurred in Greece, but its pace slowed down in 2013. During that year, passenger train kilometres fell noticeably in Kosovo (14 %), Slovenia and Croatia (8-9 %) and in Poland (almost 5 %). In Kosovo this was due to infrastructure works as the Gajre-Kaqanik tunnel on one of the main lines was renovated. In Croatia the number of international trains was reduced by more than a half. In Poland the decline was due to the reduction in the services offered by the biggest regional operator on the one hand and by the only long-distance one on the other, caused by competition from improved road infrastructures and extensive modernisation works on the rail network. In the United Kingdom, the growth of the number of passengers was accompanied by a small drop in train kilometres as normal service levels resumed following an increase in 2012 for the London 2012 Olympic and Paralympic Games.
39. In most countries changes in passenger train kilometres were lower than the ones in freight, showing that the passenger market is more stable, possibly because it is mostly governed by multiannual public service contracts.
40. Looking at train kilometres without the separation into passenger and freight traffic, in 2013 the sharpest decrease took place in Kosovo (15 %), while Croatia recorded a decline of 9 %. The biggest percentage increase was observed in Norway (7 %).

Figure 4: Network use by type of traffic
Percentages (by train kilometre)



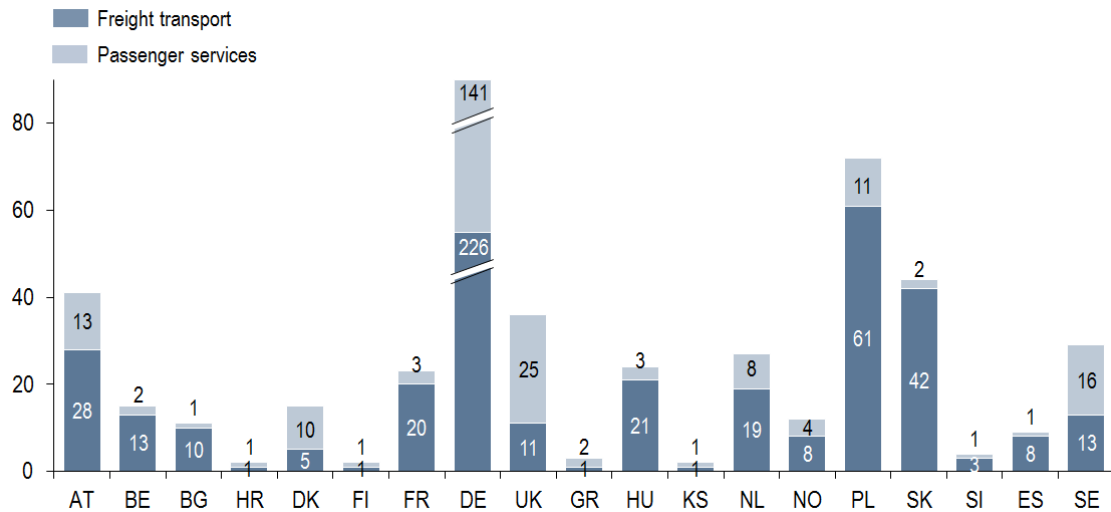
41. Figure 4 shows the use of the network, based on total train kilometres for freight and passenger transport. The networks in most of the countries monitored are dedicated predominantly to passenger services. Traditionally only Latvia has a bigger share of freight transport. In 2013, 67 % of all train kilometres were performed by the freight sector (68 % in 2012). Slovenia was another country with a significant share of freight traffic which grew from 43 % to 49 % in 2013. The second biggest increase of freight traffic share was observed in Hungary. The share of the freight sector in train kilometres fell in 2013 in Greece (14 %), Bulgaria (9 %) and Sweden (8 %), which is the result of the train kilometre dynamics explained above.
42. Overall in 2013 the share of freight traffic was at 20 % of total train kilometres. It was lower than 10 % in the Netherlands, the United Kingdom, Greece and Denmark; countries with high population density (apart from Greece).

Figure 5: Number of active railway undertakings in the years 2011-2013



43. Figure 5 shows the number of active railway undertakings in each country over the period between 2011 and 2013. Germany has by far the highest number of undertakings. The number of active railway undertakings in 2013 grew in nine countries, did not change in seven and decreased only in three. In Croatia, one railway undertaking providing traction ceased its activity and there is now one freight and one passenger railway undertaking. In most countries the number of active undertakings on the market has grown, predominantly in Belgium, France, Austria and Hungary. It should be noted that according to the data provided for 2013, Finnish and Kosovar markets have a single railway undertaking.

Figure 6: Number of active railway undertakings in 2013 by type of traffic

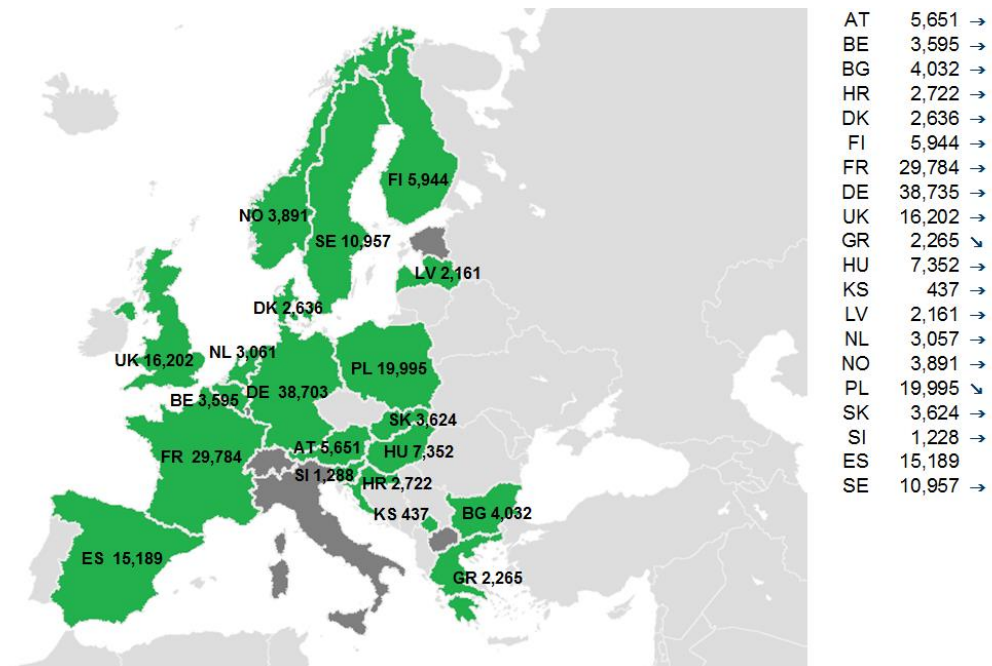


44. A division of active railway undertakings by type of traffic helps to provide a deeper insight into the market. Generally in 2013 the freight market segment was more diversified and open and represented 65 % of all active undertakings in the countries that provided data for both segments. The United Kingdom, Sweden and Denmark were the only countries where freight operators were a minority. In France, the number of freight undertakings grew by a quarter compared to the previous year, whereas the passenger sector remained unchanged with three passenger undertakings. Traditionally Germany has a large number of freight undertakings. In Poland, the freight market is open and is attracting more companies (15 % growth in 2013). In Austria, Germany, Greece and Hungary some undertakings participate in both segments, so their figure does not add up to the overall number of companies shown in figure 5.

5.2 Infrastructure

45. This chapter reports on the railway infrastructure of the monitored countries. The track length in kilometres gives the size of the rail network in each country; the measure of network usage intensity is an indication of the number of trains that run on each network. The average revenue from access charges shows how the passenger and freight charges differ between the countries.

Figure 7: Route length in kilometres



46. Figure 7 shows the route length in kilometres. Between 2012 and 2013 there was very little variation in route length. In terms of route length, Germany has the longest network at 38,703 kilometres. France has the second largest network in terms of route length, followed by Poland and the United Kingdom.
47. Denmark and Kosovo have the largest proportion of non-incumbent route, which accounts for 24 % of the total route length for both countries. Germany and Austria also have high proportions of non-incumbent route, 14 % and 12 % respectively. The higher proportion of non-incumbent infrastructure is likely to be caused by the historical development of the rail markets in these countries. For Denmark the large proportion of non-incumbent routes is due to the State selling part of the network to private investors and local governments in the late 1990s.

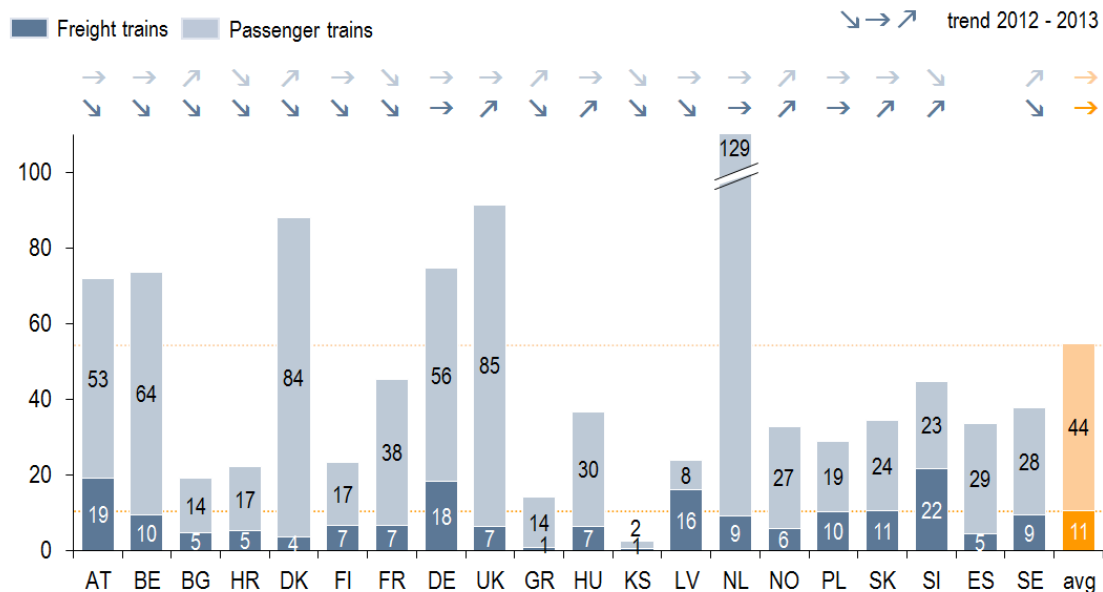
Figure 8: Route length - Percentage electrified and percentage incumbent

Country	electrified route length (share of total route length)	Incumbent route length (share of total route length)
AT	69%	88%
BE	85%	n/a
BG	71%	100%
HR	36%	100%
DK	24%	76%
FI	53%	100%
FR	53%	100%
DE	52%	86%
UK	33%	99%
GR	19%	100%
HU	41%	100%
KS	n/a	76%
LV	12%	100%
NL	70%	94%
NO	64%	100%
PL	59%	95%
SK	44%	100%
SI	41%	100%
ES	60%	100%
SE	75%	89%

48. Figure 8 shows that Belgium has the largest proportion of electrified route, with 85 % of the 3,595 route kilometres electrified. Other countries with a high proportion of electrified route are Sweden with 75 % electrified of their 10,957 route kilometres, Bulgaria with 71 % electrified of 4,032 kilometres and the Netherlands with 70 % electrified of 3,061 kilometres. Latvia has the lowest proportion of electrified route, with only 12 % of its total 2,161 route kilometres electrified.

Figure 9: Network usage intensity

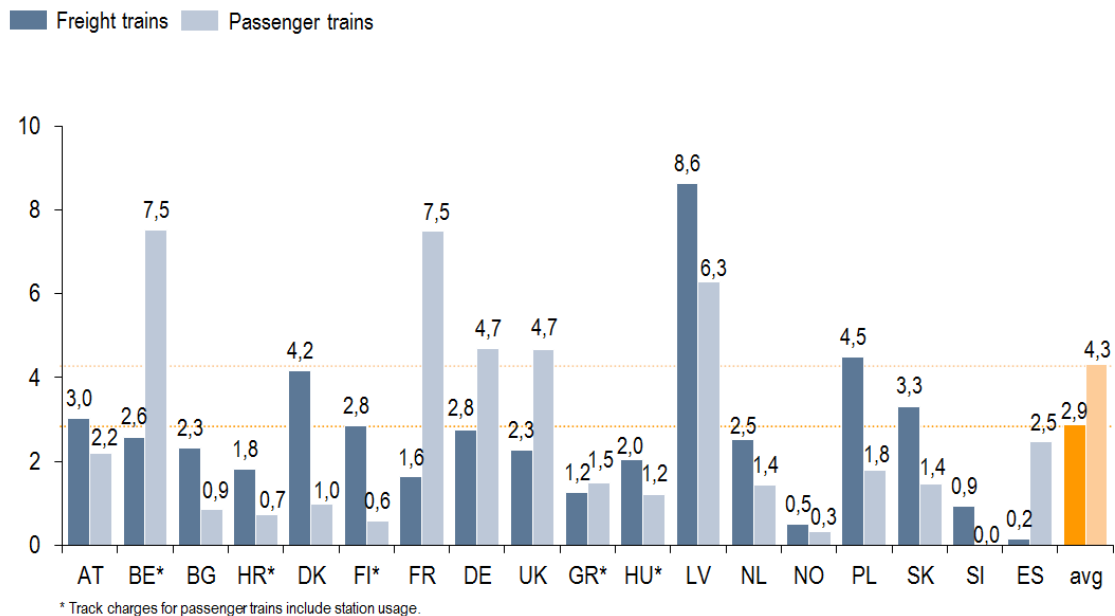
Trains per route kilometre per day



49. Figure 9 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 give the average number of trains per route kilometre per day. This varies from two in Kosovo to 138 trains per route kilometre in the Netherlands. The usage intensity in the Netherlands is approximately 50 % higher than the next highest ranked countries, which are the United Kingdom and Denmark with an average of 92 and 88 trains per route kilometre per day respectively. The high usage intensity for the Netherlands is likely to be because there are a large proportion of double and quadruple tracks on the route in this country.

Figure 10: Average revenue from track access charges from the minimum access package⁴

Euro per train kilometre, 2013⁵



50. Figure 10 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 passengers the average revenue is the revenue from passenger train track charges divided by total passenger 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 charges but are counted in the total train kilometres.
51. Across all the monitored countries the average revenue from track charges for both freight and passenger services has remained constant from 2012 to 2013. The average

⁴ 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.

⁵ Correction data Netherlands: the IRG-Rail report of February 2014 excludes by mistake the revenue of the user charge out of freight traffic on the Betuweroute. The Betuweroute is more expensive and therefore the average in last year's report is too low. This has been corrected for the current report.

revenue from track charges to freight services varies from € 0.15⁶ per freight train kilometre in Spain to € 8.63 per freight train kilometre in Latvia. The average revenue from track charges to passenger services is the highest in Belgium and France with average revenues of € 7.52 and € 7.50 per passenger kilometre respectively. In France, the high access charges for passenger services can be attributed partly to the large proportion of high speed trains running on the network which entails larger maintenance costs for the infrastructure manager. Also the infrastructure manager does not receive any subsidies for renewing the network, so the cost of renewing the infrastructure is passed on in track charges. For Slovenia the average revenue from track charges for passenger trains is less than € 0.01 per kilometre. This is because in Slovenia passenger trains which operate under public service contracts are excluded from the obligation to pay track access charges, and thus this calculation only takes into account the revenue from access charges for trains which are not covered by public service contracts.

52. The majority of countries have higher average revenue from track charges for freight services than from passenger services; however the overall combined average revenue from track charges across the monitored countries is lower for freight than for passenger trains. This is because France, Germany and the United Kingdom, which have the largest networks, have higher average revenue from track charges for passenger services than freight services.
53. The biggest difference between the average revenue from track charges for passenger services and for freight traffic arises in France, where the average revenue of € 7.50 per train kilometre for passenger services is approximately five times larger than the € 1.63 average revenue per freight train kilometre. The relationship is the opposite in Denmark where the average revenue from track charges for freight of € 4.16 per train kilometre is four times the revenue of € 0.99 per train kilometre for passenger services.
54. The following sections detail the change over time in the average revenue from track charges for freight and passenger services respectively. The charges are indexed to the average revenue in 2010. Any value over 100 means an increase in the average charge, whereas a value lower than 100 means the average revenue has decreased since 2010. There are many indicators that feed into these figures and the average revenue can fluctuate due to many factors such as a change in the track charges, a rise/fall in the number of train kilometres operated, structural changes to the network or developments of the types of service operated in each country. Additionally there may have been methodology changes in some countries.

⁶ In this section financial data will be rounded to 2 decimal places, i.e. €1.23. All other data will be reported to 1 decimal place.

Figure 11: Development of average infrastructure manager revenue from track charges per kilometre for freight
 Weighted index; 2010 = 100

Country	2010	2011	2012	2013
SK	100.0	38.7	36.5	37.0
BG	100.0	92.7	88.3	62.9
PL	100.0	98.1	84.3	89.3
LV	100.0	104.7	108.4	94.5
AT	100.0	89.5	94.0	95.1
Total	100.0	98.9	97.5	97.8
FR	100.0	106.2	99.6	98.5
DK	100.0	99.0	98.3	100.2
SI	100.0	97.8	111.3	102.7
FI	100.0	99.9	102.5	105.4
DE	100.0	103.0	105.6	107.9
BE	100.0	108.1	110.2	110.1
NO	100.0	97.3	120.7	112.3
UK	100.0	148.3	162.0	156.1
HR	100.0	157.2	143.3	183.8

55. Figure 11 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 2.2 % drop since 2010. There is a higher degree of variation between years and countries; overall eight monitored countries have an average revenue per kilometre from freight services higher than 2010. Six other countries have a lower average revenue compared to 2010.
56. Croatia has had the biggest increase in average revenue from freight train charges per kilometre relative to 2010. In 2013 the charges were 83.8 % higher than they were at the start of the time series. In 2010 the basic price for freight and passenger access in Croatia was low due to this being the first year when railway undertakings were required to pay track access charges. This basic price has risen since 2010 which explains the large increase in average revenue seen in Croatia over this time. Additionally there has been a decrease in freight train kilometres since 2010.
57. The United Kingdom has had the second largest growth, an increase of 56.1 % since 2010. The next biggest increase has been in Norway⁷ where the freight train charges per kilometre in 2013 were 12.3 % higher than in 2010. In general track access charging in Norway is limited to heavy freight transport which is applied to only one line in Northern Norway. The exception to this is on the Gardermoen Line where there is a general track access charge that applies to all types of transport. The increase in activity on these two lines can explain most of the growth of the revenue of the infrastructure manager in Norway.
58. In four of the five other countries where an increase in the average revenue from track charges has been seen since 2010 the increase is less than 10 percent of the original value.
59. In 2011 the average revenue from freight train charges per kilometre in Slovakia fell to 38.7 % of the 2010 charge. Since then the revenue per kilometre has remained relatively constant. In 2013 the average charge in Slovakia was 37 % of that in 2010. This is the biggest proportional fall in freight train charges since 2010 for any of the monitored countries. There were structural changes to charges in Slovakia in 2010

⁷ The revenue of the infrastructure manager for Norway is adjusted for inflation, and converted to EURO with the average exchange rate for 2013.

which could explain the decrease seen in recent years. Bulgaria has had the second biggest percentage drop in average freight train charges, with charges in 2013 having fallen 37.1 % from the 2010 value.

Figure 12: Development of average infrastructure manager revenue from track charges per kilometre for passenger services

Weighted index; 2010 = 100

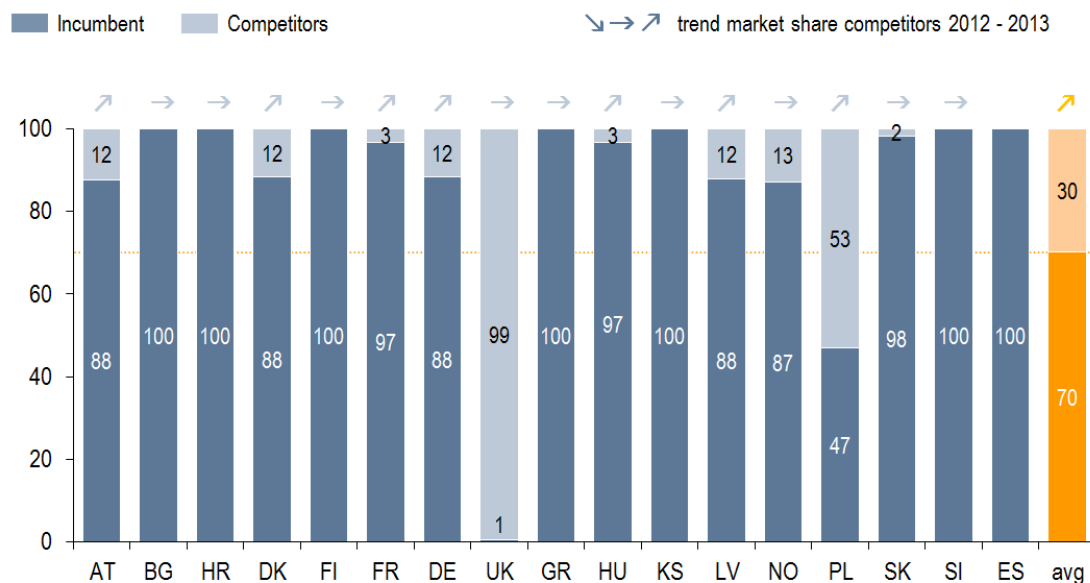
Country	2010	2011	2012	2013
SK	100.0	80.9	77.4	79.3
BG	100.0	96.4	97.1	90.4
DK	100.0	101.4	100.3	96.1
UK	100.0	120.1	108.8	101.2
FI	100.0	101.1	104.8	104.8
SI	100.0	86.3	87.4	106.4
PL	100.0	97.9	97.6	106.7
DE	100.0	101.5	104.4	106.7
Total	100.0	107.5	107.7	108.2
BE	100.0	102.5	105.8	108.2
NO	100.0	93.8	113.2	109.2
FR	100.0	105.3	110.5	114.1
AT	100.0	104.8	105.2	116.5
LV	100.0	106.9	118.3	128.0
HR	100.0	140.4	169.1	181.0

60. Figure 12 shows the development of passenger train charges per kilometre. The combined average revenue from access charge per passenger kilometre for all countries has increased by 8.2% since 2010. Of the 14 countries in the time series, 11 have had an increase in the average charge per kilometre for passenger trains.
61. Despite the difference in the average change in revenue from passenger charges compared to freight the relationship between many of the countries is similar. Slovakia have again seen the biggest fall in average revenue, a drop of 20.7 % since 2010, while Croatia has had the largest increase with the average revenue per kilometre, 81.0 % higher than in 2010. The reasons for this are likely to be the same as those discussed for the development of charges for freight services.
62. Latvia has had the second largest increase in revenue from access charges for passenger services, with revenue per kilometre 28 % higher in 2013 compared to 2010. This is in contrast to the average revenue from freight train charge per kilometre in Latvia which has fallen almost 6 % over the same time period. This notion of passenger trains taking a greater share of network costs is also apparent in Austria, where there has been a 16.5 % increase in passenger train charges but almost a 5 % fall in freight train charges per kilometre. For Austria this trend is due to a general decrease of charges for freight traffic plus discounts for trains dealing with single wagon load traffic which has been balanced by an increase in passenger charges and increased use of high speed lines.
63. In general the trend of decreasing revenue from freight services and increasing revenue from passenger services may be a result of lower revenue from freight charges following the economic crash in 2008-2009 being balanced by an increase in passenger charges.

5.3 Passenger Market

64. This section on the passenger market compares the degree of liberalisation in each national passenger market and assesses how the markets have evolved since liberalisation in terms of market share for new entrants. By combining the passenger market indicators with other metrics collected, it has been possible to derive new measures such as the average distance travelled per resident per year and passengers fare per passenger kilometre.

Figure 13: Market shares of passenger train companies
Percentage of passenger kilometre

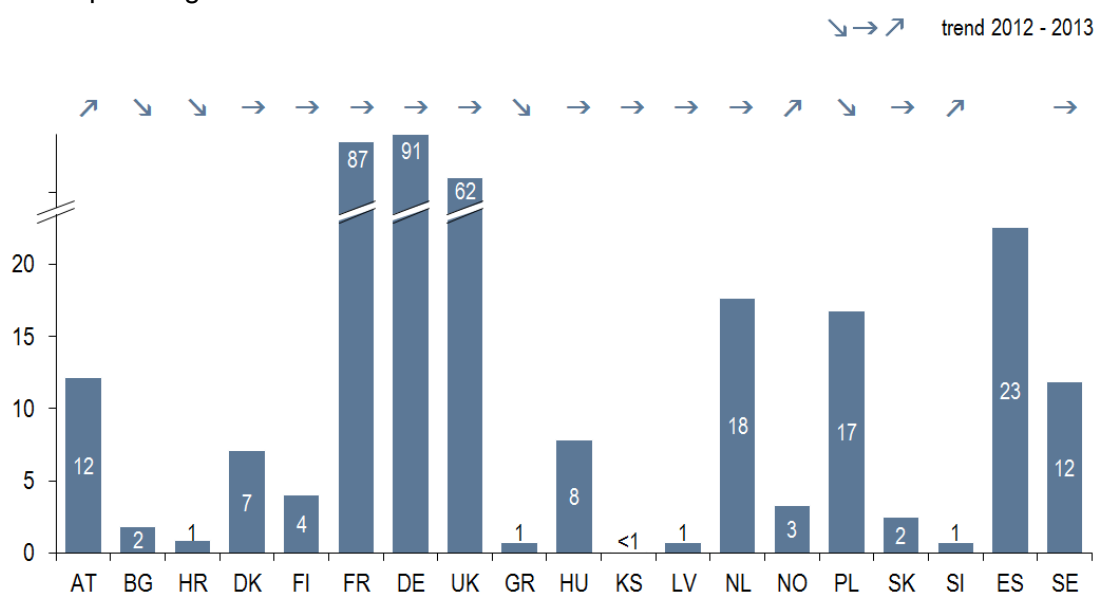


65. Figure 13 shows the ratio between the passenger transport performed by incumbent and by non-incumbent railway undertakings. The average ratio shows that 70 % of passenger kilometres are covered by incumbent operators and 30 % by non-incumbent operators. It is important to note that in some countries, a legal monopoly is still in state for domestic services. More details can be found in Annex 1.
66. Bulgaria, Croatia, Finland, Greece, Kosovo, Slovenia and Spain continue to operate with the incumbent operator, who covers 100 % of passenger kilometres. Two countries stand out: The United Kingdom had a market share of less than 1 % for incumbent railway undertakings and Poland had a market share for the non-incumbent of 53 %. There are two reasons for such a situation in Poland. Firstly, it is partially methodological: the biggest regional operator (30 % of the market) stems from the incumbent undertaking but it no longer has any ownership relation to it - it has been owned by regional authorities since 2009 and therefore it is qualified 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 incumbent long-distance undertaking which has been losing passengers.

67. Since privatisation 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 are for Northern Ireland railways, which are state owned, and represent a very small network compared to the rest of the United Kingdom.
68. Austria has seen the most notable increase since 2012 with competitors' share rising from 9 % to 12 %. In December 2012 a new high speed line was opened between Wien and St. Pölten, cutting travelling time from Wien to St. Pölten, Linz and Salzburg. At the same time a new entrant WESTbahn introduced an hourly service to Salzburg. Before there had been intervals of up to two hours. As a result WESTbahn has attracted more new passengers than ÖBB and so the market share of the new entrants increased significantly.
69. Compared to 2012, Poland, Latvia, Hungary, Germany and Austria showed an increase in the share of competitors in the market of passenger transportation. Denmark has seen the most notable decrease⁸ of 24 % in 2013.

Figure 14: Passenger traffic performance

Billion passenger kilometre



70. With regards to passenger traffic performance, three countries (France, Germany and the United Kingdom) significantly stand out compared to the others partly due to their large population. In most countries, passenger traffic performance is stable compared to the previous year. Only three countries have shown an increase in passenger traffic performance, namely Austria, Norway and Slovenia, while in Bulgaria, Croatia and Poland passenger traffic performance has decreased.

⁸ Due to a more correct method of calculation the percentage split in passenger kilometres between incumbent and non-incumbent have now changed compared to previous years. Two companies previously (incorrectly) counted as non-incumbent are now (correctly) counted as incumbent.

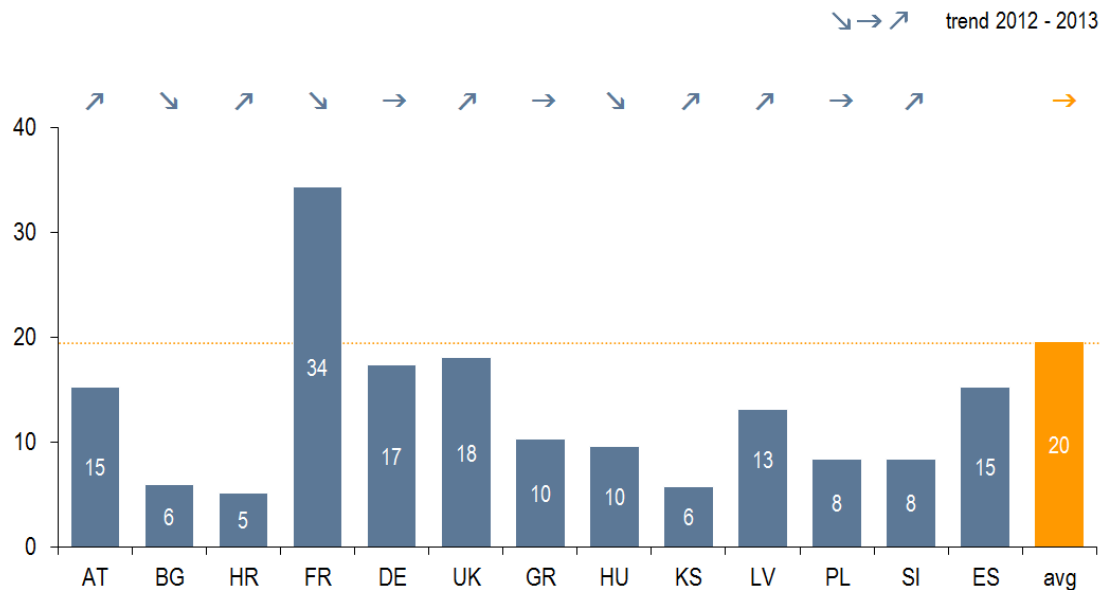
Figure 15: Evolution of passenger transport performance 2010-2013

Weighted index; 2010 = 100

Country	2010	2011	2012	2013
AT	100.0	101.6	104.8	113.3
UK	100.0	105.0	109.2	111.0
SK	100.0	105.3	107.3	107.7
DK	100.0	104.8	106.7	107.6
DE	100.0	101.2	105.8	106.7
SE	100.0	102.0	105.7	106.3
NO	100.0	96.3	101.7	105.0
Total	100.0	102.1	104.0	104.3
FI	100.0	98.1	101.9	102.4
HU	100.0	101.6	101.6	102.0
FR	100.0	102.7	101.6	100.9
LV	100.0	98.9	96.8	97.3
PL	100.0	101.4	99.7	93.8
SI	100.0	95.1	91.2	93.5
BG	100.0	98.0	89.1	86.8
GR	100.0	69.3	61.6	56.0
HR	100.0	85.3	63.3	49.2

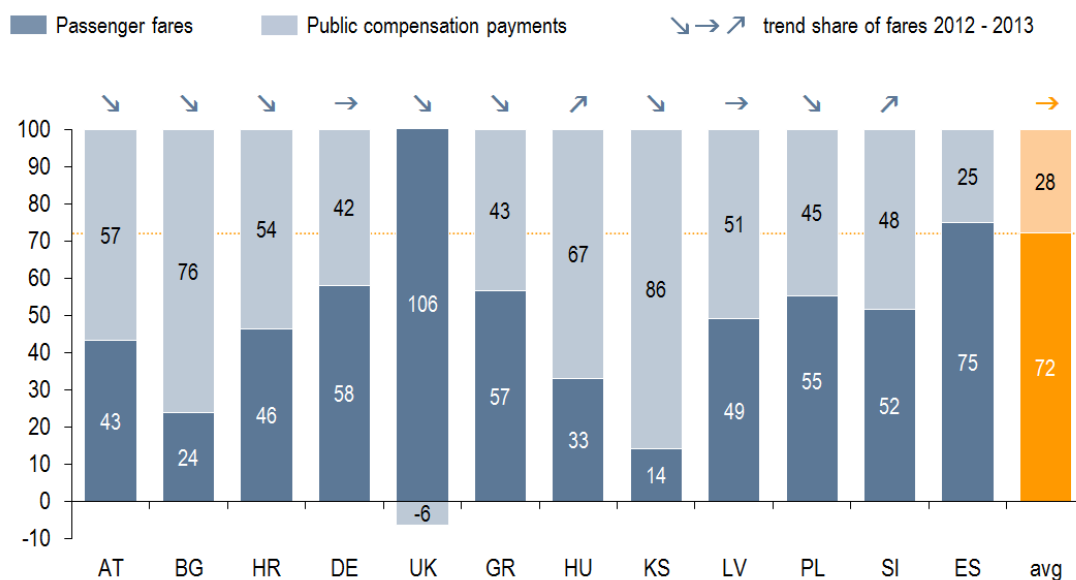
71. Figure 15 shows the index of passenger kilometres showing the evolution of the market between the base year 2010 (index = 100) and 2013. Austria, the United Kingdom, Slovakia, Denmark, Germany, Sweden and Norway showed higher than average growth in passenger transport performance, while Finland, Hungary and France also showed growth, albeit slightly lower than average. The remaining six countries (Latvia, Poland, Slovenia, Bulgaria, Greece and Croatia) showed a decrease in transport performance.
72. In Latvia there was a significant migration of the working-age population compared with other EU states; the population in Latvia fell by around 10 %. This contributed to the decrease in passengers carried.
73. Austria has seen the largest growth by 13.3 % since 2010. There has been an increase in rail commuter traffic triggered by rising petrol prices and by extending parking restrictions in the city of Wien. 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. The United Kingdom has grown by 11 % since 2010 with the largest increases occurring in commuter services in and around London.
74. Croatia has recorded the biggest drop in passenger transport performance since 2010, due to a reduction in the number of international trains in the schedule timetable for 2012/13, which reduced the number of international trains from 56 to 24 trains compared to the previous timetable of 2011/12.

Figure 16: Revenue of passenger railway undertakings
Euro per train kilometre performed by passenger trains



75. Figure 16 shows the average revenue of railway undertakings per train kilometre in 2013. It has been calculated by dividing the total revenue of passenger railway undertakings by the number of passenger train kilometres. France shows the highest revenue with € 34, a slight decrease since last year. An initial explanation is that, as the track access charges for passenger services are higher than average in France, they have to be passed on in the revenue of operators, either through the ticket price or through public compensation. It may also be that high speed transport and regional transport in the Paris region also generate higher revenues due to the larger capacity of trains and higher operating costs. The next highest are United Kingdom with € 18 per train kilometre and Germany with € 17 per train kilometre.

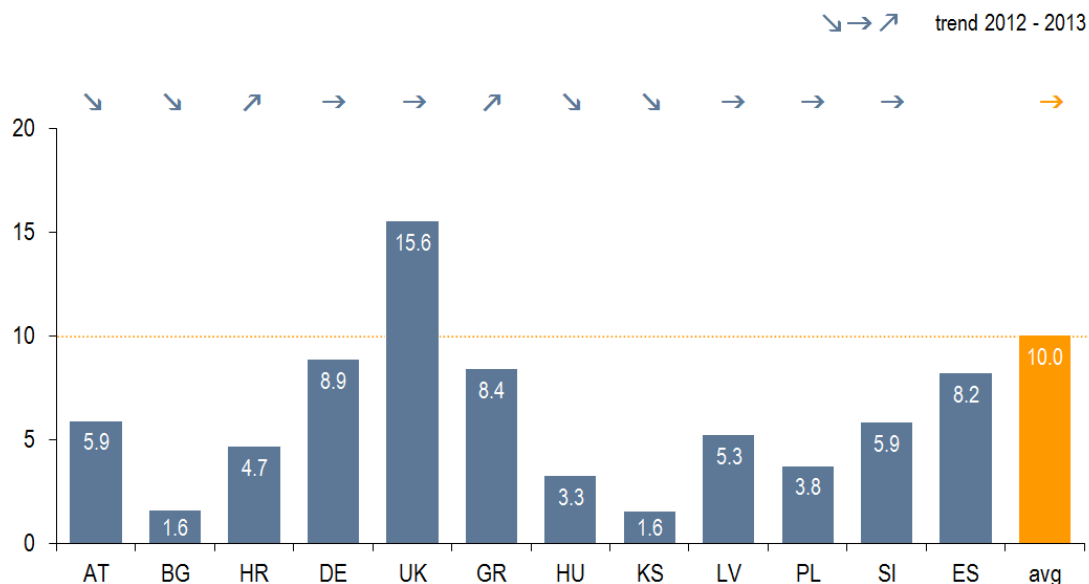
Figure 17: Sources of revenues of passenger railway undertakings
Percentage of total revenues of passenger railway undertakings



76. Figure 17 shows the revenue from fare and State subsidy of the passenger railway undertakings broken down to distinguish the share of fares and public compensation payments. In six of the 11 countries monitored, public compensation payments represent the largest proportion of revenue for railway undertakings. These countries are Austria, Bulgaria, Croatia, Hungary, Kosovo and Latvia. Only the United Kingdom has a negative value for public compensation payments because the government received a net payment from train operating companies. 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.

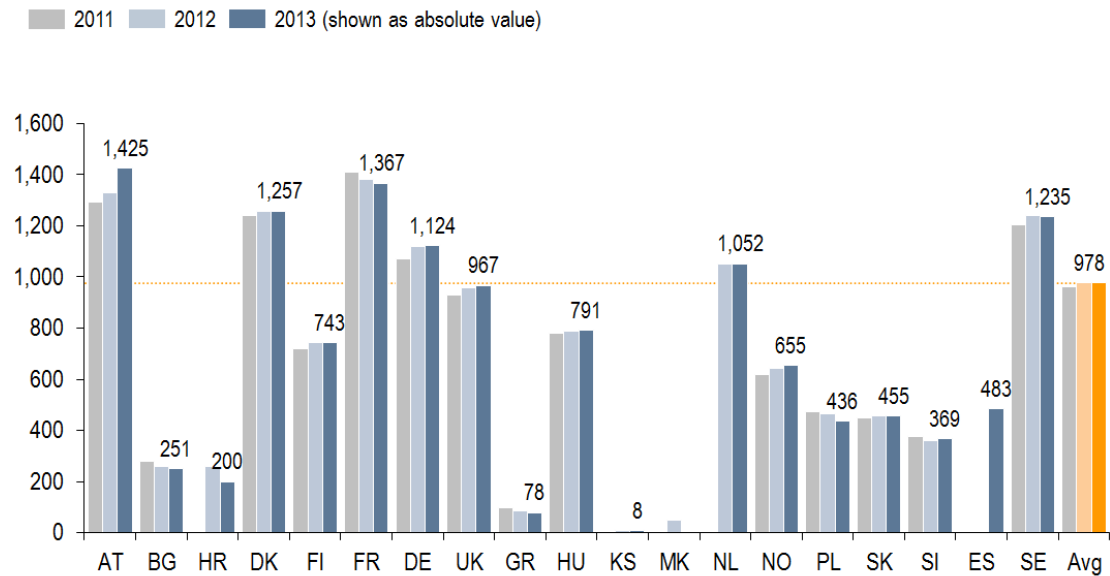
Figure 18: Rail travelling costs for passengers

Average passenger fare in Cent per passenger kilometre



77. The chart above shows the passenger undertakings revenue from ticket sales divided by the total number of passenger kilometres. The largest revenue was for the United Kingdom, then Germany. The average amount was 10 cent per passenger kilometres; Bulgaria and Kosovo had the lowest revenue of only € 0.016.
78. The income from ticket sales includes all sold tickets (monthly, annually tickets). The average ticket price is very dependent on the type of train for which the ticket was purchased. Also, prices for tickets are different depending on the area where the ticket is purchased (state subsidies).

Figure 19: Distance travelled per resident per year
Total passenger kilometre per resident



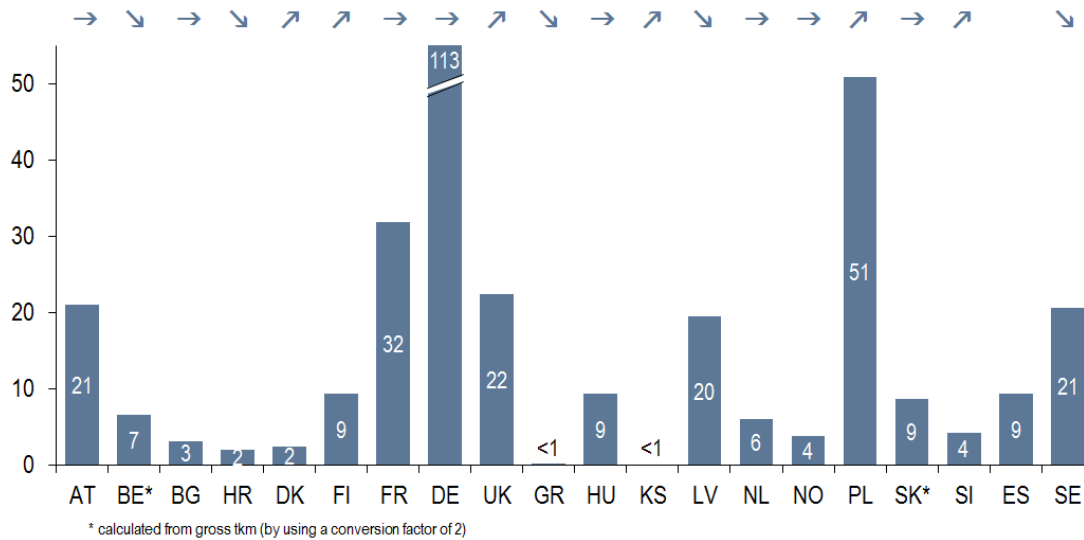
79. Figure 19 shows the average distance travelled per resident. The average distance is calculated by dividing the total passenger kilometre by the number of residents. In 2013, Austria, France, Denmark, Sweden and Germany show a longer average distance travelled per resident. The average distance travelled per resident for all monitored countries is 978 kilometre.

5.4 Freight Market

80. This section on the freight market analyses the current status and recent developments in national freight markets. It also assesses and compares the degree of competition in each national freight market by calculating the market share between incumbent and non-incumbent railway undertakings based on tonne kilometres. The analysis also focuses on train kilometres and revenue.

Figure 20: Freight tonne kilometres

Billion net tonne kilometre



81. Figure 20 shows the freight tonne kilometres transported in 2013 in billion net tonne kilometres per 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 2⁹. The comparison of all countries monitored shows that in 2013, Germany had by far the highest figure followed by Poland and France.

⁹ 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 a lot so we can estimate net tonnes with some confidence.

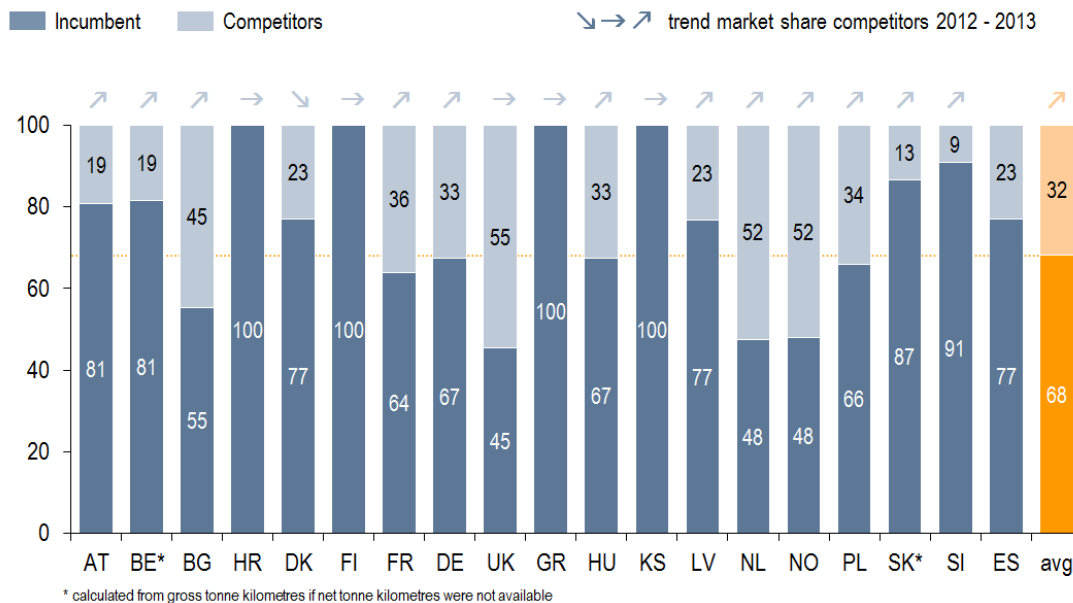
Figure 21: Evolution of freight transport performance 2010-2013

Weighted index; 2010 = 100

Country	2010	2011	2012	2013
UK	100.0	112.9	118.1	123.3
LV	100.0	124.9	127.4	113.7
SI	100.0	105.5	98.7	109.7
DK	100.0	116.7	101.7	109.3
FR	100.0	114.1	108.6	106.8
HU	100.0	105.7	107.7	106.7
DE	100.0	105.8	102.6	104.4
BG	100.0	112.9	101.8	102.6
NL	100.0	97.1	103.6	102.6
Total	100.0	107.1	101.7	101.8
NO	100.0	103.6	98.2	99.6
FI	100.0	96.4	95.1	97.1
SK	100.0	98.8	95.0	96.7
PL	100.0	111.7	92.0	95.4
AT	100.0	98.7	95.9	94.3
BE	100.0	107.0	95.6	90.0
SE	100.0	97.4	93.9	88.5
HR	100.0	92.3	85.4	76.4
GR	100.0	57.2	45.9	38.5

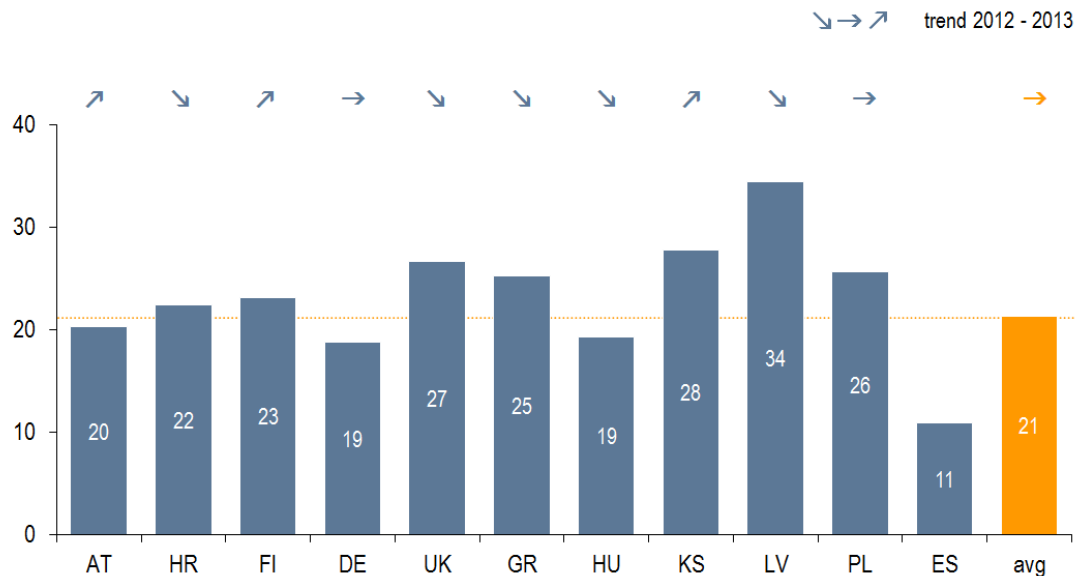
82. The development of rail freight traffic varies widely across the different countries reviewed in 2013. The United Kingdom reported a growth of 23.3 % (2010-2013) and is the only country to show growth in each year since 2010. Freight traffic grew marginally between 2012 and 2013 and remains 1.8% higher than in 2010. Nine countries reported an increase between 2012 and 2013 while in nine countries there was a decrease during this period. In Poland the significant increase during 2011 and the subsequent drop can be explained by the fact that there was a peak of investments in road infrastructure before the Euro 2012 championship and heavy materials were transported by rail. In 2012 most of the investments were already finished so the demand for transporting aggregates was reduced.

Figure 22: Market shares of freight railway undertakings
Percentage of net tonne kilometres* in 2013



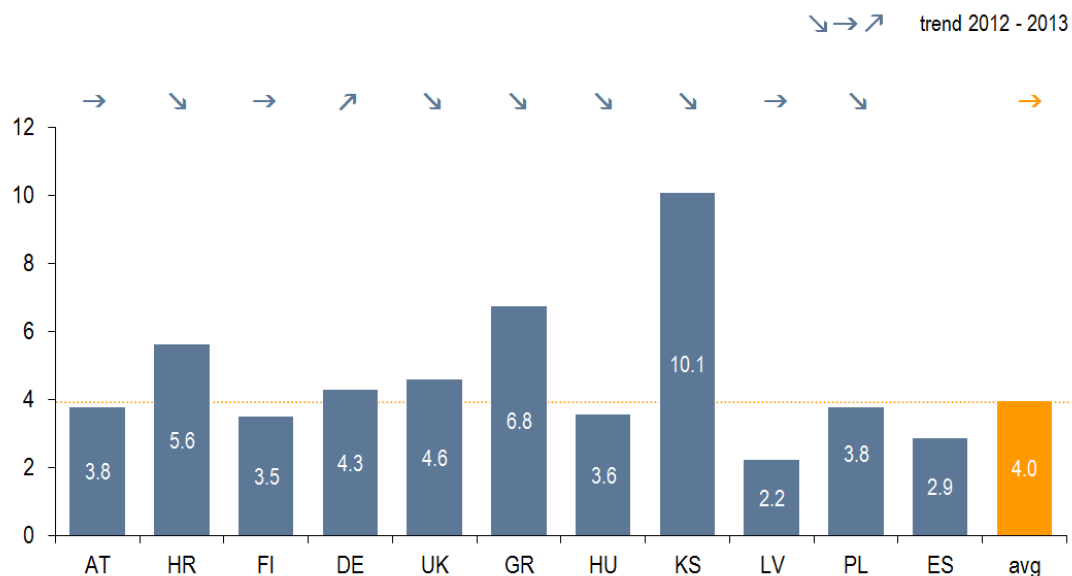
83. Figure 22 shows the market shares of incumbent and non-incumbent freight operators in 2013. The shares of non-incumbent railway undertakings were in general higher compared to those in the passenger market. It seems that the market shares of non-incumbents operators were higher in those countries with early liberalisation of the freight market, for example the United Kingdom. Market shares of new entrants were either stable or increased in all countries except for Denmark. The development in Norway was triggered by downsizing of operations by the incumbent railway undertaking, while the smaller companies were able to increase their traffic from the previous year, especially in the transport of raw materials, but also in intermodal container freight. In the Netherlands the incumbent railway undertaking stopped national freight traffic which resulted in reduced market shares. Furthermore the average market share of new entrants in the countries monitored increased to 32 %.

Figure 23: Revenue of freight railway undertakings
Euro per train kilometre



84. The freight traffic remained fairly stable between 2012 and 2013 and this was mirrored in freight revenues. While some countries showed a moderate rise in revenue (Austria, Finland and Kosovo), revenues in Germany and Poland remained stable. The most significant decrease took place in Croatia (-20 %). 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 24: Revenue of freight railway undertakings per net tonne kilometre
Eurocent per net tonne kilometre



85. The revenue per freight train kilometre and the revenue per net tonne kilometre was either stable or decreased in most countries monitored in 2013. The most significant decrease was in the United Kingdom (-10 %), followed by Kosovo (-7 %) and Croatia (-4 %). Germany reported an increase of 1 %.

5.5 Service facilities

86. 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 were collected in 2012 for the first time. This year's IRG-Rail report focuses again on passenger stations and on intermodal freight terminals.
87. The evaluations of service facilities are mainly based on three indicators, the number of facilities, the number of operators and the type of operators. 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 could be an integrated infrastructure manager.
 - 2) All other companies. This could be:
 - An independent infrastructure manager which is not related to any railway undertaking.
 - An integrated railway undertaking and infrastructure manager not being an incumbent railway undertaking.
 - A railway undertaking not being an incumbent railway undertaking
 - A private service operator not being a railway undertaking.
88. The reasoning behind this classification is that non-discriminatory access to service facilities is an important condition for a competitive rail market. In particular, incumbent railway undertakings may have economic incentives to limit access to service facilities for competitors.
89. In some cases there might be joint ownership or daily management by an incumbent railway undertaking and another company, for example an independent infrastructure manager. In these cases, classification is according to the company which actually grants and refuses access to the service facility.

5.5.1 Passenger Stations

Figure 25: Number of passenger stations

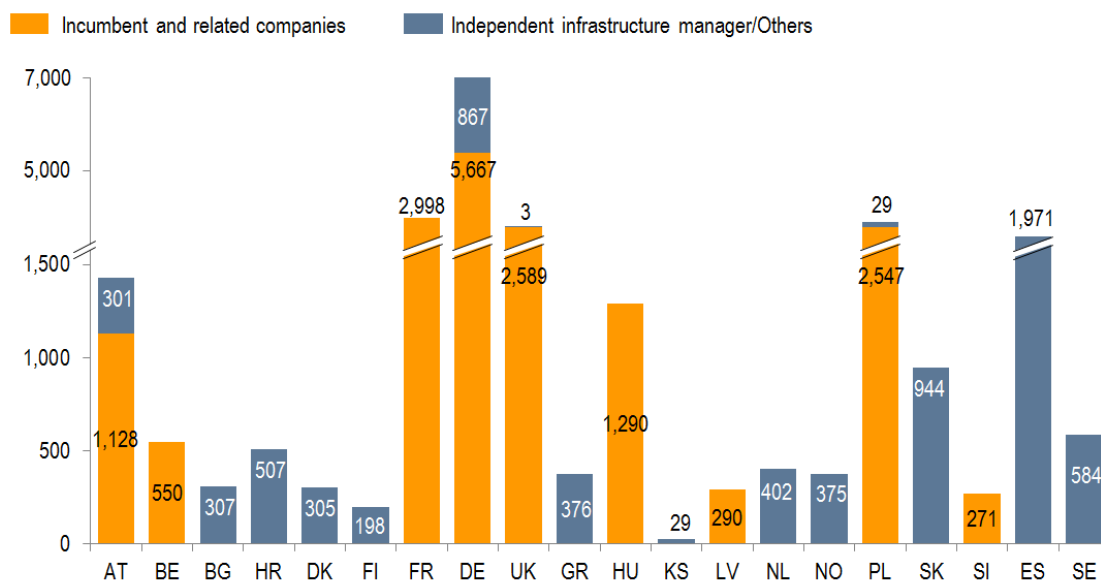
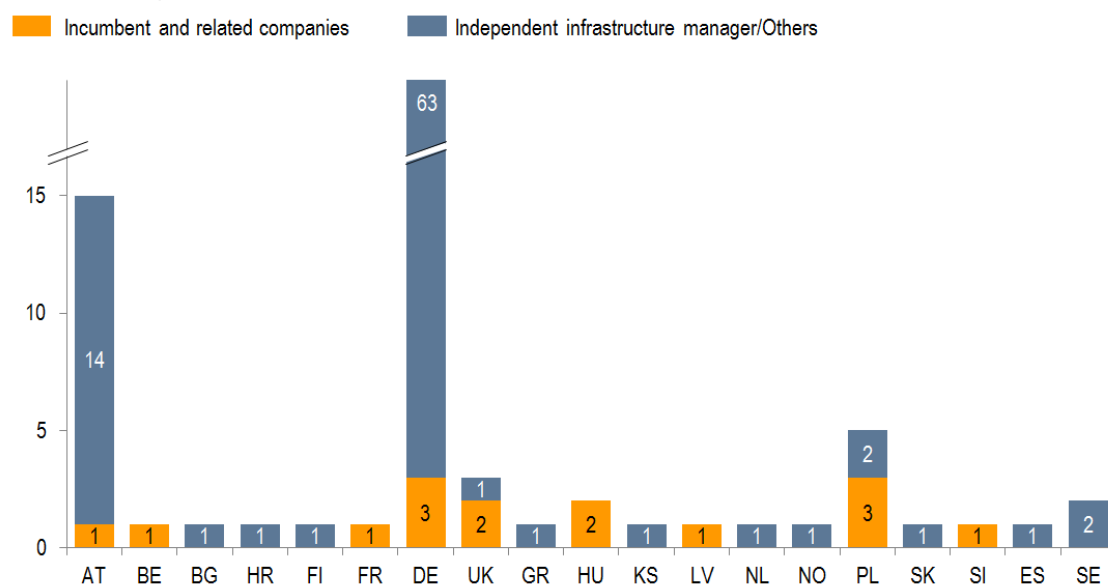
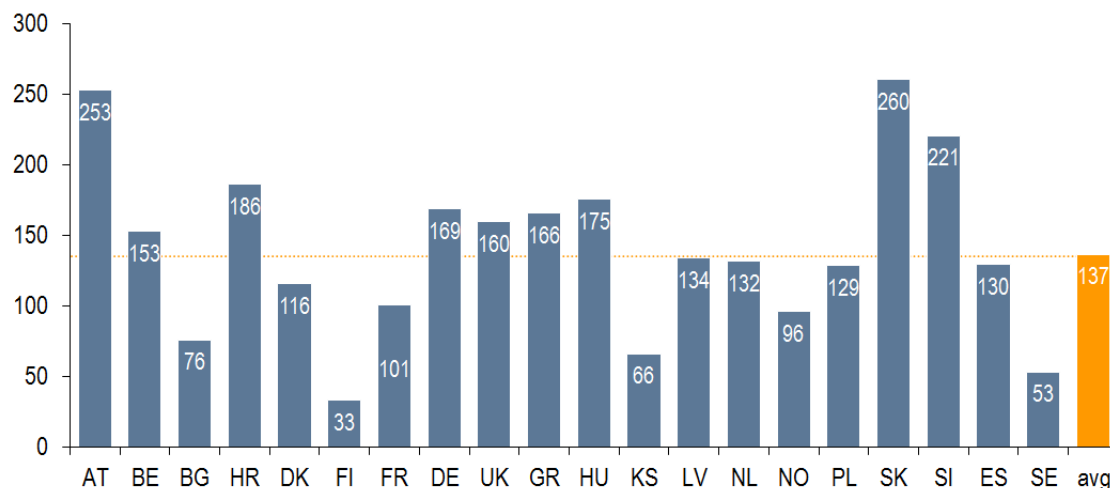


Figure 26: Number of operators for passenger stations



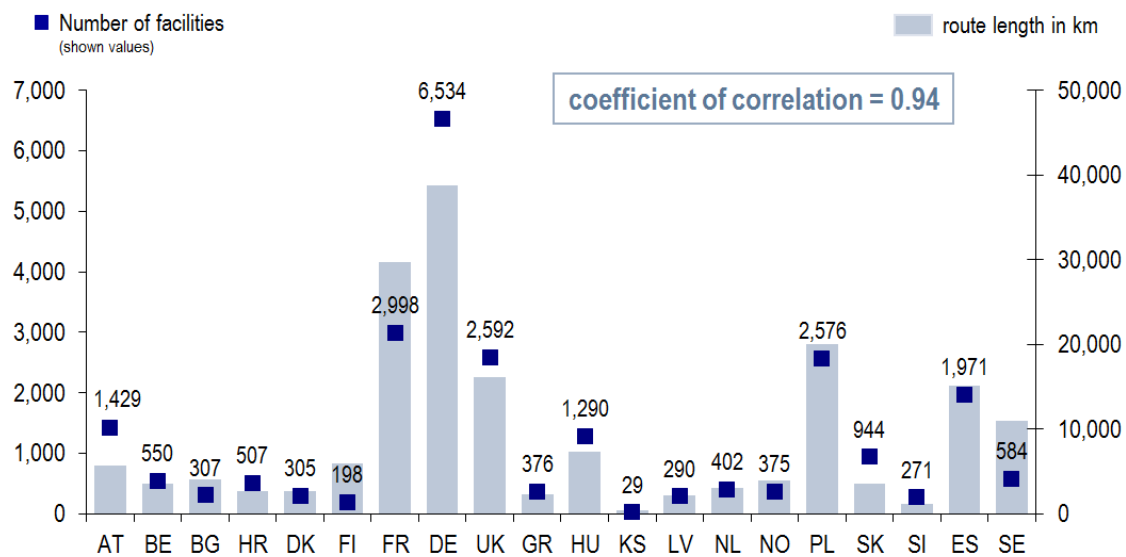
90. A passenger station is any stop of a passenger train where passengers can embark or disembark the train. The company granting a railway undertaking access to the platform of a station is the operator of the station. This might be a different company than the company granting access to ticket sales or travel information at stations. For example, in the Netherlands part of the stations, the platforms, are owned by the independent infrastructure manager which grants access to the platforms. Other parts are owned by the incumbent which grants access to travel information. In Norway all stations built after 1996 are owned by the independent infrastructure manager. Stations built before 1996 are owned by a daughter of the incumbent railway undertaking NSB, however the main infrastructure manager has ownership control of the platforms, and gives access to tracks. In Sweden the infrastructure manager operates the larger stations but smaller stations have often a more complex picture of ownership with municipalities in combination with the infrastructure manager operating stations.
91. Figure 25 shows that in many countries, stations are almost exclusively operated by the incumbent railway undertaking or related companies. However there are a considerable number of exceptions. In Bulgaria, Croatia, Finland, Greece, Kosovo, the Netherlands, Norway, Slovakia and Spain the independent infrastructure manager or another company operates all the stations.
92. Figure 26 shows that Austria¹⁰ and Germany have the largest number of operators of stations. However, in both countries it is the incumbent or related companies which operate the vast majority of the stations. In Belgium, France, Hungary, and Slovenia all stations are operated by either one or two incumbent or related companies.

Figure 27: Station density in relation to network length
Number of passenger stations per thousand route kilometre



¹⁰ 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.

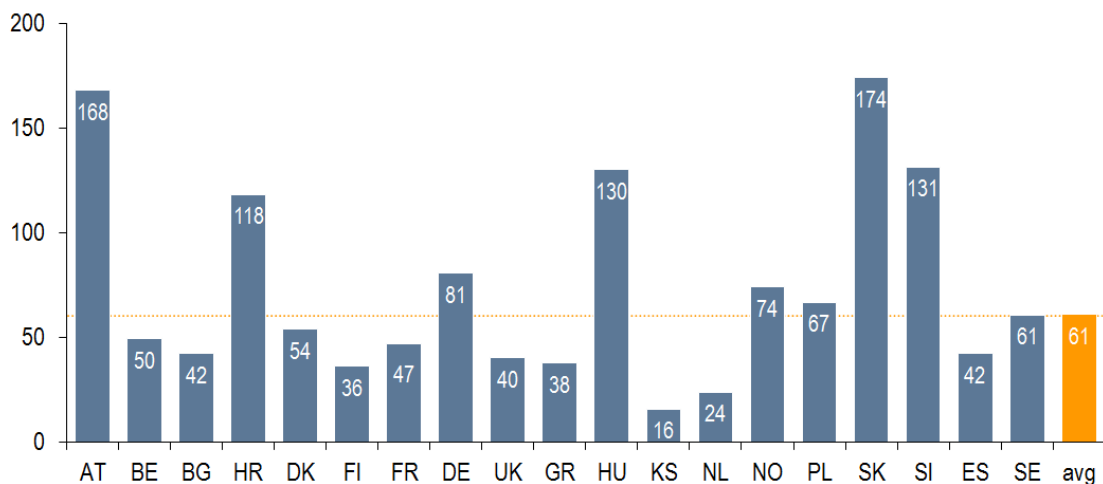
Figure 28: Correlation between route length and number of passenger stations



93. The average station density amongst the countries monitored is 137 stations per thousand route kilometres. Most countries are close to this average. Bulgaria, Finland, Kosovo and Sweden show a relatively low station density, meaning that the distance between stations is long. One expects to find long distances in large countries with a low population density, for example like in Finland.
94. Figure 28 shows a strong positive correlation between route length and number of passenger stations in relation to network length¹¹. This strengthens the logical explanation that the longer the network, the more stations are needed.

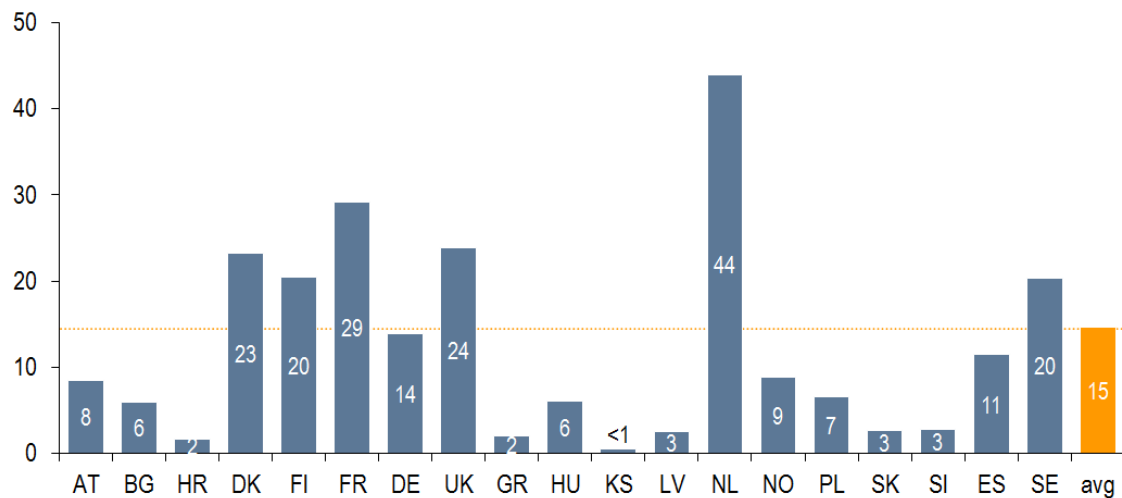
Figure 29: Station density in relation to population

Number of passenger stations per mio. residents



¹¹ The correlation coefficient would be 0.92 without Germany.

Figure 30: Average million passenger kilometres per passenger station



95. Figure 29 shows that the average station density amongst the countries measured is 61 stations per million residents. Austria, Hungary, Slovakia and Slovenia have a relatively high station density in relation to their population. Kosovo and the Netherlands have a relatively low station density in relation to population.
96. Figure 30 shows the passenger stations travelling intensity.¹² A low station travelling intensity means that there are relatively many stations with respect to the total passenger kilometres per year. On average, there are 15 million passenger kilometres per year per passenger station in the countries measured.
97. The Netherlands show a combination of many passenger kilometres per station and relatively few stations per resident. This indicates an intensive use of rail stations. For the Netherlands this can be explained by a high population density and a relatively small land area. In addition, there are many commuters who are not working and living in the same town.
98. Bulgaria, Croatia, Hungary, Kosovo, Latvia, Slovakia and Slovenia have a relatively low average of passenger kilometres per station. Hungary, Slovakia and Slovenia have relatively many stations in relation to network length and population. These countries seem to have a good infrastructure for passenger transport (many stations), but few passenger kilometres per station. In Hungary, having relatively many stations, passenger traffic tends to concentrate on a few stations, where other stations receive only few passengers.
99. Kosovo has few stations in relation to network length, few stations in relation to population and few passenger kilometres per station. This can be explained by a low use of rail as a transport mode. 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.
100. In the Annex to the third IRG-Rail market monitoring report one can find the correlation between total passenger train kilometre and the number of passenger stations. The

¹² For France and the United Kingdom the numbers might be based by the very large stations of London and Paris. As a consequence, the average passenger station travelling intensity for stations outside Paris and London might be much lower than the figure presented.

Annex also includes the correlation between total passenger kilometres and the number of passenger stations.

101. 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 United Kingdom has the highest number of intermodal terminals. Bulgaria, Croatia, Denmark, Greece, Kosovo and Slovenia have relatively few intermodal terminals. These countries also have relatively few freight train kilometres. Norway also has relatively little traffic, however there are 18 intermodal freight terminals in Norway.

5.5.2 Freight Terminals

Figure 31: Number of Intermodal Freight Terminals

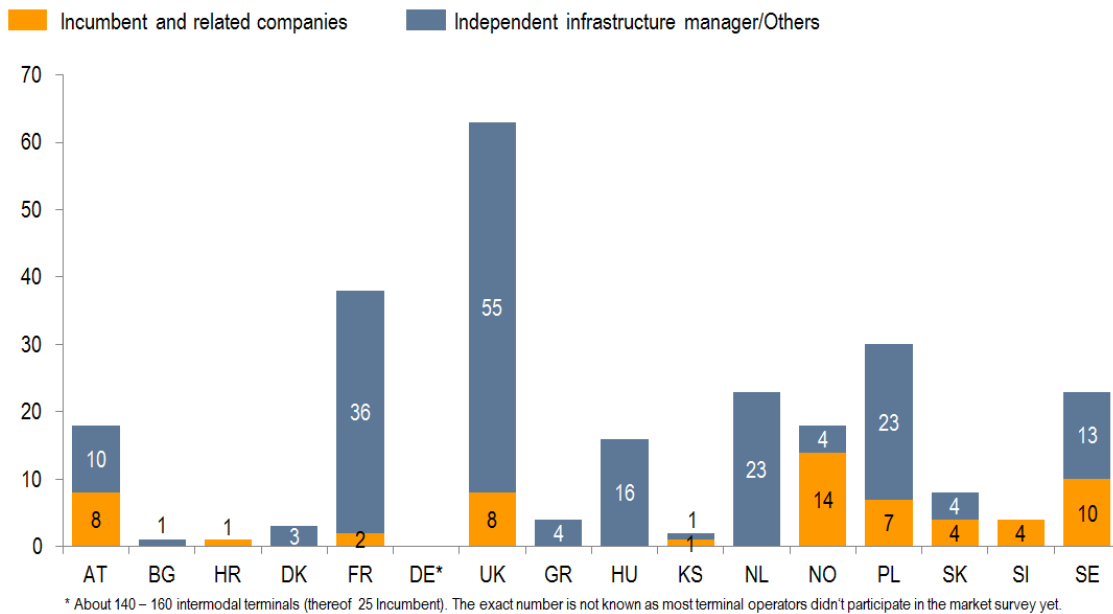
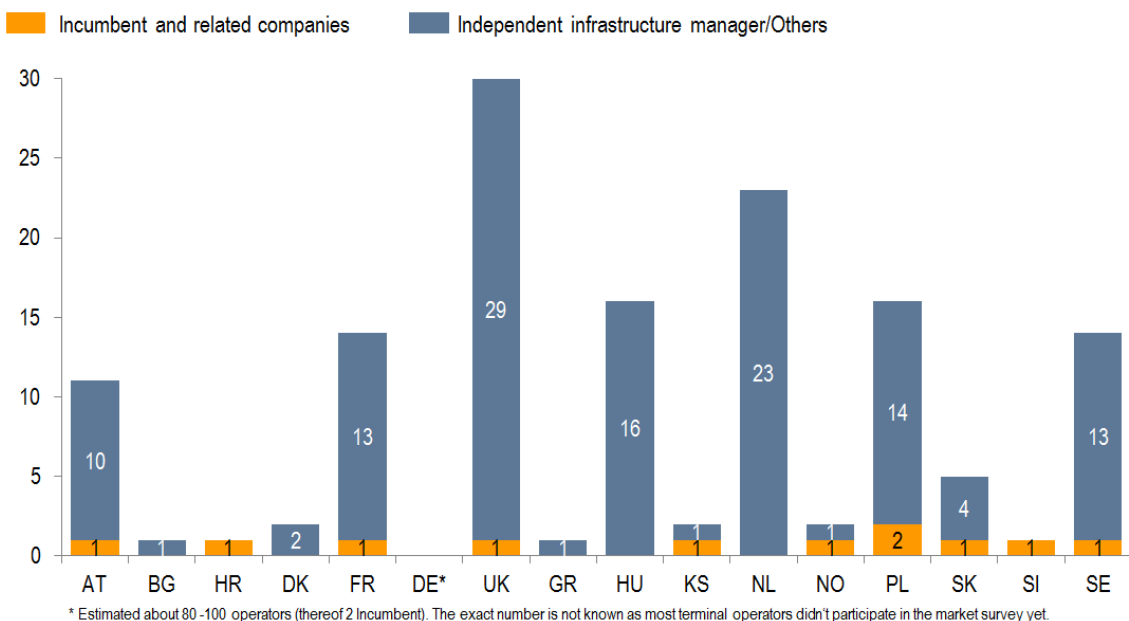


Figure 32: Number of Intermodal Freight Terminal Operators



102. Unlike passenger stations, the majority of intermodal freight terminals in the countries monitored are not operated by the incumbent railway undertaking or a related company. Croatia and Slovenia are exceptions, where all intermodal terminals are operated by the incumbent railway undertaking (or a related company). In Bulgaria, Denmark, Greece, Hungary and the Netherlands, all the terminals are operated by companies which are not (related to) the incumbent railway undertaking.
103. For about half of the countries monitored there are just one or two operators; namely Bulgaria, Croatia, Denmark, Greece, Kosovo, Norway and Slovenia. The other half of the countries monitored show a relatively large number of operators. In these countries companies can choose between several operators and several facilities. In practice, even in these countries the degree of choice might be limited as the geographical location is an important factor for loading and unloading operations, thus making the market for terminals a regional or even a local market.
104. In some countries, the terminals are transferred to another operator, In July 2013 the operations of the Austrian terminals were transferred from the incumbent freight operator RCA to the infrastructure manager. In Norway, access to and the operation of terminals has been a big challenge, mainly due to the complex ownership structure and shortcomings in the legislation regarding access to service facilities. The ownership of the intermodal freight terminals in Norway is divided. The incumbent railway undertaking owns most of the tracks, but the incumbent infrastructure manager owns at least one track on each terminal. The freight company Cargolink operates on four terminals alongside the incumbent railway undertaking. In Norway the infrastructure manager will take over the operation of all intermodal terminals as from 2015, hence making the supply of service facilities independent of the railway undertakings.

5.5.3 Marshalling Yards

Figure 33: Number of marshalling yards with gravity hill

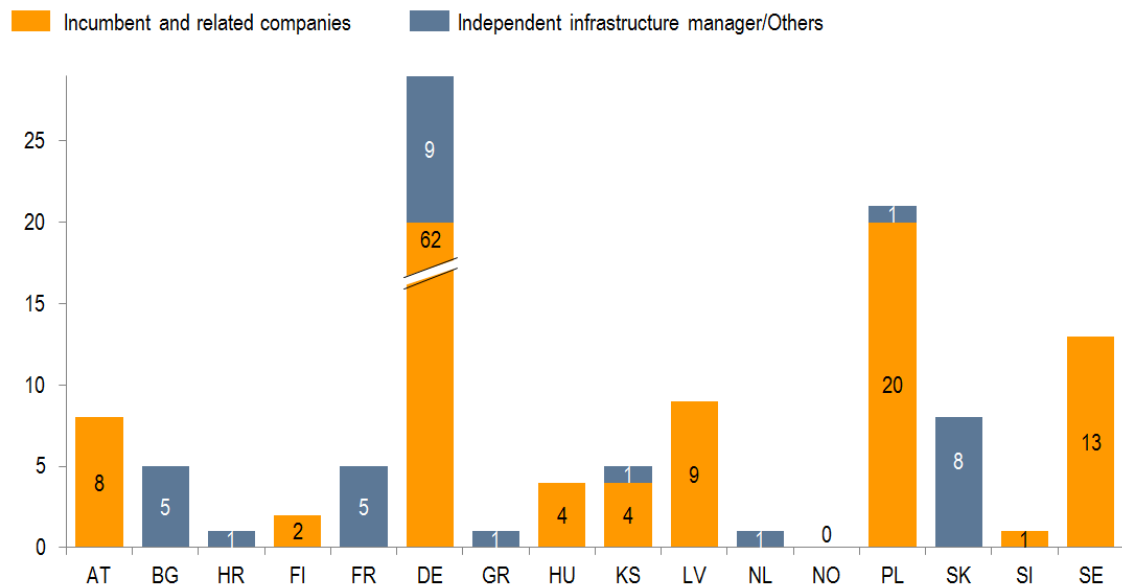


Figure 34: Correlation between freight traffic and number of marshalling yards with gravity hills

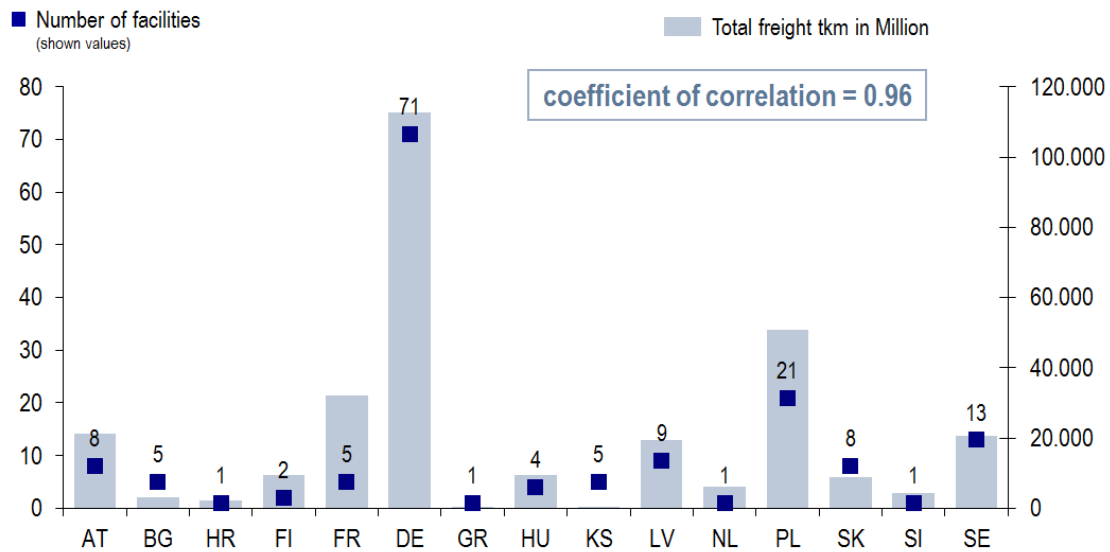
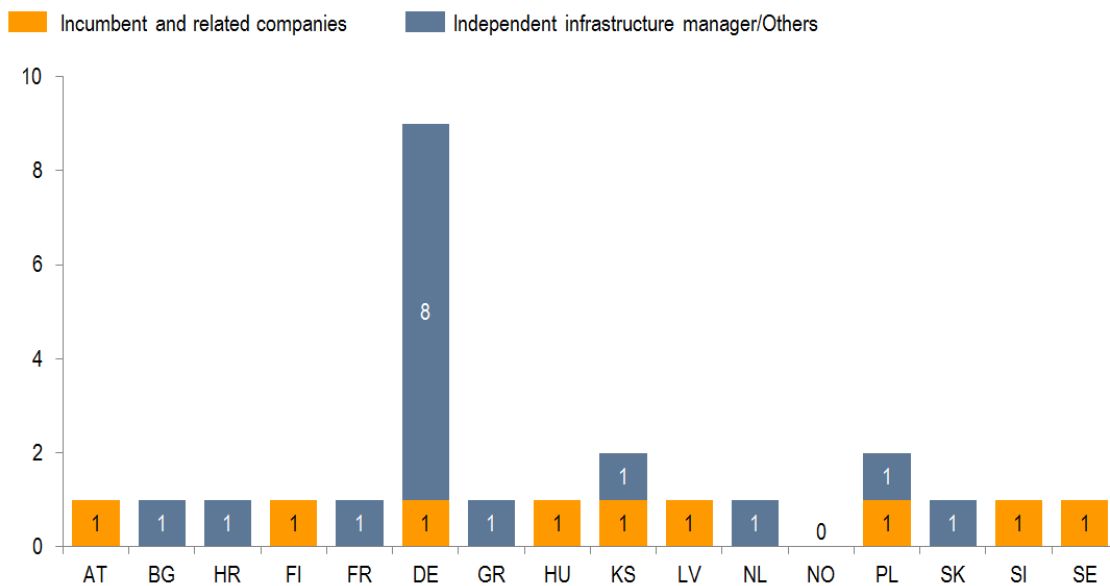


Figure 35: Number of operators of marshalling yards with gravity hill



105. To facilitate the comparison of marshalling yards, IRG-Rail has identified the number of marshalling yards with gravity hills. Germany has by far the most marshalling yards with gravity hills. Similarly Austria, Latvia, Poland, Slovakia and Sweden have a considerable number of marshalling yards with gravity hills. Austria has relatively many gravity hills as single wagon load traffic still plays an important role in Austrian rail freight market. Single wagon load traffic requires a lot of remarshaling of freight trains. In Poland, from 2012 to 2013, the number of marshalling yards with gravity hills decreased from 26¹³ to 21 as three gravity hills were closed and the classification of two such facilities was changed. Croatia, Greece, the Netherlands and Slovenia have just one gravity hill. Norway has no gravity hills.
106. Figure 38 shows a strong correlation between the freight traffic performance and the number of marshalling yards with gravity hills. This might indicate that the number of gravity hills increases as the freight traffic performance increases.
107. In most cases, there are only one or two companies operating marshalling yards with gravity hills. There is one exception that is Germany where there are nine different operators for gravity hills. Although the segment is still dominated by the incumbent railway undertaking; some competitors have appeared on the market as a result of DB Netz closing down most smaller marshalling yards in the nineties. Some competing railway undertakings were faced with capacity problems in the remaining marshalling yards. The competitors therefore reactivated some of the abandoned marshalling yards. For Austria, Finland, Hungary, Latvia, Slovenia and Sweden, all marshalling yards with gravity hills are operated by the incumbent railway undertaking or a related company. This implies that railway undertakings are dependent on a competitor for access to a gravity hill. Austria reports that so far there has been no demand from private railway undertakings to use Austrian gravity yards.

5.5.4 Maintenance Facilities

Figure 36: Number of maintenance facilities

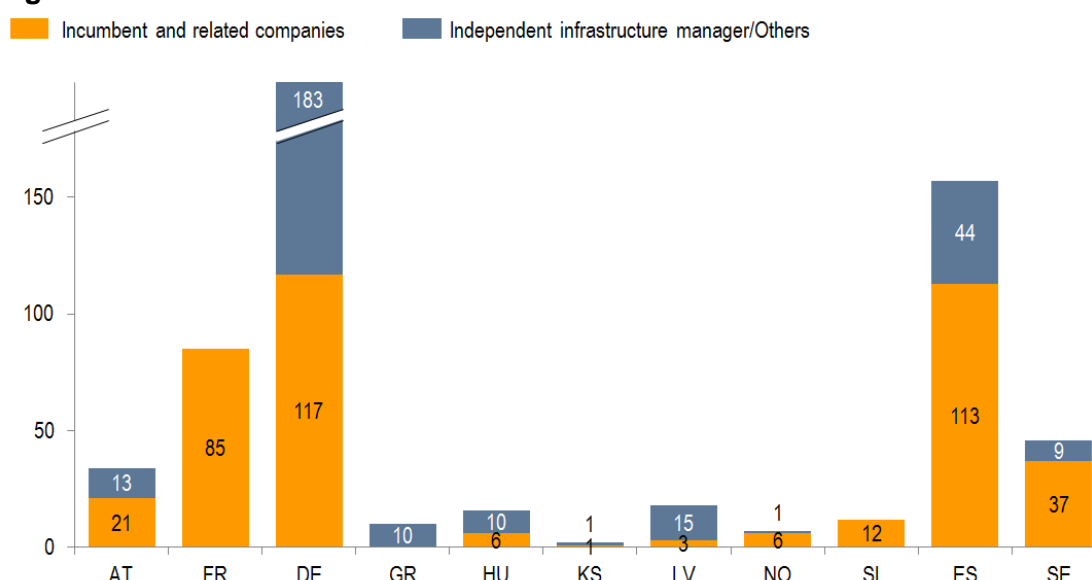
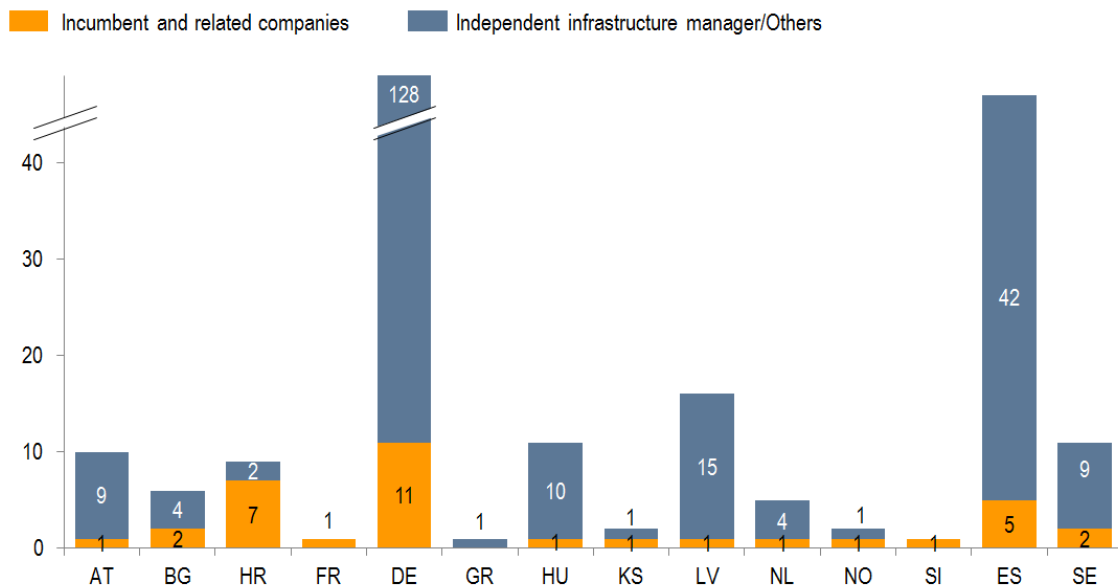


Figure 37: Number of operators of maintenance facilities

¹³ For Poland, the second IRG-Rail market monitoring report shows the wrong number of marshalling yards with gravity hills for 2012. This should be 26 instead of 29.



108. For this report, IRG-Rail considers that maintenance facilities are limited to those facilities where maintenance of rolling stock is carried out. Still it remains difficult to compare data on maintenance facilities. This is due to the highly differentiated maintenance market. In general, the experience of regulatory bodies indicates that the maintenance market for freight rolling stock is more competitive than the maintenance market for high speed rolling stock.
109. Germany has by far the largest number of maintenance facilities, although France and Spain also have a considerable number of facilities. In Spain the number of facilities could be explained by a historical oversizing (the facilities are now being reorganised) and the inclusion of both large and small facilities, some without permanent staff.
110. Most of the facilities in the countries monitored are operated by the incumbent railway undertaking or a related company. In France and Slovenia all the facilities are operated by the incumbent railway undertaking. In Germany, Greece, Hungary and Latvia the majority of the maintenance facilities are operated by the independent infrastructure manager or other companies.
111. In Germany and Latvia there are indications that competition takes place up to a certain level. In both countries, there are many maintenance operators for freight wagons but options for high speed wagons are rather limited.
112. Some examples show that the maintenance market could be regarded as an international market. In Norway the incumbent railway undertaking owns the largest maintenance company Mantena. The private maintenance company (NTT) performs maintenance for Cargolink (second largest freight company), while the small operator Grenland Rail performs their own maintenance. The four Swedish railway undertakings operating in Norway do their maintenance in Sweden. In Austria, a subsidiary of the incumbent operator ÖBB holds shares in maintenance facilities in Slovakia and Hungary and diverts some maintenance work to these facilities for economic reasons.

5.5.5 Refuelling Facilities

Figure 38: Number of refuelling facilities

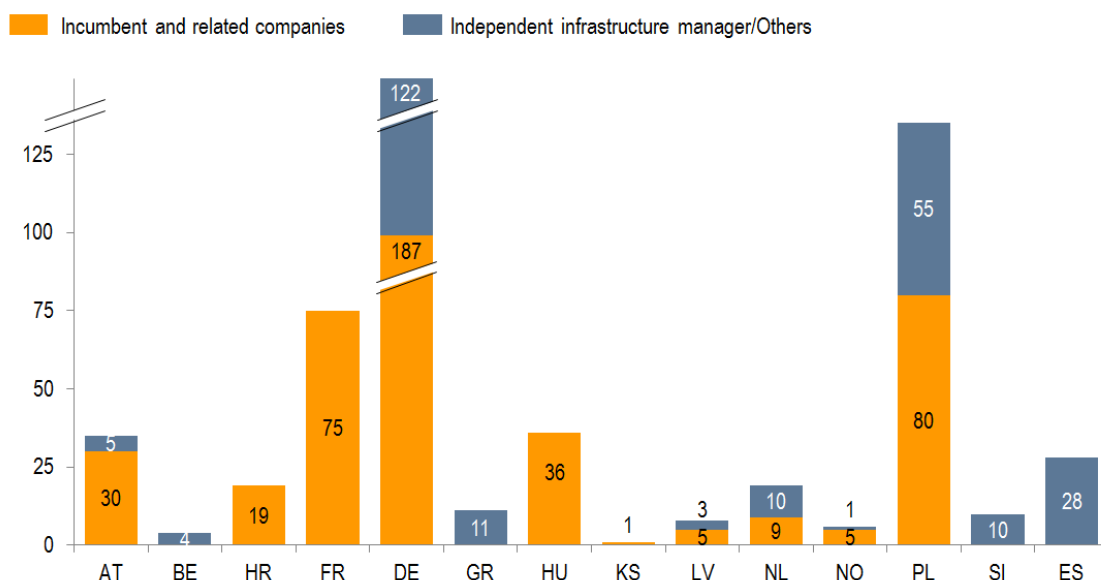
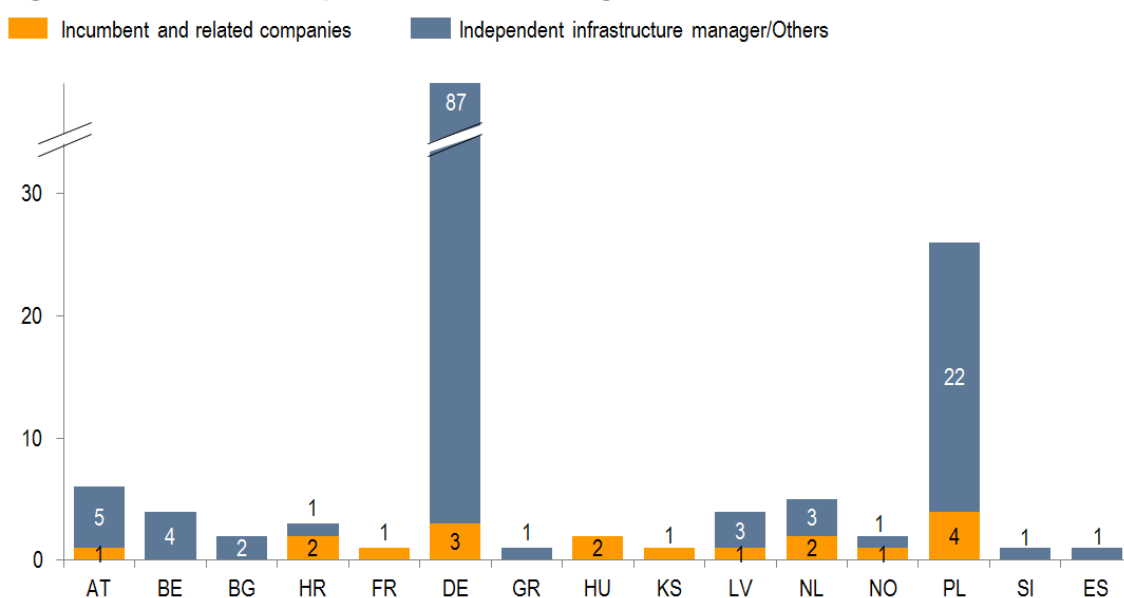


Figure 39: Number of operators of refuelling facilities



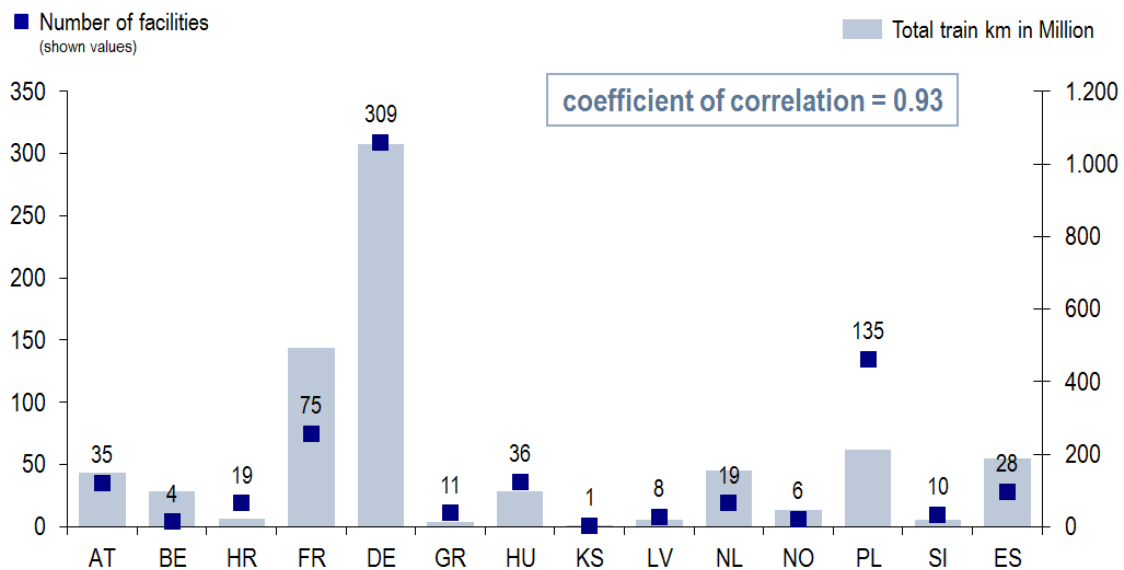
113. Refuelling facilities are the infrastructure elements necessary to load fuel into rolling stock. This excludes fuel itself. The majority of the facilities in the countries monitored are operated by the incumbent railway undertaking or related companies. However in some countries, namely Belgium, Bulgaria, Germany, Greece, the Netherlands, Poland, Slovenia and Spain, all or a substantial part of the refuelling facilities are operated by the incumbent infrastructure manager and/or another company. In Poland the number of refuelling facilities increased from 122 in 2012¹⁴ to 135 in 2013. In

¹⁴ For Poland, the second IRG-Rail market monitoring report shows the wrong number of refuelling facilities for 2012. This should be 122.

France the number of refuelling facilities increased from 64 in 2012 to 75 in 2013¹⁵. In the United Kingdom the majority of refuelling facilities can be found at light maintenance depots managed by railway undertakings.

114. In Croatia, France, Hungary, Kosovo and Norway, refuelling facilities are solely or almost solely operated by the incumbent railway undertaking or related company. Options could be more limited in those countries.

Figure 40: Correlation between total train kilometres and number of refuelling facilities



115. The correlation between total train kilometres and the number of refuelling facilities is high, indicating that there is a relationship between traffic volume and the number of refuelling facilities. However the correlation should be interpreted with care as the coefficient without Germany is much lower. Croatia, Germany, Greece, Hungary, Latvia, Poland and Slovenia show a relatively high 'refuelling density', meaning there are relatively more refuelling facilities with respect to total traffic volume. Belgium, France, the Netherlands and Spain, show a relative low refuelling density.

¹⁵ For France, the 2013 data for the private operators on refuelling facilities is lacking. It is possible that there are some refuelling facilities operated by private operators.

5.6 Key decisions of Regulatory Bodies

116. This chapter summarizes the key decisions that the regulatory bodies came to in 2013. The detailed descriptions of the decisions are given in the Annex with each country sheet. An analysis of the decisions showed that a few topics were relevant for some countries and can be merged as decisions relating to the network statement, capacity issues and traction current.
117. In several countries like Austria, France, Kosovo and Poland the ex officio examination of the network statements of the infrastructure managers led to objection by the regulatory body, or network statements caused complaints by the railway undertakings in 2013. Most of the findings were related to the charging systems and methods, the overall level of payments and charges that were not based on the recovery of direct costs. Some of the complaints could be solved by mutual agreement, others were taken to court.
118. On charges in France, ARAF did not approve the infrastructure manager's charging scheme in 2013, and paid particular attention to the productivity when setting charges, including the cost directly incurred, the new cost model and its use in charging and the economic signals linked to different increases in reservation charges for high speed lines. First, the Authority noted that the new indexing system for charges remained contrary to the principle of efficiency and that the final proposal (4.8 %) appeared very high considering overall inflation rates and the economic situation. Second, ARAF states that the train running charge should be directly revalued on the basis of the costs directly incurred by RFF.
119. Several decisions of the regulatory bodies were related to capacity issues. In Norway, for example, the incumbent railway undertaking was granted all requested train paths between Oslo Central Station and Lysaker by the incumbent infrastructure manager, leaving capacity only for half of the train paths requested by a non-incumbent railway undertaking. The main points of the decision was that the infrastructure manager did not have appropriate priority criteria to ensure that capacity on congested infrastructure was allocated in accordance with legal requirements. In France the regulatory body obliged the infrastructure manager to give a better notice to the railway undertakings when it has to change or suppress a path previously granted, and to improve the understandability for railway undertakings concerning maintenance works. Consequently, when the infrastructure manager has to suppress a path, an alternative should be proposed or a fee will be paid. The terms of this new incentive was further defined in 2014 after public consultation.
120. Another decision related to capacity issues was enforced in Germany. The regulatory body directed the infrastructure manager to amend the process of assigning track capacity within service facilities to railway undertakings. In the course of investigating a new pricing system for service facilities it became evident that a complementary rule for assigning track capacity had to be found. This rule should cover the coordination process as well as the case of conflicting use. The fundamental question that arose was the one of the role of the operator of the service facility as a manager of mostly scarce capacity. In the end this led Germany to introduce in the network statement a transparent process and criteria which are used for the allocation of tracks. Similar decisions regarding the allocation of train paths were made in Bulgaria. In Hungary the regulatory body also carried out ex-officio procedures in the area of capacity allocation. According to Hungarian law the infrastructure manager must request capacity for maintenance work. In cases where an infrastructure manager fails to fulfil that obligation the regulatory body can impose a financial penalty.

121. Other complaints handled by the regulatory bodies covered charging for traction current. In Germany the decision to regulate the charges for traction current was enforced by the court. Therefore for the first time the price for traction current was reduced on average by 11 percent in 2013. In Hungary one of the infrastructure managers requested an approval regarding the charges and invoicing of traction current. The regulatory body approved the request.
122. In addition to these examples other decisions related to the access to service facilities were taken. In Austria an agreement on the use of a washing facility was reached. In Croatia there was an important precedent judgment that confirmed that the appeal period was not permanent and is linked to the publication of the network statement. In Denmark the regulatory body has taken several general decisions on access to service facilities, e.g. concerning the charges set for lift of trailers and containers at combined freight terminals operated by the dominant rail freight company, and on a railway company's right to perform its own shunting operations during periods of time where the terminal operator cannot be present. In Germany there were some crucial incidents regarding signal boxes due to a staffing shortage. The regulatory body had to intervene and only the threat of a financial penalty helped solving the problem. In the Netherlands a study about the cooperation between German and Dutch infrastructure managers was carried out. This found room for improvement in the cooperation of short-term planning of maintenance (six weeks before realization) and the exchange of information on operators. Furthermore a quick scan on passenger rail transport concluded that the interests of regional railway undertakings and their passengers were inadequately reflected and that there were thus insufficient incentives for railway undertakings to dedicate themselves in a way that is good for passengers. In France a decision on the access conditions and charging of marshalling yards obliged the infrastructure manager to define and publish in the Network Statement the marshalling yards allocation procedure that defines the main deadlines of the allocation process, the allocation criteria for marshalling yards and the reasons to refuse an allocation request. On the charges, the operator of the service facilities has been asked to establish a database of its costs, a method to calculate the charges in conformity with the European regulatory provisions and use charging for marshalling yards in conformity with the new method.
123. In the UK, the regulatory body did not have to deal with any appeals, but published an assessment of the mainline infrastructure manager's performance, highlighting that there were significant areas where the infrastructure manager fell short of what it was funded to deliver and that targets for punctuality of certain services had been missed. The annual efficiency and finance assessment of the infrastructure manager also showed that there was a lack of knowledge of assets and lack of delivery of its civil renewals programme, that some poor maintenance had led to poor asset performance and there was not sufficient attention to drainage which was preventing preparation for bad weather. The infrastructure manager was asked to put forward some clear plans to remedy the situation.
124. Last but not least in Spain it was decided to merge all regulatory and competition bodies in one organization, Spanish Markets and Competition Authority, with responsibilities in the area of competition, energy, telecommunications, transport and postal services.