



Bundesnetzagentur

# Market Analysis

## Railway 2014



# Railway Market Analysis 2014

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## List of abbreviations

AEG	Allgemeines Eisenbahngesetz (General Railways Act)
AG	Aktiengesellschaft (public limited company)
BAG	Bundesamt für Güterverkehr (Federal Office for Goods Transport)
bn	billion
DB	Deutsche Bahn
EBA	Eisenbahn-Bundesamt (Federal Railway Authority)
EIBV	Eisenbahninfrastruktur-Benutzungsverordnung (Rail Infrastructure Usage Regulations)
EU	European Union
GDP	gross domestic product
GWh	gigawatt-hour
Hz	hertz
IRG-Rail	Independent Regulators' Group – Rail
km	kilometre
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
MWh	megawatt-hour
pkm	passenger-kilometre
RU	railway undertaking
t	tonne
tkm	tonne-kilometre
TWh	terawatt-hour







## The rail market in figures




### Revenue development - railway undertakings 12/13

2013	Total	18.7	bn €	
	Rail freight	4.8	bn €	
	Long-dist. passenger	4.0	bn €	
	Short-dist. passenger	9.9	bn €	




### Revenue development - infrastructure managers 12/13

2013	Total	5.6	bn €	
	Track access charges	4.4	bn €	
	Station usage charges	0.8	bn €	
	Other charges	0.4	bn €	

### Transport performance 12/13

2013	Rail freight	113	bn tkm	
	Long-dist. passenger	37	bn Pkm	
	Short-dist. passenger	54	bn Pkm	

### Market share held by competitors 12/13

2013	Rail freight	33	%	
	Long-dist. passenger	< 1	%	
	Short-dist. passenger	19	%	

Where final figures were not available at the time of publication of this report, the data were marked with an "e" (estimate).

## Summary

Buoyed by the macroeconomic trend, revenues in the rail transport market increased slightly again (+0.5%) in 2013. Small increases in revenue were reported in the rail freight and short-distance passenger rail transport segments, while revenue levels fell slightly in the long-distance passenger rail transport segment after having posted a significant increase of approximately 8% in the preceding year.

Passenger and freight volumes continued their positive growth, particularly in the short-distance passenger and rail freight transport segments, following a decline in volume in the latter segment during the previous year. After having increased the year before, transport volumes in the long-distance passenger rail transport segment remained stable.

The total number of passenger-kilometres (pkm) travelled in the short-distance passenger rail transport segment and tonne-kilometres (tkm) in the rail freight segment increased in 2013, following a decline in tonne-kilometres in the rail freight segment in 2012.

By contrast, the number of passenger-kilometres reported in the long-distance passenger rail transport segment remained constant. On a positive note, competitors accounted for a growing share of transport volume in both the rail freight segment and the short-distance passenger rail transport segment in 2013. The share generated by competitors in the long-distance passenger rail transport segment remained less than 1%.

All in all, operating performance (train-kilometres) on public railway lines fell slightly in 2013, as it also did in the previous year. At 1.05 billion train-kilometres, it is still less than the level reported in 2010. The share of infrastructure managers whose network statements have been reviewed by the Bundesnetzagentur increased once again.

Track access charges and station prices for infrastructure use continued to rise through 2013. As a result, railway undertakings in the rail freight segment had to set aside some 18% of their revenues for infrastructure access charges. For railway undertakings in the long-distance passenger rail transport segment this figure was approximately 23%; for their counterparts in the short-distance passenger rail transport segment it was some 37%.

The economic situation in the German rail transport market was also examined as part of the market analysis for the second time now. In this connection, baseline business data from railway undertakings and infrastructure managers was gathered from the market participants and subsequently analysed (see Section 6). This information shows that operating results varied from sector to sector. One hundred per cent of the railway undertakings in the long-distance passenger rail transport segment, 81% of the railway undertakings in the rail freight segment and 73% in the short-distance passenger rail transport segment reported positive operating results. Differences were also observed when the profit margins were examined. Operating results represented 8.1% of revenue in the short-distance passenger rail transport segment, but just 6.4% in the long-distance passenger rail transport segment and 0% in the rail freight transport segment.

Looking at non-federally-owned railway line infrastructure operators, the ratio of revenue to expenditure continued to worsen in 2013, with the balance now at -48%. The equity ratio is 35% in the overall market and for the Deutsche Bahn enterprises. This figure is 31% for non-federally-owned operators. The ratio of revenue

to expenditure is negative for non-federally-owned service facility operators. The balances worsened somewhat further in 2013 over the levels seen in the previous years.

# 1 Introduction

## 1.1 The Bundesnetzagentur's mandate in the railway sector

In its efforts to ensure effective competition in the railway sector, the Bundesnetzagentur monitors compliance with the legal provisions pertaining to non-discriminatory access to rail infrastructure (tracks and service facilities) and the levying of non-discriminatory charges.

The Bundesnetzagentur's specific duties and powers are set forth in Sections 14ff. of the General Railway Act (AEG), as supplemented by provisions of the Rail Infrastructure Usage Regulations (EIBV).

## 1.2 Background

Fulfilling these tasks requires access to valid, up-to-date information about the railway market in general and railway companies in particular (Section **Fehler! Verweisquelle konnte nicht gefunden werden.**). For this purpose, the Bundesnetzagentur has conducted written surveys to collect market data ever since it took up its work in 2006. Every year, it sends questionnaires in March or April to railway undertakings and other parties with access entitlements such as regional transport authorities. In 2013, the year under review here, the Bundesnetzagentur sent its questionnaire to more than 800 market participants.

The results of the survey are published not only in the "Railway Market Analysis" but also in the Bundesnetzagentur's annual report and the "Activity Report – Railways". The focus of the latter two publications is on regulatory aspects of the market, while the "Railway Market Analysis" publishes current statistical data, enabling interested parties to gain insights into the railway sector's structure and performance.

The Bundesnetzagentur strives to ensure continuity in its collection and analysis of this data. This continuity gives the surveyed companies and parties with access entitlements a sound basis for planning. Moreover, it is the only way that useful time series can be produced.

In addition to this, specific data are collected every year on topical issues. The analysis for the 2013 reporting year broke down the operating performance and transport performance not only by infrastructure manager but also by the type of route (national, cross-border) and by type of financing (independent or public funding). Data on, among other things, expenditure on traction current and fuel was gathered for the first time this year. The questionnaire for infrastructure managers was extended to include questions regarding train path requests and regarding punctuality statistics which serve as a source of information for the European Commission.

### 1.3 Market breakdown

The “Railway Market Analysis 2014” examines the area of railway transport via railway infrastructure to which access must be granted. Railway infrastructure is also a focus of this analysis. Depending on the type of infrastructure they operate, infrastructure companies are referred to as public railway line infrastructure operators or public operators of service facilities. Services facilities are further broken down into refuelling facilities, passenger stations, freight yards and freight terminals, marshalling yards, train formation facilities, railway sidings, maintenance facilities and ports.

Unless otherwise noted, the data in the text and diagrams here refer to the 2013 reporting year. An assessment of the infrastructure managers’ performance and charges was carried out as part of the market survey conducted in 2014.

The following diagram provides an overview of the market breakdown used in the Railway Market Analysis. It must be borne in mind here that, for instance, rolling stock manufacturers or railway undertakings can also be rail infrastructure managers as a sub-function of their primary business.

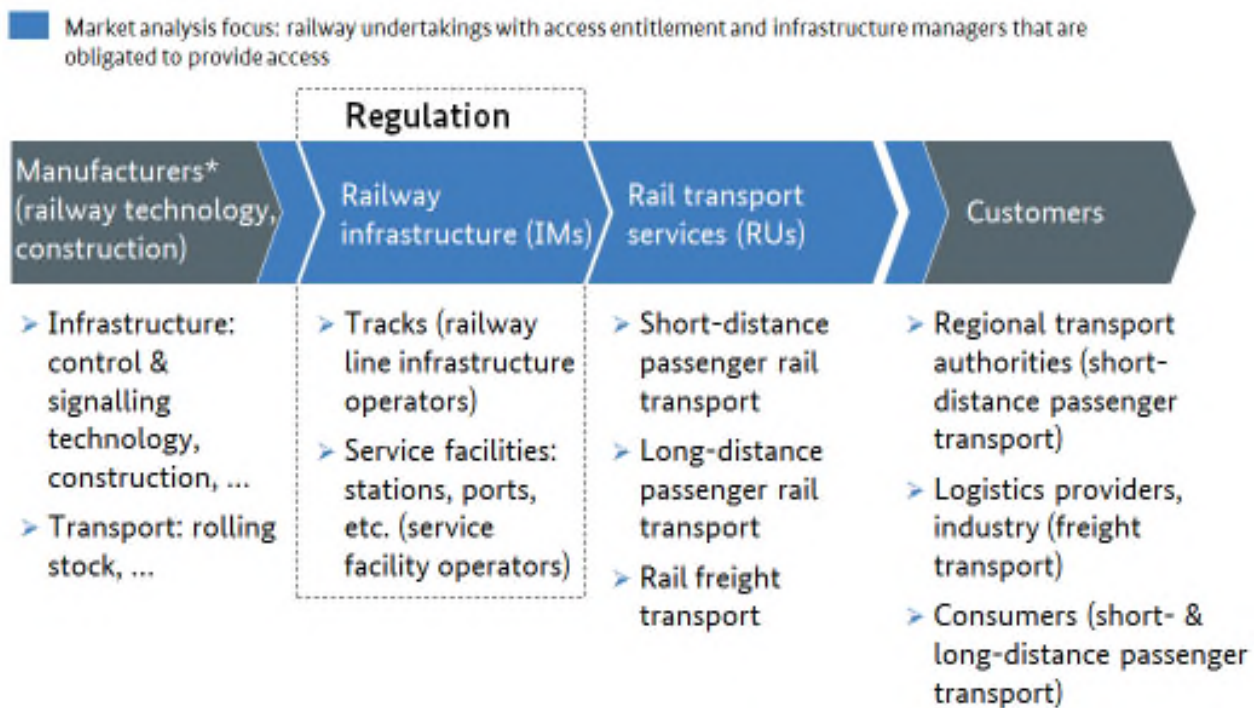


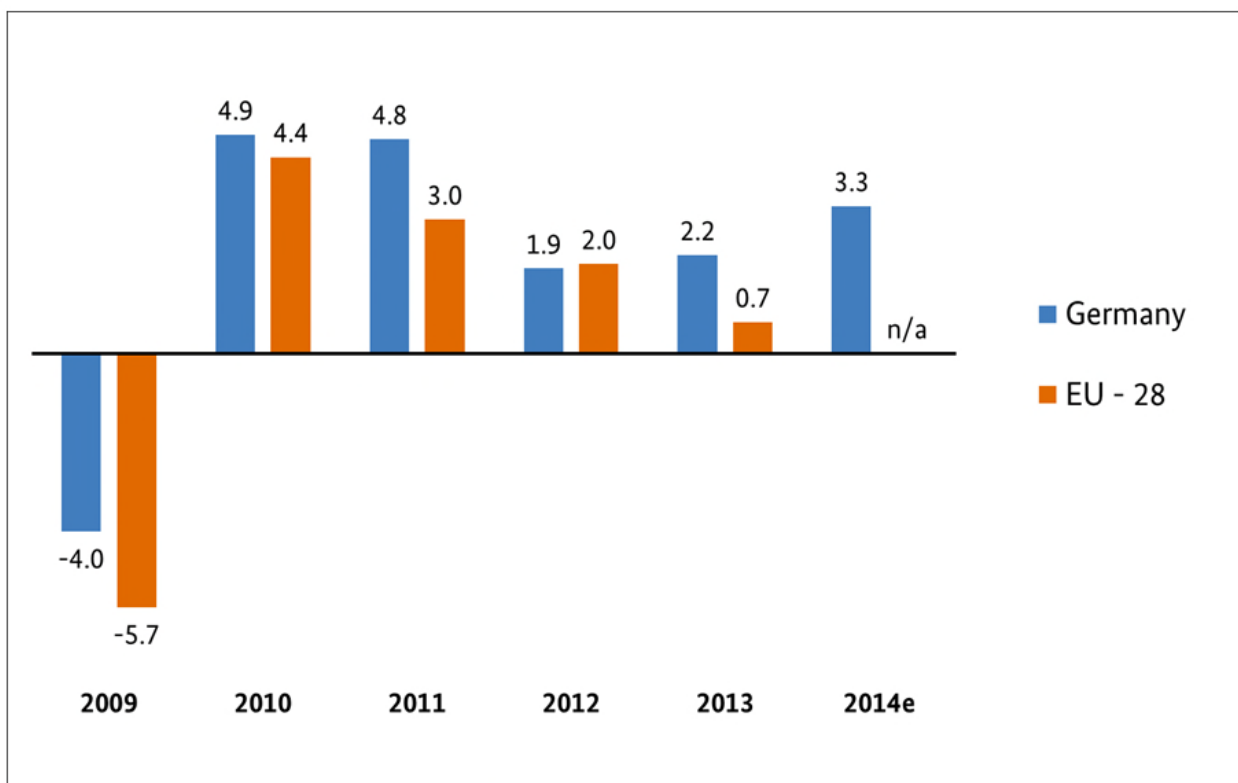
Figure 1: Market breakdown used in the Railway Market Analysis

## 2 The railway market

### 2.1 Market environment

The German economy has developed positively in the years since the downturn in 2009. For 2014, the country's economy is expected to grow by 3.3% over the previous year. This exceeds the growth rate reported for the year 2013 (2.2%). All in all, both 2014 and 2013 saw modest growth.

The picture is different in the European Union's 28 Member States (EU-28). The economy in the euro zone rebounded in the first few years following 2009 but then slowed again in 2012 and 2013. Economic growth was slower than in the previous years. EUROSTAT currently has no figures for the year 2014. The weakness of the euro zone economy, however, continues to dampen economic activity in Germany.



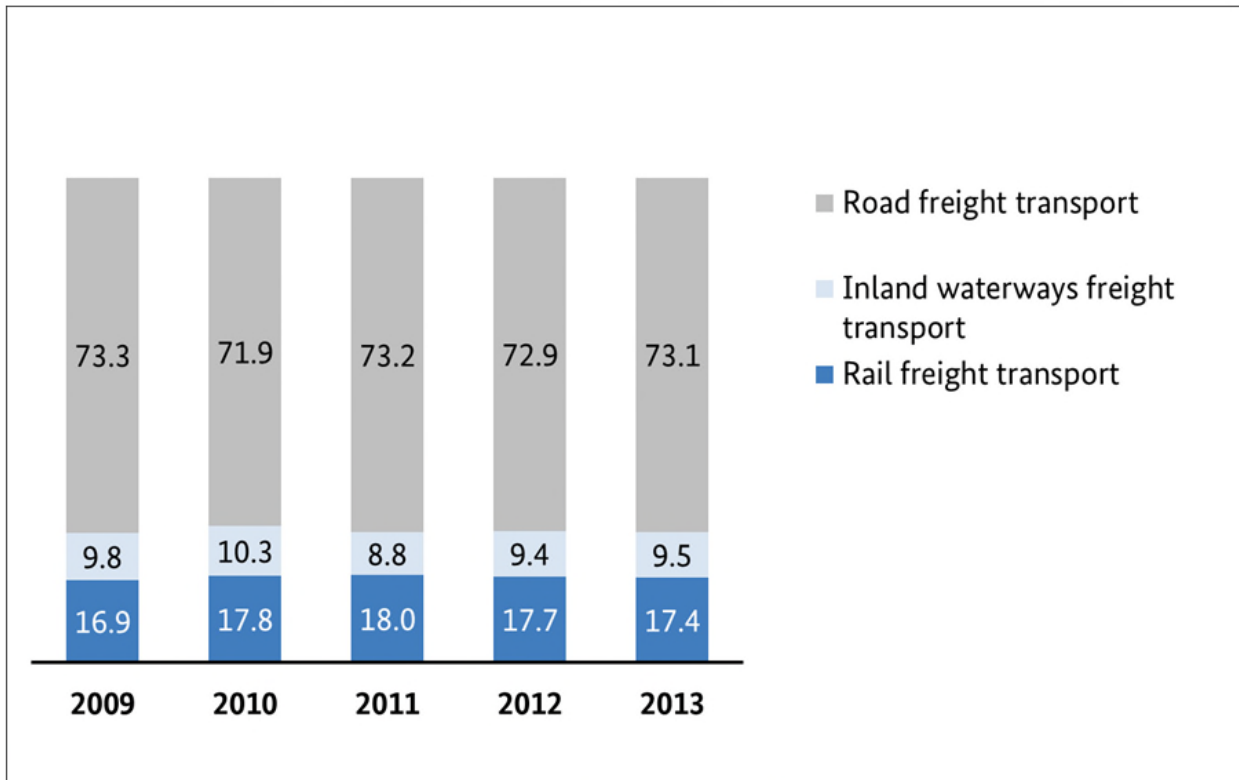
Source: Eurostat (Gross domestic product at current prices)

Figure 2: Nominal gross domestic product



## 2.2 Modal Split

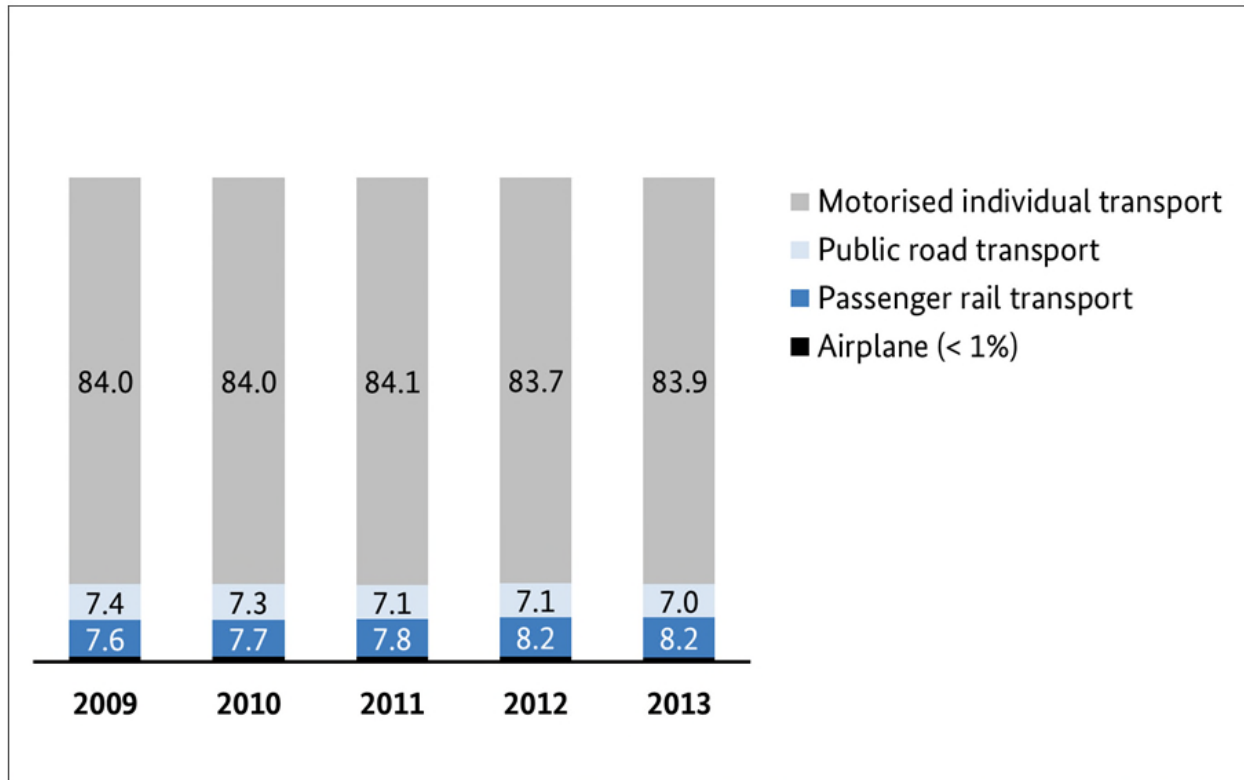
Both road freight transport and inland waterway transport grew their respective market shares of the modal split in the freight transport market slightly in 2013. By contrast, the rail freight transport segment saw its market share decline somewhat.



Sources: Verkehr in Zahlen (Transport in Numbers), BAG (Federal Office for Goods Transport), Destatis (Federal Statistical Office)

Figure 3: Modal split in the freight transport segment, in per cent

In the passenger transport segment, motorised individual transport grew its share of the modal split in 2013, after having declined slightly the previous year. The market share held by public road transport in the passenger transport segment shrank slightly from 7.1% in the previous year to 7%, while passenger rail transport remained constant with a market share of 8.2%.

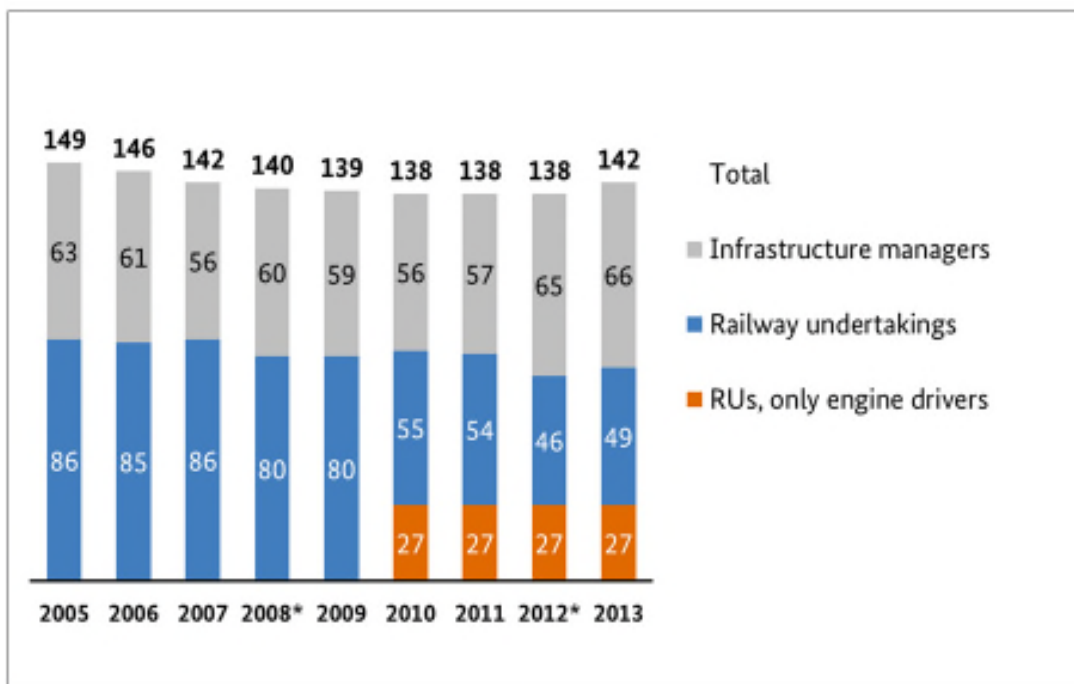


Sources: Verkehr in Zahlen (Transport in Numbers), BAG (Federal Office for Goods Transport, Destatis (Federal Statistical Office)

Figure 4: Modal split in the passenger transport segment, in per cent

### 2.3 Employment in the railway market

The number of full-time equivalents in the railway market increased for the first time during the reporting period. Their number increased not only among infrastructure managers but also among railway undertakings. Approximately 142,000 full-time positions<sup>1</sup> were filled in the railway market at the end of 2013. The number of engine drivers employed by railway undertakings cannot be separately shown prior to 2010.



\* From 2008, in some cases employees of several integrated companies are alternately classified as belonging to the transport or the infrastructure sectors.

\*\* Part-time positions are equivalently converted into full-time positions.

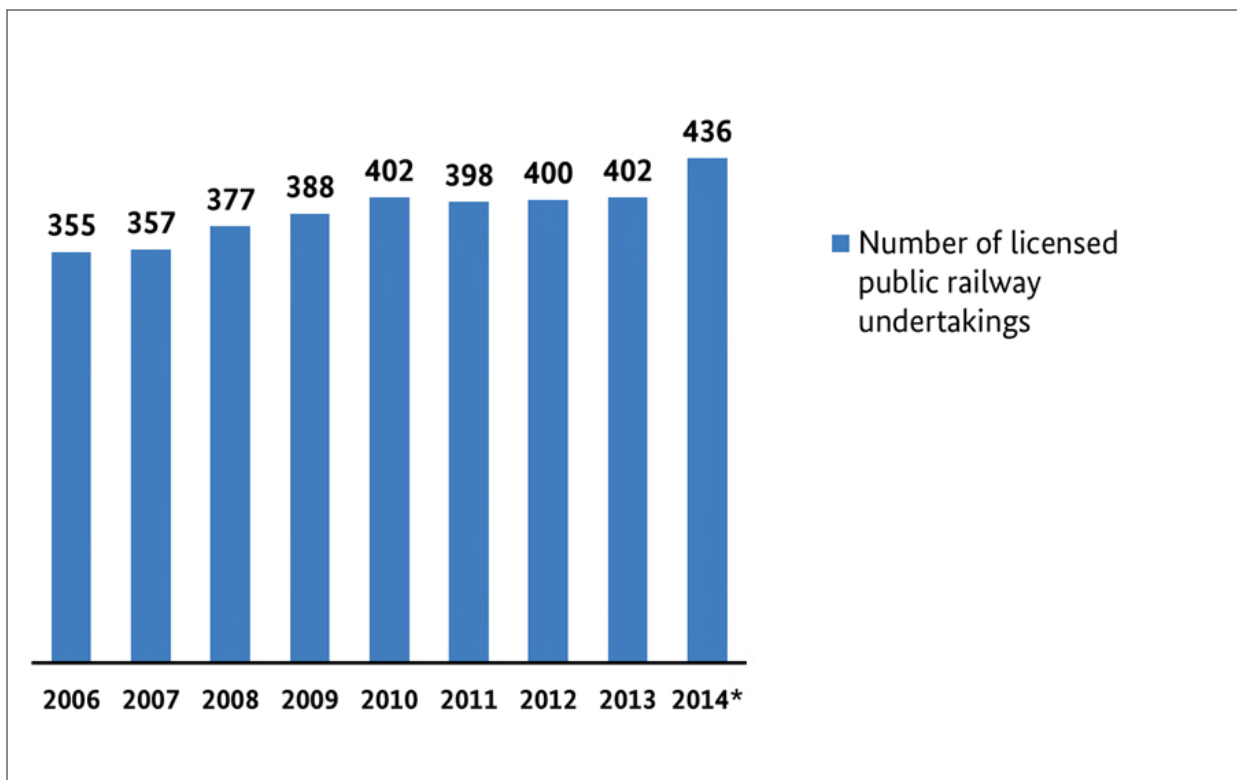
Figure 5: Number of employees in the railway market, in thousands

<sup>1</sup> Part-time positions recalculated to provide the corresponding number of full-time positions.

### 3 Railway transport market

#### 3.1 Number of public railway undertakings

Under Section 3(1), No. 1 of the General Railways Act (AEG) a public railway undertaking is a railway undertaking (RU) that is run on a commercial basis and may be used by anyone to convey persons or goods. The Federal Railway Authority's register of public railway undertakings indicates that their number increased in 2014, after having remained virtually constant in recent years. In November 2014, 436 railway undertakings held a licence to provide rail transport services for the public. By international standards, the German railway market counts among those national railway markets with the largest number of competitors.



\* As of Oktober 2014

Source: EBA (Federal Railway Authority)

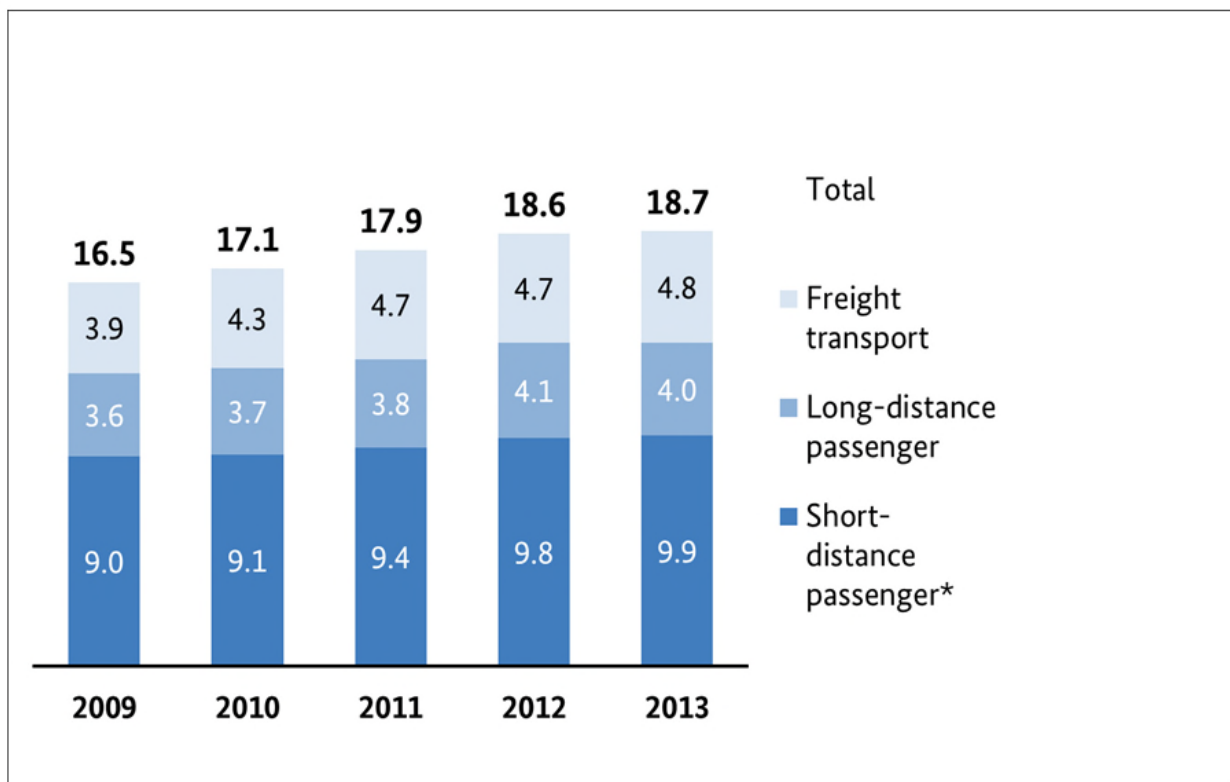
Figure 6: Licensed public railway undertakings

According to the Bundesnetzagentur's annual survey, more than 310 railway undertakings were actively involved in providing railway services in Germany. Out of these 310 railway undertakings, 225 provide rail freight or other transport services.

More than 120 railway undertakings provided short-distance passenger transport services. The number of railway undertakings operating in the long-distance passenger transport segment remained small. Approximately 20 – mostly smaller – railway undertakings provide transport services in this segment. The majority of these railway undertakings focuses exclusively on providing special non-scheduled rail services and consequently do not compete with regular (interval) services. A number of railway undertakings provide transport services in several market segments.

### 3.2 Revenue development among railway undertakings

The growth trend seen in the cumulative revenues in the railway market in recent years continued through 2013. However, the increase in revenue from 2012 to 2013 was the smallest since publication of the first Railway Market Analysis. All in all, railway undertakings generated a total revenue of €18.7 billion in 2013. Revenue generated in the rail transport market increased from €4.7 billion in 2012 to €4.8 billion in 2013, while revenue in the long-distance passenger rail transport segment declined slightly from €4.1 billion to €4 billion. In the short-distance passenger rail transport segment, revenue increased slightly, from €9.8 billion to €9.9 billion.



\* Including concession fees of the regional transport authorities.

Figure 7: Revenue development in the railway market, in billions of euros

### 3.3 Transport volumes

Transport volume in the passenger rail transport segment and in the rail freight transport segment increased in 2013. The short-distance passenger rail transport segment alone transported 2.53 billion passengers, a total of 60 million more passengers than in 2012. This represents an increase of more than 2%. Transport volume in the long-distance passenger rail transport segment remained constant over the previous year, with a total of 131 million passengers being transported in 2013, the same number as in 2012. The volume of rail freight transported in 2013 increased by nearly 5%, from 381 million tonnes in 2012 to 400 million tonnes in 2013. This marks the return of positive growth after the decline reported in 2012.

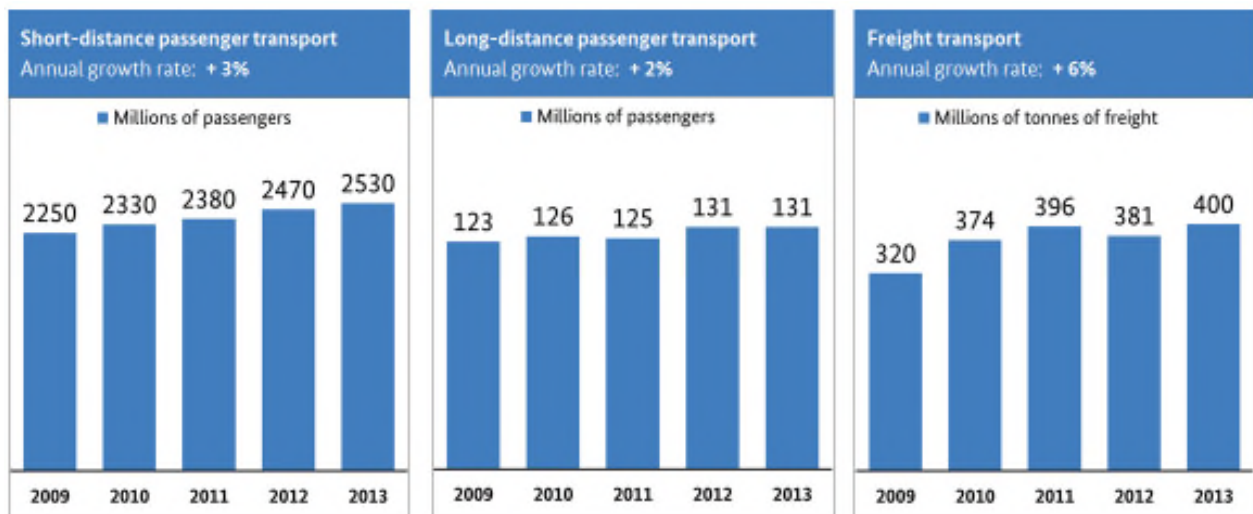


Figure 8: Development of transport volumes

### 3.4 Transport performance

In contrast to transport volume (freight volumes or number of passengers), transport performance additionally takes average transport or travel distances into account.

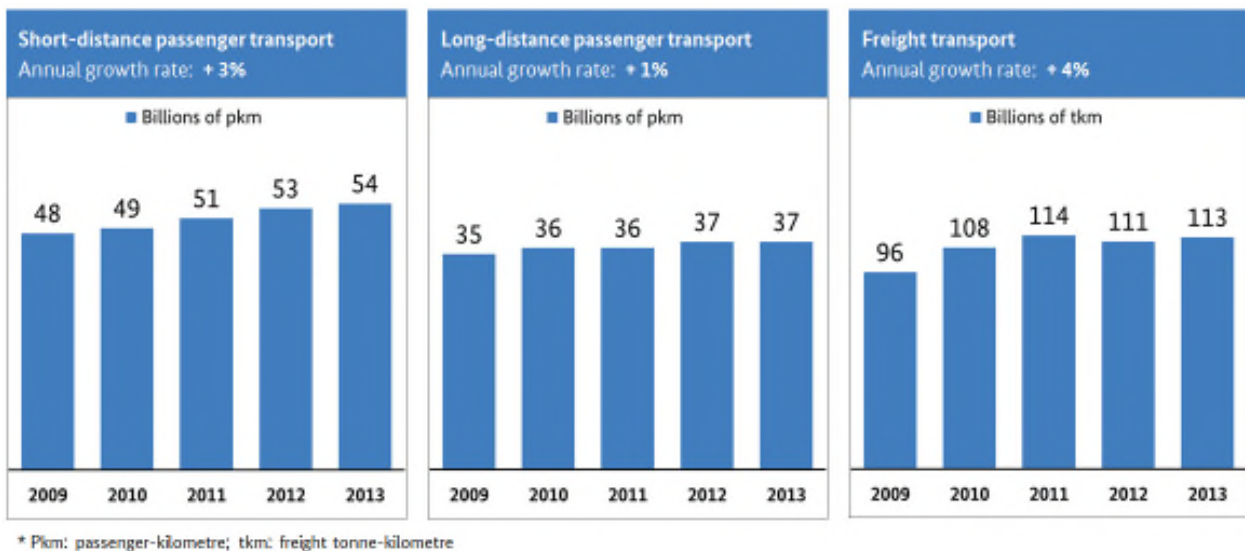


Figure 9: Development of transport performance

Compared to the previous year, transport performance in the short-distance passenger rail transport segment improved, increasing to 54 billion passenger-kilometres. Transport performance in the rail freight transport segment also improved, with total traffic reaching 113 tonne-kilometres, whereas performance in the long-distance passenger transport segment remained at roughly the same level.

### 3.5 General trends in the competition

Growing competitor shares were observed in the short-distance passenger rail transport segment and the rail freight transport segment in the year 2013. This continued the positive trend seen in recent years. In the rail freight transport segment, competitors gained market share and now hold 33% of the rail freight transport market.

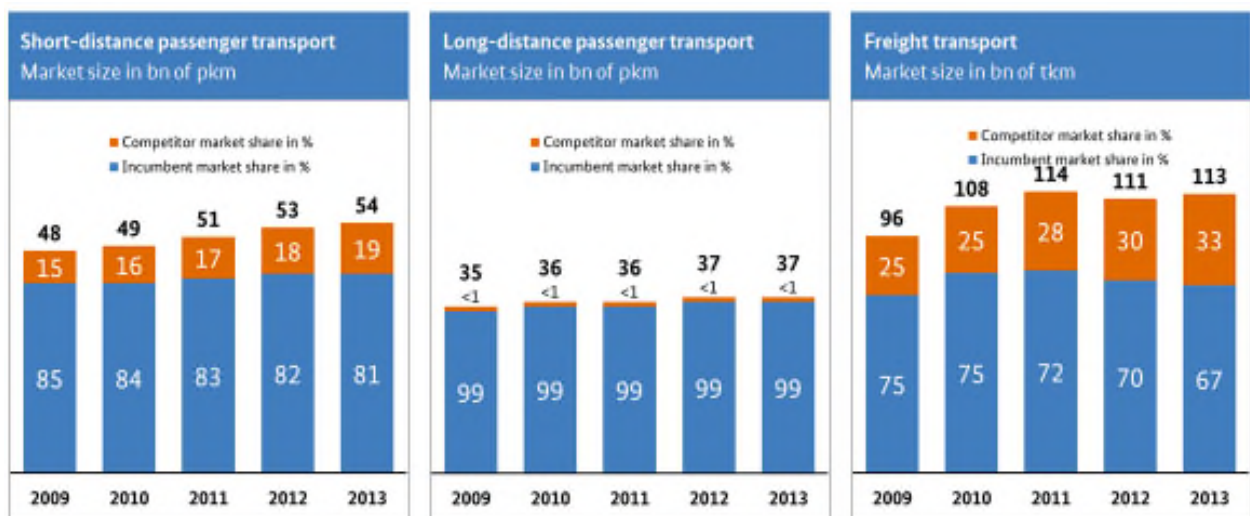


Figure 10: Development of competition in individual segments

Deutsche Bahn AG railway undertakings continue to clearly dominate the markets in the passenger rail service area. However, the trend toward steadily larger competitor shares continued here as well. The competitors in the short-distance passenger rail transport segment grew their market share one percentage point, from 18% to 19%, as the result of successful tenders and increased passenger demand.

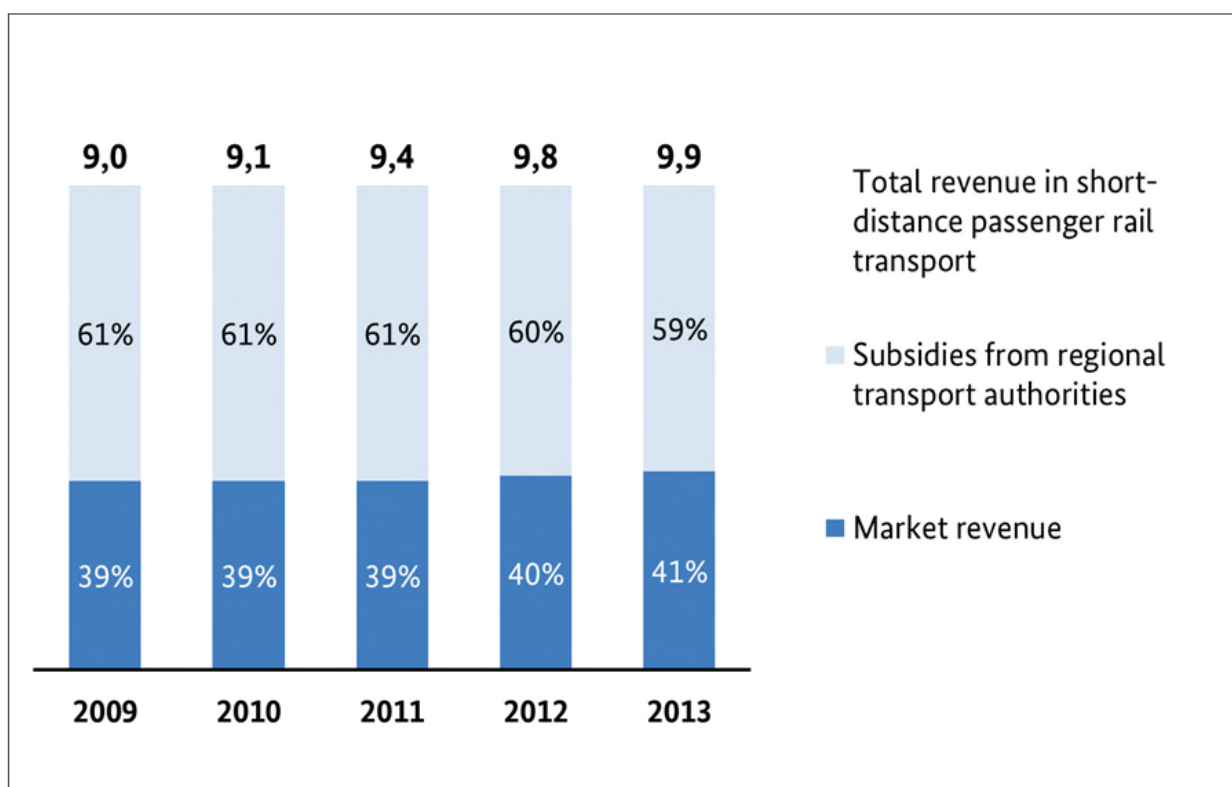
As in the previous years, the share held by competitors in the long-distance passenger rail transport segment is significantly less than 1%. As a result the market leader continues to dominate the long-distance passenger rail transport market.



### 3.6 Revenue development in the passenger rail transport segment

The most important sources of revenue for the railway undertakings operating in the short-distance passenger transport segment are – in addition to revenues from the market – public subsidies which bodies that contract short-distance passenger transport services (regional transport authorities) pay to the railway undertakings that have been contracted to provide transport services. These subsidies come largely from funds made available by the Federal Government to Germany's *Länder* (federal states) under the Regionalisation Act.

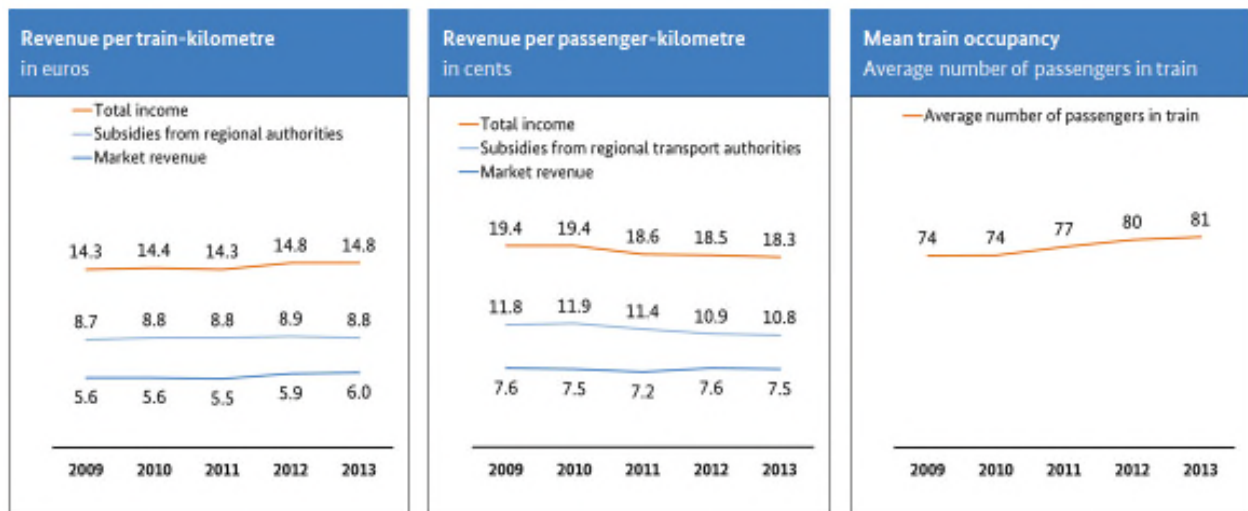
Using a breakdown of the revenue components, Figure 11 shows the importance of public subsidies for the short-distance passenger rail transport segment. The share of market revenue increased noticeably up to the year 2007 and then remained constant over a period of several years until it declined slightly in 2012. A slight increase was observed once again in 2013. The following diagram shows that in the year 2013 alone market revenues (primarily from the sale of tickets) covered an average of only 41% of the costs of the short-distance passenger rail services (in billions of euros).



Sources: Bundesnetzagentur, VDV (Association of German Transport Companies)

Figure 11: Subsidies from regional transport authorities as a percentage of revenue in the short-distance passenger rail transport segment

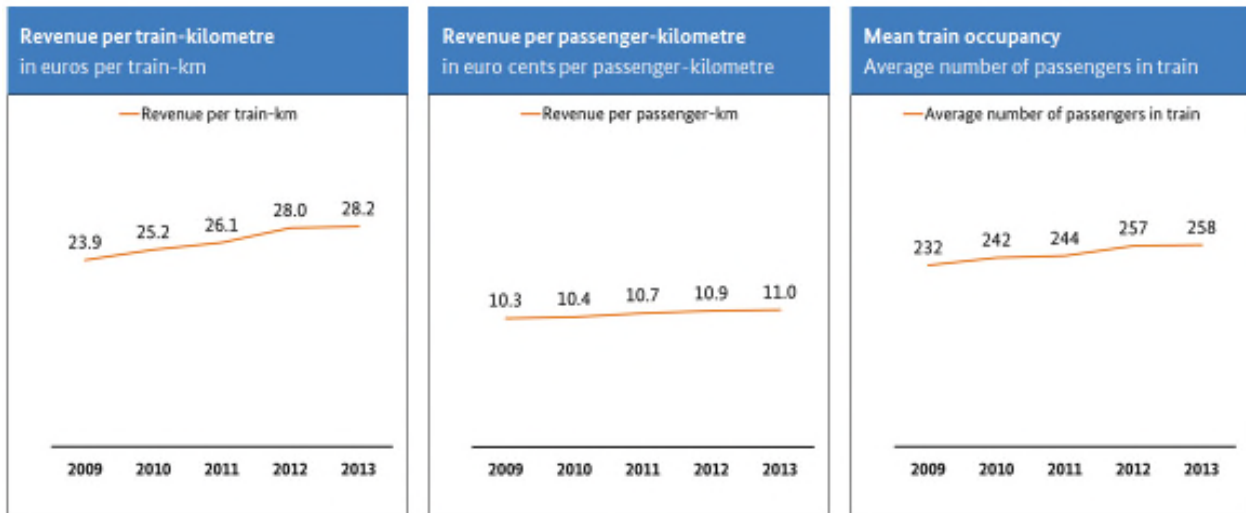
As shown in Figure 12, the revenue generated per train path-kilometre travelled remained constant at a total of €14.80 per train path-kilometre. However, the share held by subsidies declined slightly, while the share represented by market revenue increased slightly. After having risen from 77 passengers in 2011 to 80 in 2012, the average train occupancy rate increased once again to 81 passengers in 2013. When the average train occupancy rate is viewed in relation to the respective share of market revenue, there was hardly any change in revenue per passenger-kilometre over the previous year's level.



Sources: Bundesnetzagentur, VDV (Association of German Transport Companies)

Figure 12: Specific revenues and average train occupancy in the short-distance passenger rail transport segment

Compared to the short-distance passenger transport segment, average train occupancy is considerably higher in the long-distance passenger transport segment. As a result, revenue per train-kilometre is approximately twice as high in the long-distance passenger transport segment. However, since subsidies are generally not paid in the long-distance passenger transport segment, revenue per passenger kilometre – just under €0.11 – is significantly lower than it is in the short-distance passenger transport segment.

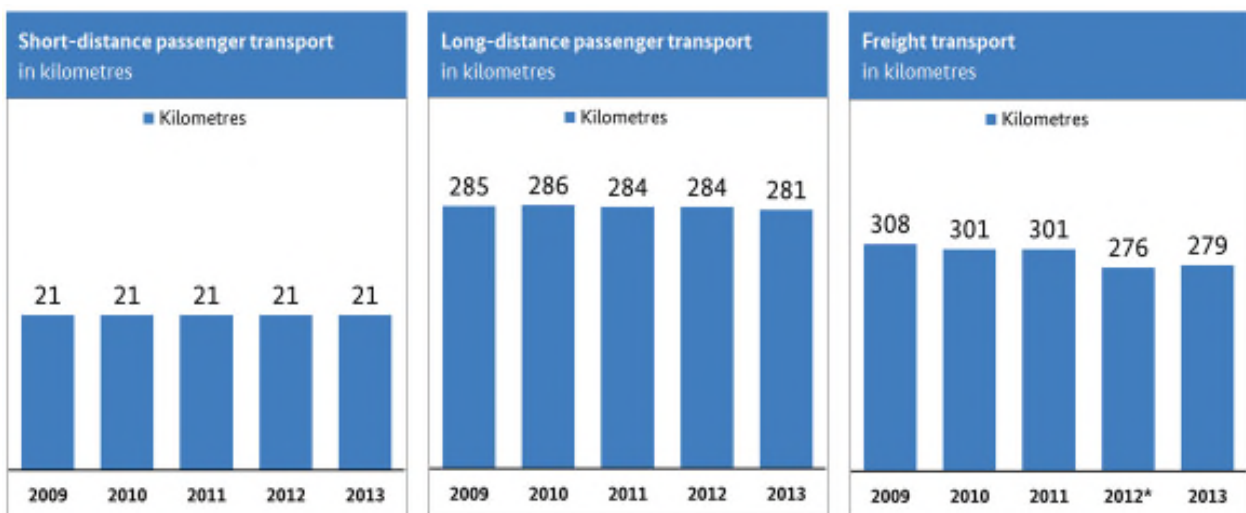


Sources: Bundesnetzagentur, VDV (Association of German Transport Companies)

Figure 13: Specific revenues and average train occupancy in the long-distance passenger rail transport segment

### 3.7 Transport and travel distances in the railway transport segment

Figure 14 shows the mean transport and travel distances calculated on the basis of the respective quotient of transport performance and transport volume.



\* The difference in comparison to the previous year is due to the fact that an important market participant entered this market in 2012.

Figure 14: Development of transport and travel distances

The mean travel distance in the short-distance passenger rail transport segment remained virtually unchanged at 21 kilometres in 2013. This figure was 281 kilometres in the long-distance passenger rail transport segment for a slight decline over the previous year. By contrast, the mean transport distance in the rail freight transport segment increased from 276 to 279 kilometres.

When looking at average travel and transport distances, it should be borne in mind that in its market analysis the Bundesnetzagentur takes only inland transport services into account. As a result, only those passenger kilometres/ tonne-kilometres/ train path-kilometres from cross-border services that were provided in Germany are included in the survey data. Passenger kilometres/ tonne-kilometres/ train path-kilometres travelled in other countries are accordingly included in the statistics of the respective country. Particularly in the rail freight transport segment where approximately half of all freight is transported across borders, the mean transport distance of the entire transport is probably much greater.

### **3.8 Additional costs due to construction or maintenance work**

Construction measures conducted by infrastructure managers continue to cause problems for many railway undertakings. Some 42% of the non-federally-owned railway undertakings surveyed stated that they were affected by construction measures. The share of affected non-federally-owned railway undertakings is a good 6% larger than in the previous year. All in all, construction measures undertaken by infrastructure managers in the railway transport market led to additional costs for railway undertakings in the amount of some €17 million, approximately the same amount as in the previous year.

As in the previous two years, the Bundesnetzagentur asked market participants to break down the additional costs they had to bear due to construction or maintenance work. The respondents' answers, based on their differentiation between increased infrastructure costs (such as higher track access charges due to re-routing), increased operating expenses (such as through the provision of replacement bus service, the deployment of additional rolling stock, personnel or energy costs) and revenue losses (such as through declines in fare revenue), resulted in a picture similar to the one seen in previous years. In 2013, increased operating expenses accounted for more than half (some 58%) of the additional costs resulting from construction or maintenance work. Revenue losses represented approximately 28% of the additional costs due to construction or maintenance work. At just under 14%, increased infrastructure costs were once again the smallest category.

In the short-distance passenger rail transport segment, regional transport authorities compensated railway undertakings in isolated cases for the costs incurred. All in all, this share came to approximately 36% of the total additional costs arising from construction or maintenance work.

This marks the third time in a row now that the Bundesnetzagentur has collected information on the additional costs that railway undertakings must bear due to construction or maintenance work. In general, the financial disadvantages that the railway undertakings experience exhibit a certain degree of consistency despite some fluctuations. The increased operating expenses average significantly more than 50%, revenue losses amount to approximately 30% and the increased costs for infrastructure access were some 15%.

### 3.9 Traction current and electric transport

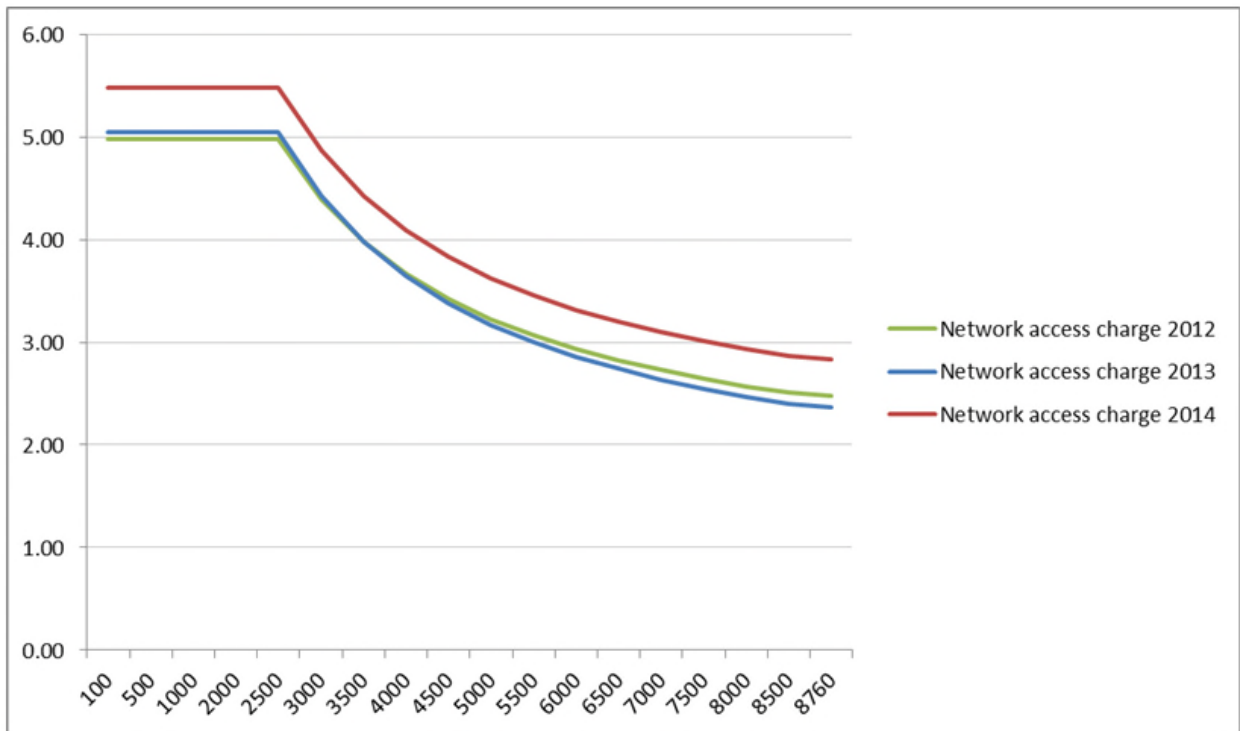
Rail transport is one of the most environmentally friendly modes of transport. Far more than half of the transports in Germany's railway market are provided with the use of traction current. Some 12 terawatt hours (TWh) of electricity were drawn for this in the year 2013. Short-distance passenger rail service alone accounted for five terawatt hours, while rail freight transport used more than four terawatt hours. Due to the large share of electrically powered vehicles with modern three-phase current technology, a total of nearly 1.27 TWh of braking energy were fed back into the grid. That is almost 11% of the total amount of electricity drawn by the railways and thus more than the amount of renewable energy that is fed into the grid in Germany by, for example, offshore wind parks (2013: 0.97 TWh).

DB Energie's full-supply prices for traction current fell for the first time in 2013. The payment for traction current that is fed back into the grid increased significantly at the same time. Despite this, the European Commission expressed serious competition concerns regarding the existing pricing system for traction current. As a consequence, DB Energie introduced a new pricing system in July 2014 which is, in the final analysis, the result of commitments DB Energie made to the European Commission.<sup>2</sup> Besides doing away with all discounts, the new pricing system also means the end of full-supply prices. In future, the prices for traction current will be individually specified, in addition to the network access charges that are already published. The resultant transparency will ensure a realistic supply of traction current from potential energy suppliers based on the network access model. On the other hand, the new pricing system brings railway undertakings face-to-face with their own individual consumption behaviour because the network access charges for more than 2,500 hours of use consist of a fixed price per kilowatt for the annual maximum demand and a volume-based kilowatt-hour rate. This differentiation is laid down in the Ordinance concerning Charges for Access to Electricity Networks (StromNEV) and must be applied correspondingly by DB Energie.

The new pricing system can lead to calculation problems for railway undertakings because peak loads in particular, which determine the annual maximum demand, are not predictable. Peak loads arise primarily during acceleration or on steep inclines. When and where a specific train travels at a particular time is, however, determined by the timetable and the railway line infrastructure operator's scheduling. Railway undertakings cannot use load profile management to optimise their energy costs because peak loads cannot be avoided or delayed.

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<sup>2</sup> Commitment Deutsche Bahn - European Commission: [http://www.dbenergie.de/file/5447140/data/commitment\\_EU\\_db\\_energie.pdf](http://www.dbenergie.de/file/5447140/data/commitment_EU_db_energie.pdf)



\*Utilisation hours as a quotient of annual consumption and annual peak load  
Sources: Bundesnetzagentur, Deutsche Bahn AG

Figure 15: Network access charges, depending on the number of utilisation hours (cents per kWh)

Figure 15 shows the level of the network access charges for the respective number of utilisation hours. The number of utilisation hours depends in turn on the respective railway undertaking's annual consumption and its annual peak load. At the same time, the network access charges per kilowatt hour fall when utilisation exceeds 2,500 hours. The higher the quotient of the annual consumption and the annual peak load for the year, the lower the network access charges per kilowatt hour. However, only about one-fourth of all railway undertakings that use electric traction exceed 2,500 utilisation hours.

In the months since 1 July 2014, individual railway undertakings had made active use of the network access model that was laid down in December 2012 with the aim of making it easier to change suppliers.

The charges approved by the Bundesnetzagentur pursuant to the requirements laid down by the Energy Industry Act for network access went into effect in 2012. Figure 16 shows the development of these approved network access charges compared to the network access charges of the transmission system operators in Germany. This shows that, due to the special characteristics of the traction current system, traction current customers have to pay higher charges for network access than industrial customers with comparable annual peak loads and annual utilisation periods.

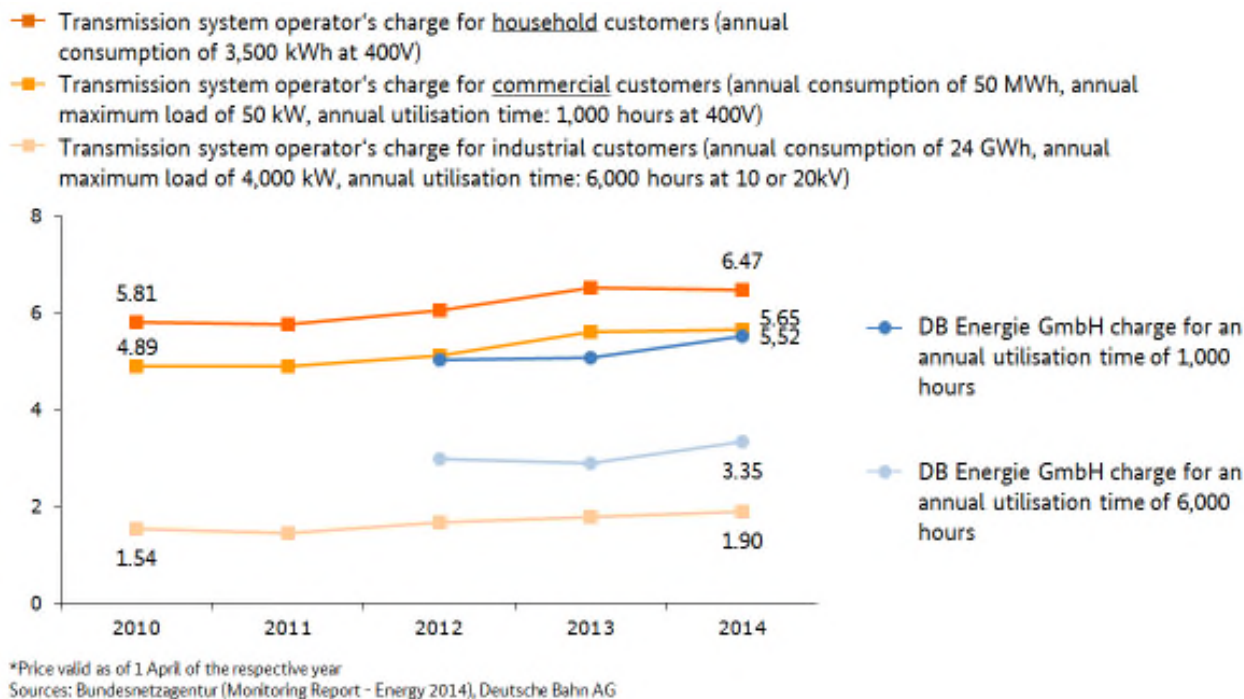


Figure 16: Development of network access charges of the electricity grid operators (cents per kWh)

Network access charges have risen markedly since 2011. In addition to many other factors, this increase was due in large part to investments undertaken to expand the grid. More than 80% of the investments undertaken by DB Energie targeted the 16.7 hertz traction current area. At the same time, the net share of the investments undertaken in 2013 rose to more than 50%.<sup>3</sup> The investments were used primarily to replace or modernise traction current power lines and switch stations for traction current and replace transducers with modern converters. The growing replacement investments consequently contribute to the rise in the network access charges.

### 3.10 Rolling stock

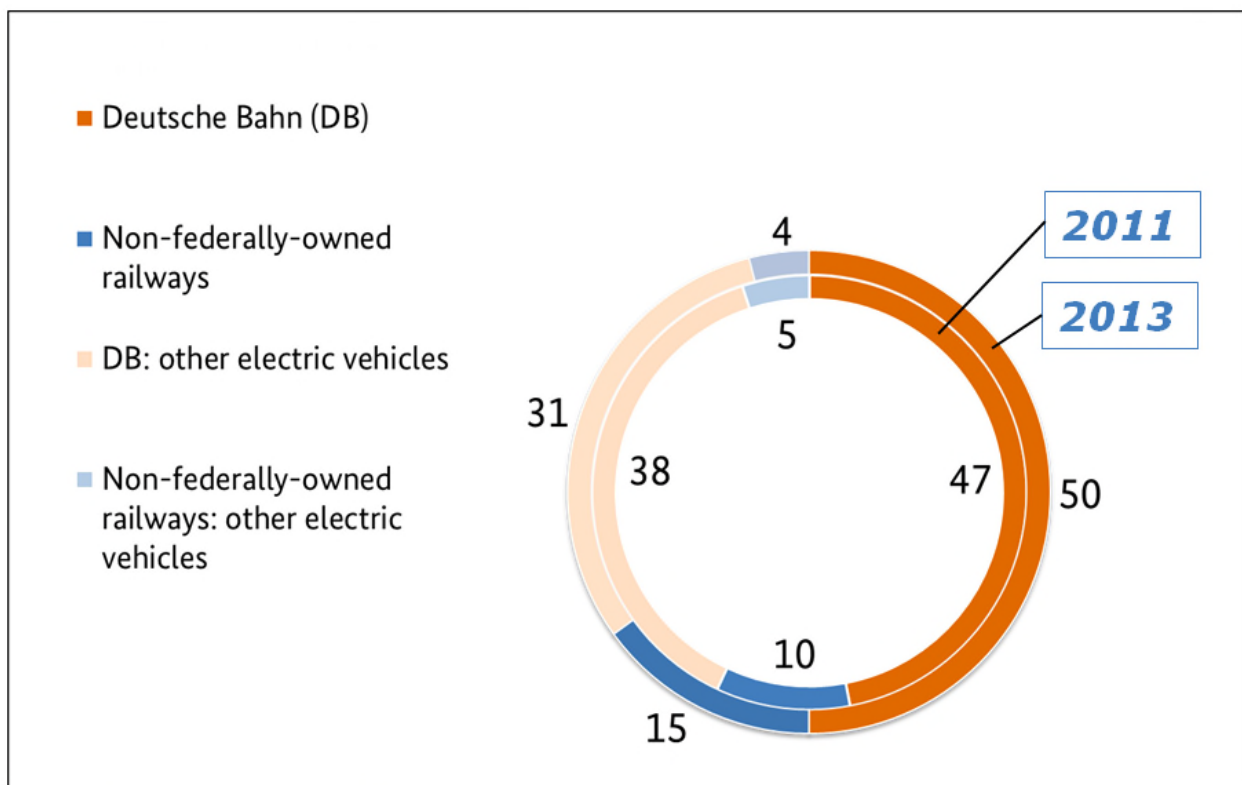
Slightly under 11,900 powered vehicles were registered in Germany at the end of 2013. These include locomotives, power heads, railcars and trainsets insofar as they can operate as the smallest unit.<sup>4</sup> Compared to the year 2011, this represents a good 5% increase in the number of registered self-propelled vehicles. At just under 10%, railcars and trainsets saw the most growth, followed by diesel locomotives at slightly less than 4%. The number of electric locomotives remained more or less unchanged.<sup>5</sup>

<sup>3</sup> Total investment less public subsidies from the service level and funding agreement, etc.

<sup>4</sup> Without the Hamburg and Berlin suburban railways

<sup>5</sup> Source: Federal Railway Authority - National Vehicle Register

In the case of the entire vehicle fleet with an electric drive (e-locomotives, railcars, trainsets), the share this category represents out of the entire rolling stock fleet in Germany increased by more than 5%. All in all, approximately 65% of the electrically-driven vehicles were equipped with modern three-phase alternating current technology in 2013. Various older electric locomotives were replaced with modern locomotives with three-phase AC drive. Together with the increased share held by electric railcars and trainsets, the share of vehicles with three-phase AC drive increased by nearly 20% over the year 2011. On its own, the share of electrically powered vehicles with three-phase AC drive among the non-federally-owned railway undertakings increased by more than 50% in the last two years.<sup>6</sup>



Source: EBA (National Vehicle Register)

Figure 17: Share of vehicles with three-phase AC drive, 2011 and 2013 (in %)

Approximately 300 steam locomotives are still in operation, alongside more than 6,200 diesel-driven vehicles and more than 5,300 electrically driven vehicles. The number of steam locomotives has remained constant. In addition, there are nearly 8,500 passenger coaches and almost 230,000 freight wagons.

The number of passenger coaches has declined by 7% in the last two years. By contrast, the number of railcars and trainsets increased by nearly 10%. When all the middle and end wagons of the primarily multiple units /

<sup>6</sup> Three-phase AC drive allows energy recovered through regenerative braking to be fed back into the grid.



trainsets are included, the total number increases by more than 12% to more than 13,200 individual units that stand available for passenger service.

The number of vehicles that are owned by foreign operators and are registered in Germany has increased by more than 44% since the year 2011. Of these, more than 200 traction units, approximately 150 passenger coaches and more than 40,000 freight wagons were registered in Germany as of the end of 2013.

## 4 Railway infrastructure market

### 4.1 Infrastructure managers

At present, some 170 railway line infrastructure managers and more than 500 service facility operators receive the questionnaire for the Bundesnetzagentur's annual market survey. Some of these enterprises operate not only railway line infrastructure but also service facilities. With these overlaps taken into account, a good 550 infrastructure managers are contacted in connection with the railway market survey.

The actual number of infrastructure managers that are contacted is largely determined by the Bundesnetzagentur's market penetration. To date, Germany does not have a central railway infrastructure register that lists all infrastructure managers. In addition, a licence is not required to operate most service facilities. Due to this, it can be assumed that the Bundesnetzagentur does not have a complete overview of the market in the infrastructure area in all cases.

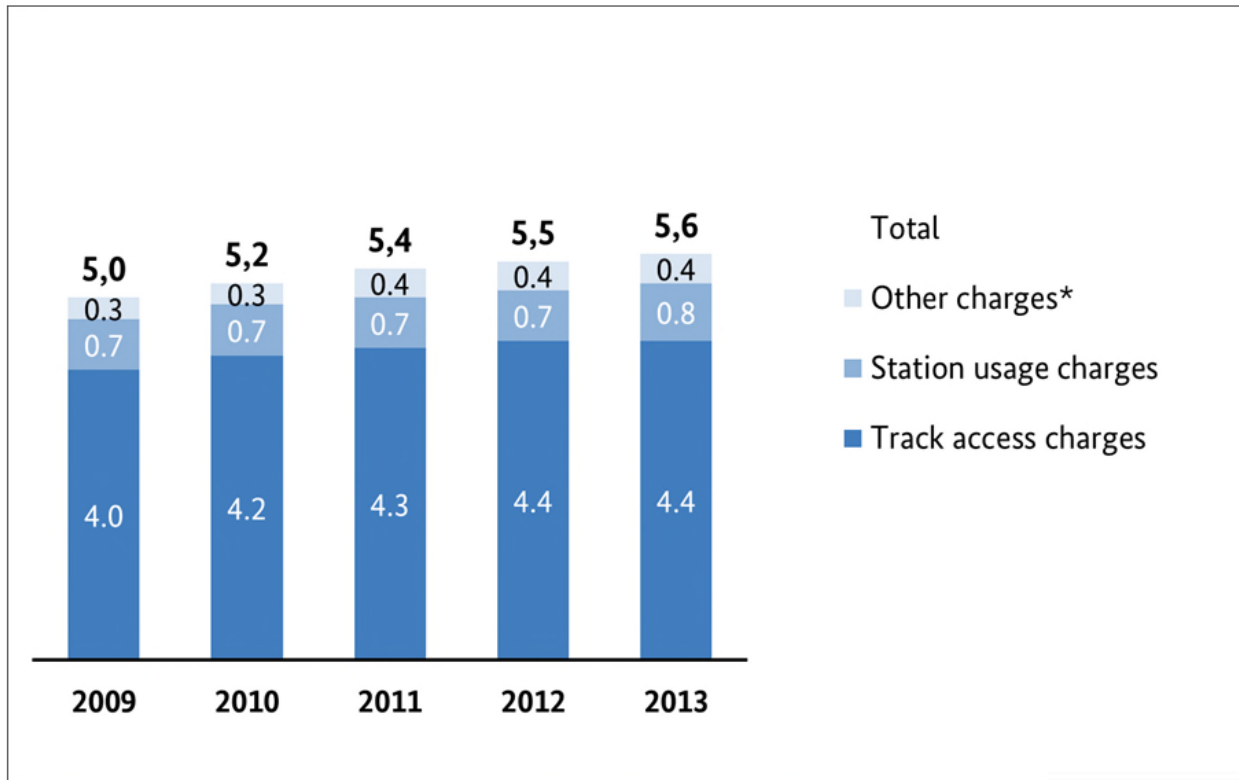
According to data available to the Bundesnetzagentur, German infrastructure managers operate routes totalling some 37,700 kilometres with a track length of approximately 59,300 kilometres (excluding tracks in service facilities). Tracks with a total length of more than 10,600 kilometres are operated in service facilities.

### 4.2 Revenue development among infrastructure managers

The infrastructure managers generated their revenues primarily from the access charges they collected for their provision of train paths and service facilities. The greater part of these revenues came from track access charges. At approximately €4.4 billion, track access charges accounted for just under 79% of total revenue in 2013.

Overall, an increase in revenue in the railway infrastructure market could be observed for the year 2013, confirming the trend toward rising revenue levels seen in the preceding years.

Short-distance passenger rail transport was responsible for two-thirds of the total revenues from track access charges. Charges paid in the long-distance passenger rail transport segment and charges paid in the rail freight transport segment accounted in nearly equal parts for the remaining third.



\* Including access charges for other service facilities, without maintenance and refuelling facilities

Figure 18: Revenue development in the railway infrastructure market, in billions of euros

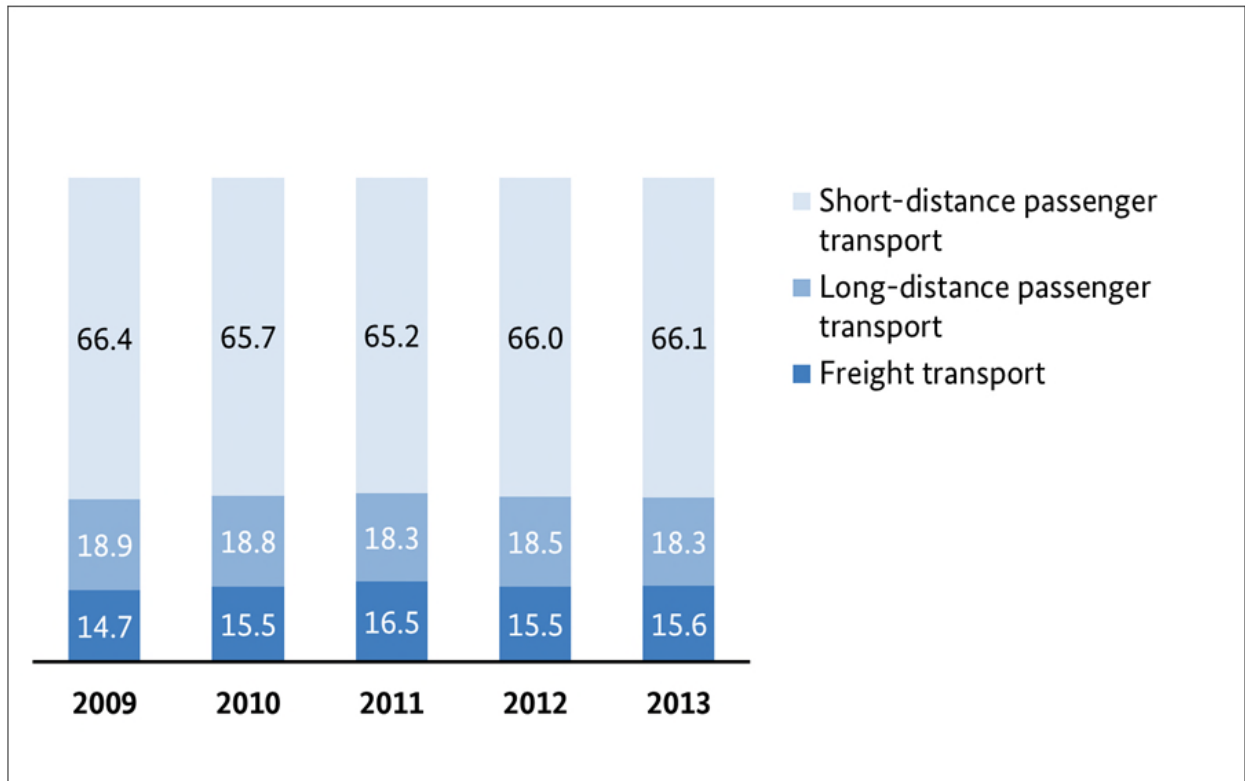


Figure 19: Total revenue of German railway line infrastructure operators, broken down by mode of transport, in per cent

### 4.3 Operating performance

The number of kilometres travelled in Germany's public railway network fell slightly over the previous year's level and totalled some 1.05 billion train-kilometres in 2013. More than one billion train-kilometres have been travelled on Germany's railway network every year since 2004.

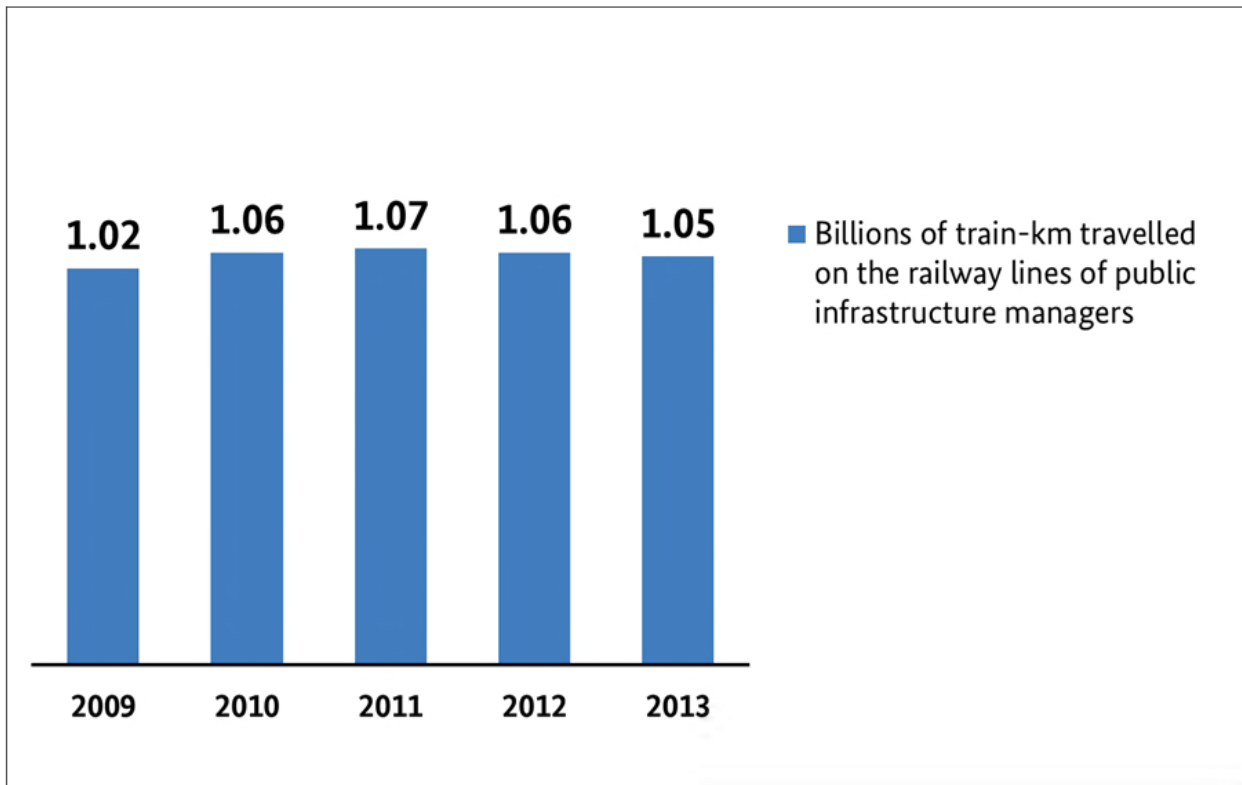


Figure 20: Development of operating performance

The percentage of kilometres travelled on Deutsche Bahn AG's rail infrastructure remained constant at just under 98%. Consequently the number of kilometres travelled on public, non-federally-owned infrastructure continues to represent approximately 2% of total kilometres.

#### **4.4 Terms of use for rail infrastructure**

Rail infrastructure operators are required by law to allow all parties with access entitlement to use their infrastructure under non-discriminatory terms and conditions. This does not apply to railway infrastructure in the passenger rail service segment which is not linked to other railway infrastructure, or to railway infrastructure which is used exclusively for the operator's own freight transport needs.

The terms for using railway infrastructure that has been made available for use are to be drawn up in the form of network statements for railway infrastructure and as service facilities statements for service facilities. Network statements and service facilities statements that have been drawn up or amended must be submitted to the Bundesnetzagentur for review before they can go into effect.

The Bundesnetzagentur has repeatedly reminded the companies in this market in recent years to draw up network statements and/or service facilities statements and works with them to ensure that the respective statement is in conformity with the law. The Bundesnetzagentur's efforts have led in recent years to a significant increase in the number of infrastructure managers that have legally-binding network statements or service facilities statements.

In 2014, 79% of the service facility operators and 92% of the railway line infrastructure operators had network statements or service facilities statements that had been reviewed by the Bundesnetzagentur. Infrastructure managers that have been exempted from the requirement to draw up network statements or service facilities statements are not included in these figures. On the other hand, some of the remaining companies are still in the process of drawing up their terms of use.

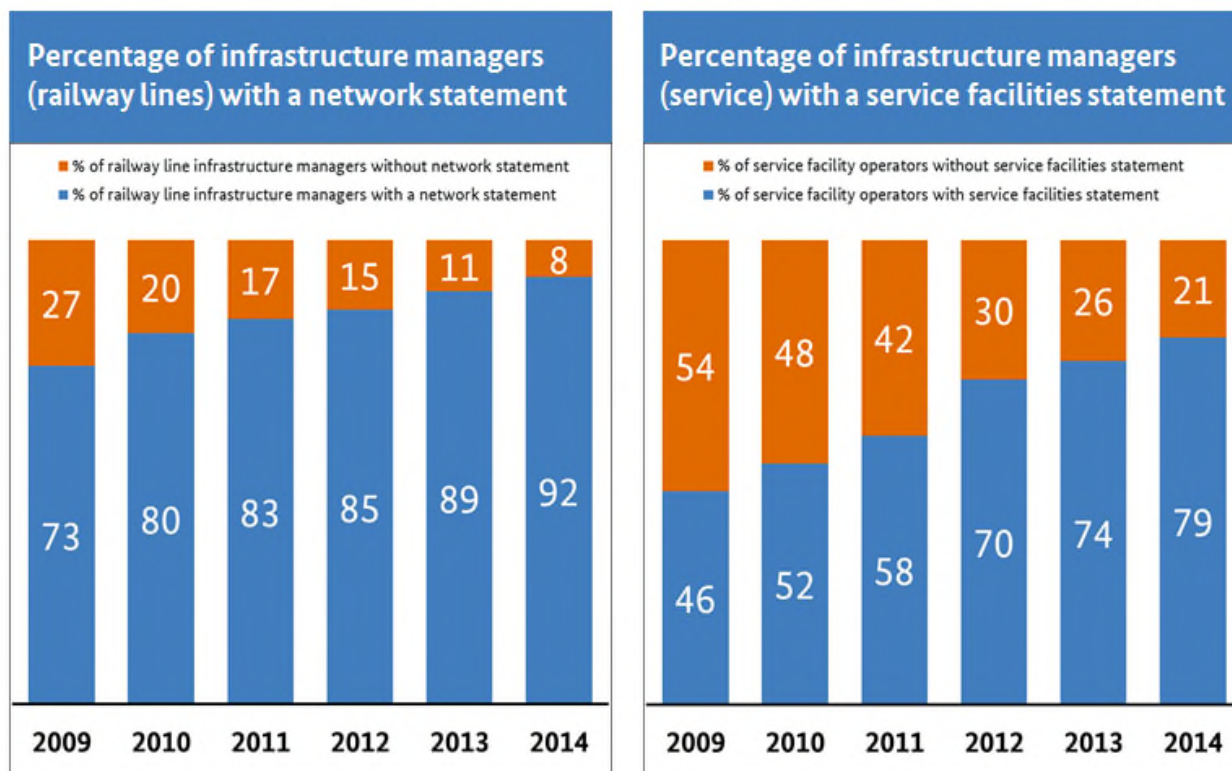


Figure 21: Share of infrastructure managers that have drawn up a network statement

Railway line infrastructure operators are required to draw up and publish schedules of their charges for the services they provide. Service facility operators are also required to issue schedules of their charges. Although these operators are not required to publish their network statements, transparency fosters acceptance among potential customers.

In 2013, a total of 87% of the railway line infrastructure operators had drawn up and published such schedules of charges. Some 69% of the service facility operators have drawn up schedules of their charges. This exceeds the previous year's 64% by five percentage points.

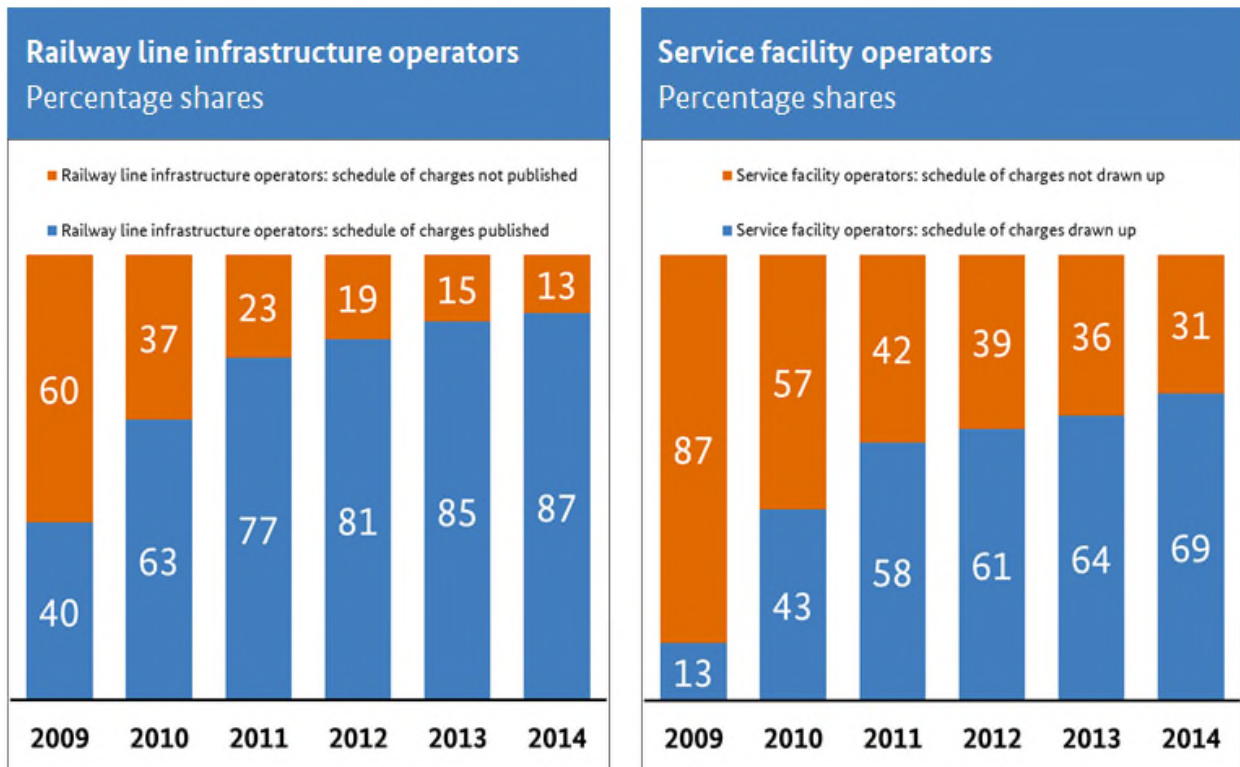


Figure 22: Share of infrastructure managers that have schedules of their charges



#### 4.5 Ratings of access to rail infrastructure

As in the past years, the Bundesnetzagentur gave all parties with access entitlement the opportunity as part of its annual survey to evaluate and rate market-related aspects on a scale of 1 (very good) to 5 (unsatisfactory). For this, the Bundesnetzagentur surveyed not only railway undertakings but also the regional transport authorities that task railway undertakings with providing transport services in the short-distance passenger rail segment.

Overall, the results remained relatively constant over the previous year. There are, however, also a number of areas in which the ratings assigned by parties with access entitlement were worse than in 2013. In addition to the areas “Tariffs and Sales” and “International Access” which are not regulated by the Bundesnetzagentur, these also include the areas “Non-Discrimination in Charging Systems” and “Access to Service Facilities”.

Nonetheless, a positive trend could be observed over the past years in many areas. Furthermore, the regulation of the railway markets has successively dismantled hurdles to market access and the parties with access entitlement are applying increasingly higher standards when they assign ratings.

As in the previous years, the infrastructure managers’ customer friendliness received a good overall score (mark: 2.3).

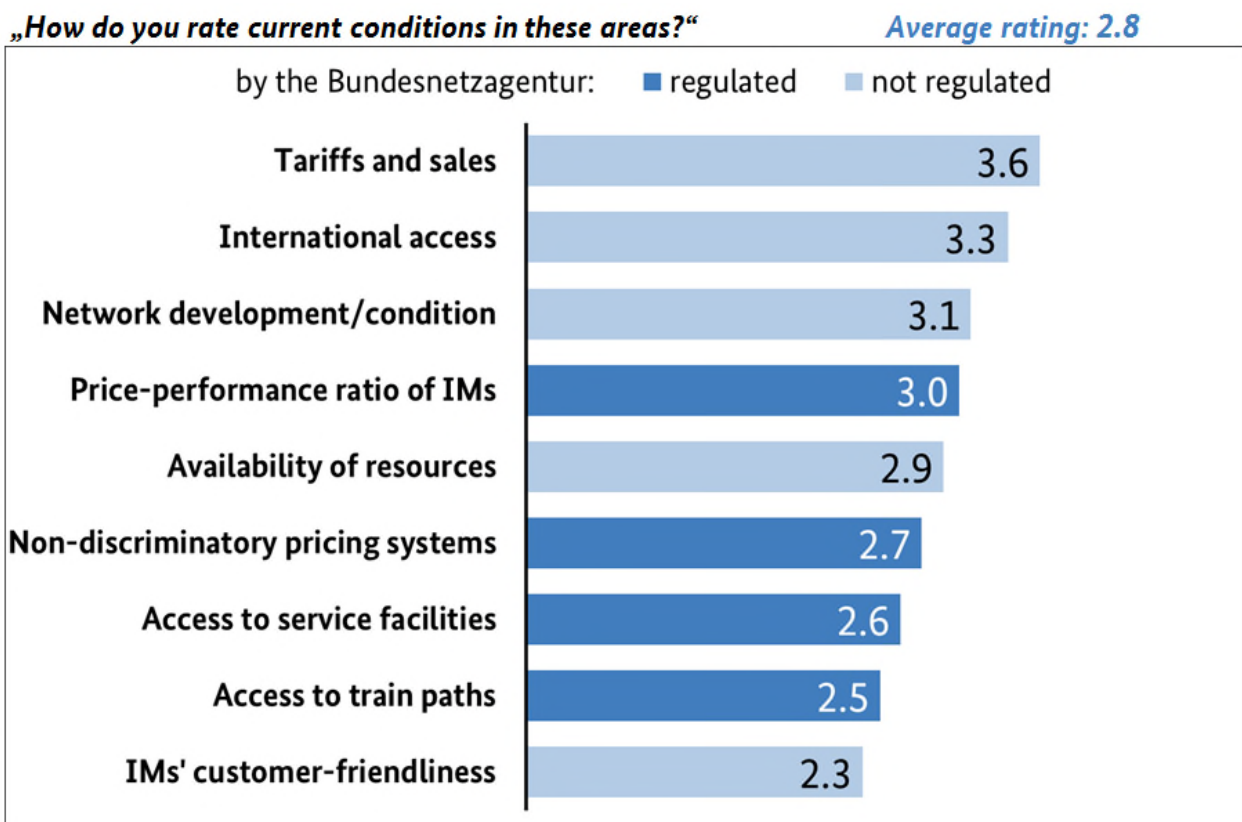


Figure 23: Factors influencing the railway market

The following section examines in detail the segments shown in the above diagram that are relevant to regulation.

Without exception, the parties with access entitlement rated issues related to track access, train path allocation and rail timetable quality as good or satisfactory. The respondents continue to see an urgent need for improvement in the condition of the railway network infrastructure (mark: 3.1). The regional transport authorities rated this area similarly and assigned track condition a 3.0 and modernisation a 3.2 (Figure 26).

The railway undertakings, however, were more critical of the planning and coordination of construction measures carried out by railway line infrastructure operators, giving only a 3.0. For the second year in a row, the railway undertakings' assessment of this category was slightly less positive than the previous year.

By contrast, the parties with access entitlement gave the railway line infrastructure operators predominantly good ratings for timetable quality (mark: 2.4) and for their train path allocation processes (marks: 2.3 and 2.2). More than half of the participating railway undertakings rated the management of and arrangements during disruptions as "good" or "very good".

**„How do you rate current conditions in connection with access to the railway infrastructure in Germany?“**

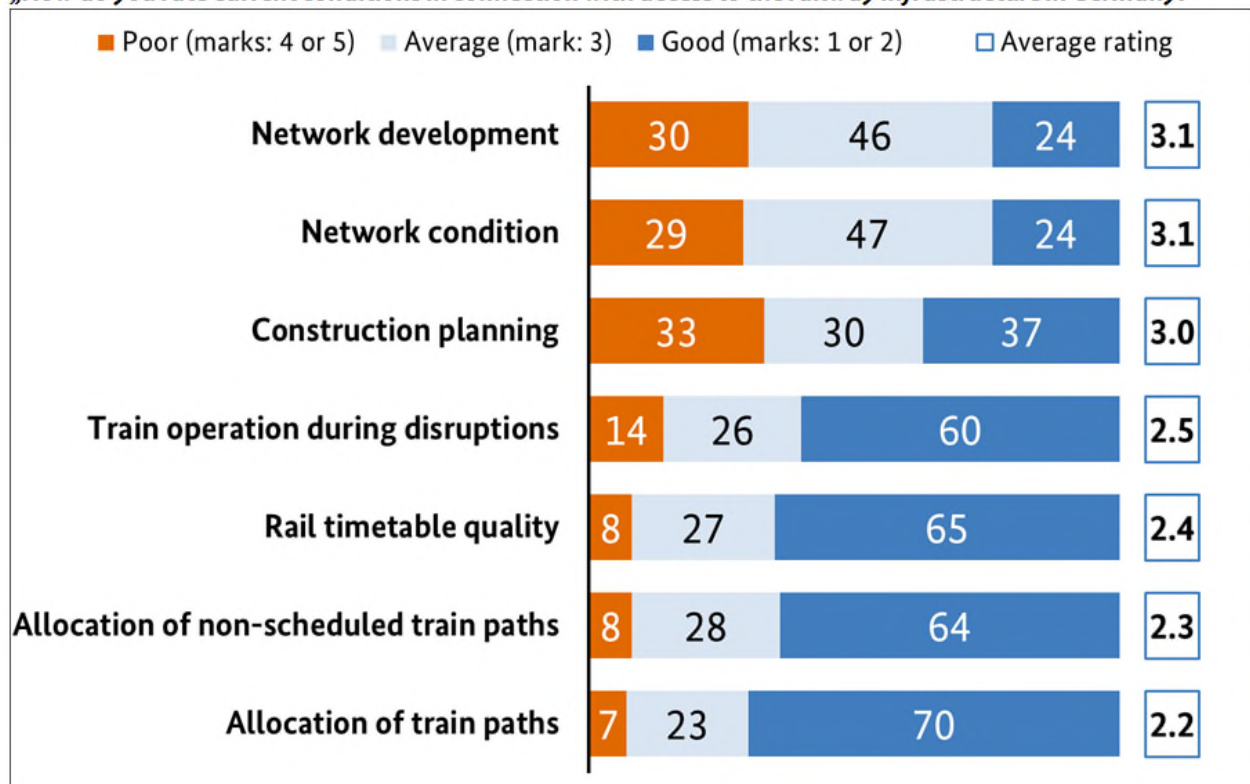


Figure 24: Ratings given for access to railway infrastructure

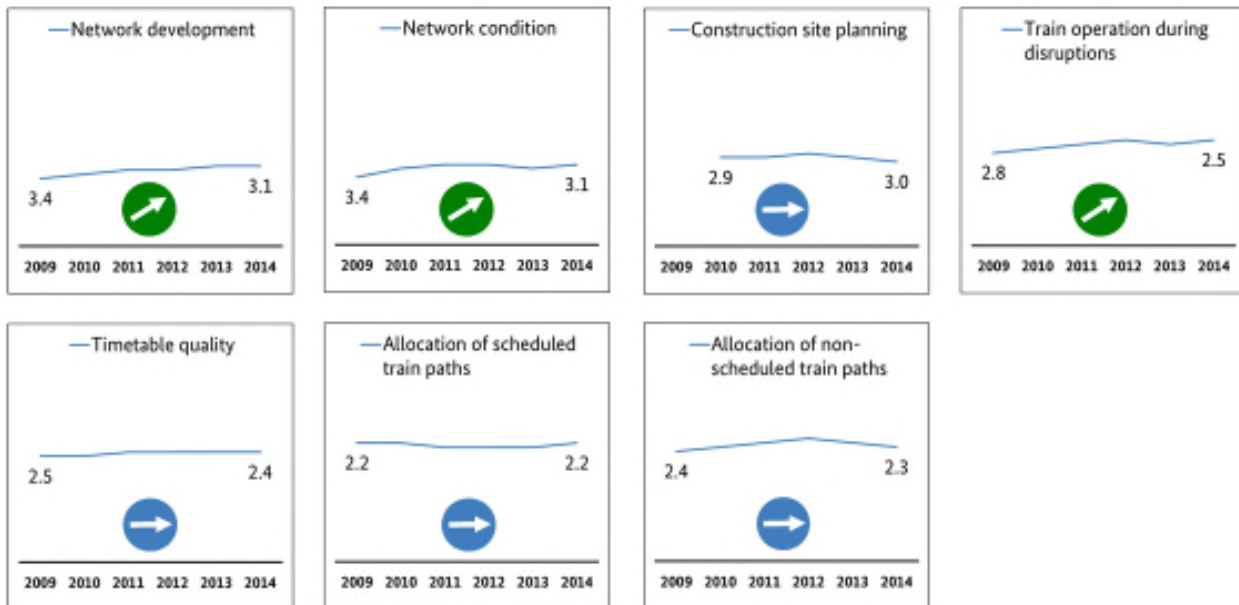
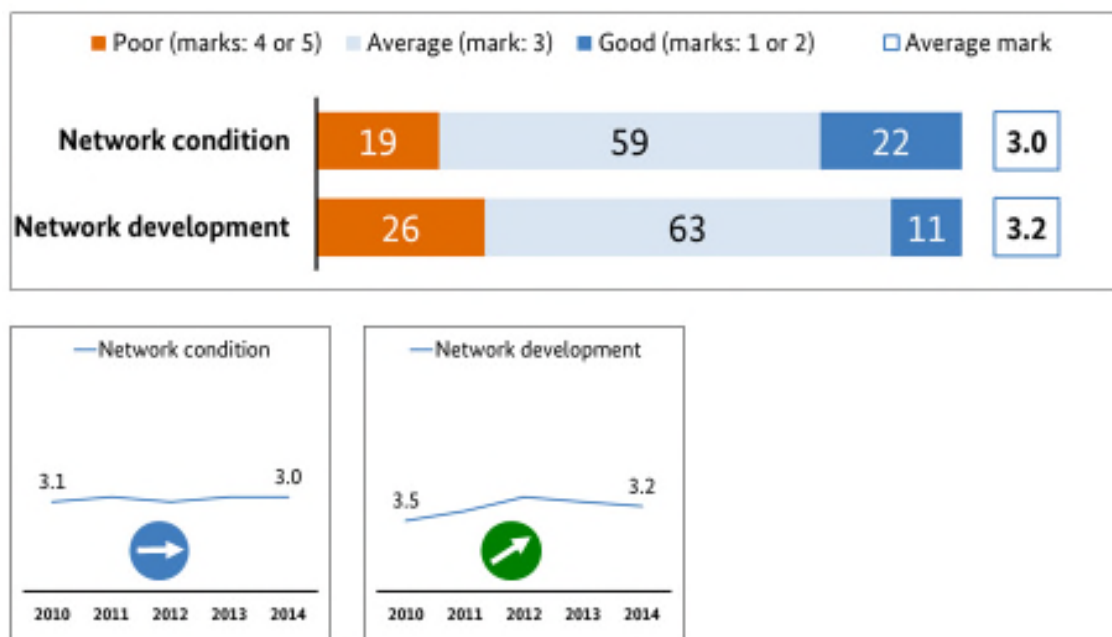


Figure 25: Trends in the ratings given for train path issues



\* Survey of regional transport authorities and associations of local authorities; rankings on the basis of a scale from 1 (very good) to 5 (unsatisfactory)

Figure 26: Regional transport authorities' ratings for train path condition and development

After having received increasingly good ratings in recent years, the category "access to service facilities" saw less positive ratings in a number of areas in 2014. The Bundesagentur will closely follow future developments in this connection.

As in the past, most of the respondents' criticism in the service facility area was aimed at the condition and development/modernisation of passenger stations and stopping points, which are particularly important in connection with passenger contact. The regional transport authorities gave the condition of passenger stations and stopping points a 3.3, a somewhat lower rating than the railway undertakings which gave the mark 3.0. The development/modernisation of passenger stations and stopping points received a 2.9 from the railway undertakings and a 3.0 from the regional transport authorities.

Strong criticism was also directed at access to railway sidings (mark: 2.9) and access to marshalling yards (mark: 2.9). In the first case, regional availability of siding capacity that can be used probably also plays an important role. In the case of marshalling yards, however, factors driving the critical assessments of the current conditions include not only generally growing demand but also increasing competition in this market segment.

As in recent years, the best ratings were given for "access to training facilities" and "access to refuelling facilities" (fuelling stations) which some two-thirds of the participating railway undertakings rated as good or very good.

Access to other service facilities was rated with marks between 2.5 and 2.6. Approximately one out of every two railway undertakings assessed access in this area positively; however, approximately one out of every eight railway undertakings is so dissatisfied that it rated access as "poor" or "inadequate".

**„How do you rate access to railway infrastructure in Germany?“**

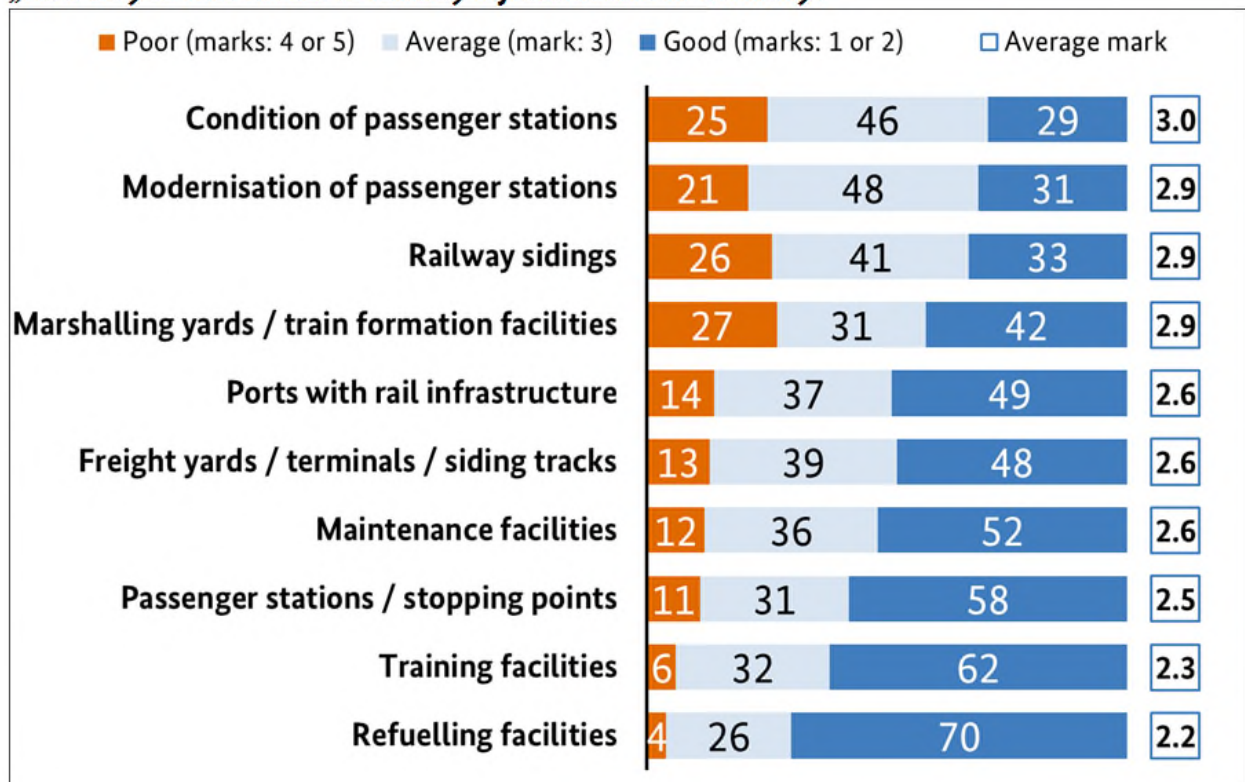


Figure 27: Ratings for access to service facilities

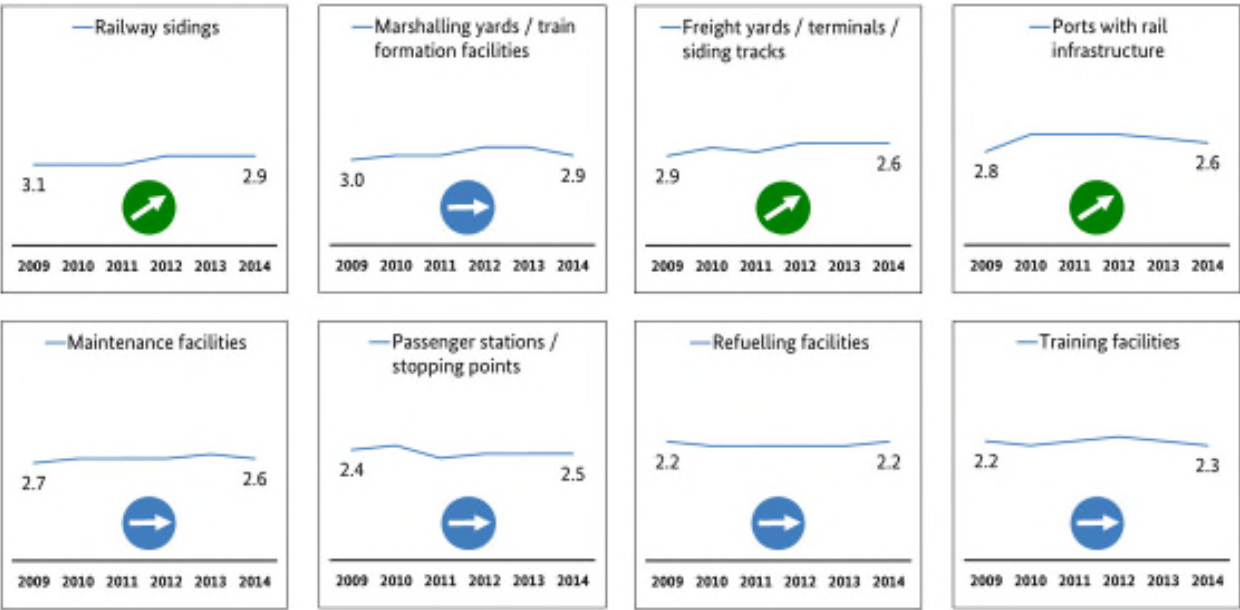
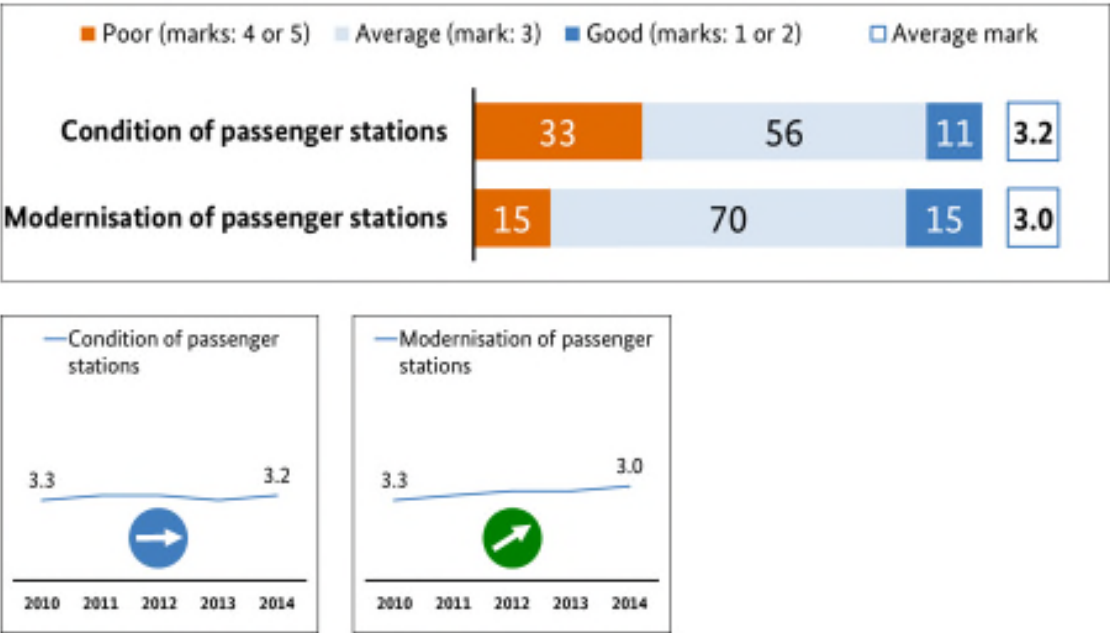


Figure 28: Trends in the ratings given for areas pertaining to service facilities



\* Survey of regional transport authorities and associations of local authorities; rankings on the basis of a scale from 1 (very good) to 5 (unsatisfactory)

Figure 29: Ratings given by regional transport authorities for the condition and development of passenger stations and stopping points

## 5 Infrastructure access and other charges

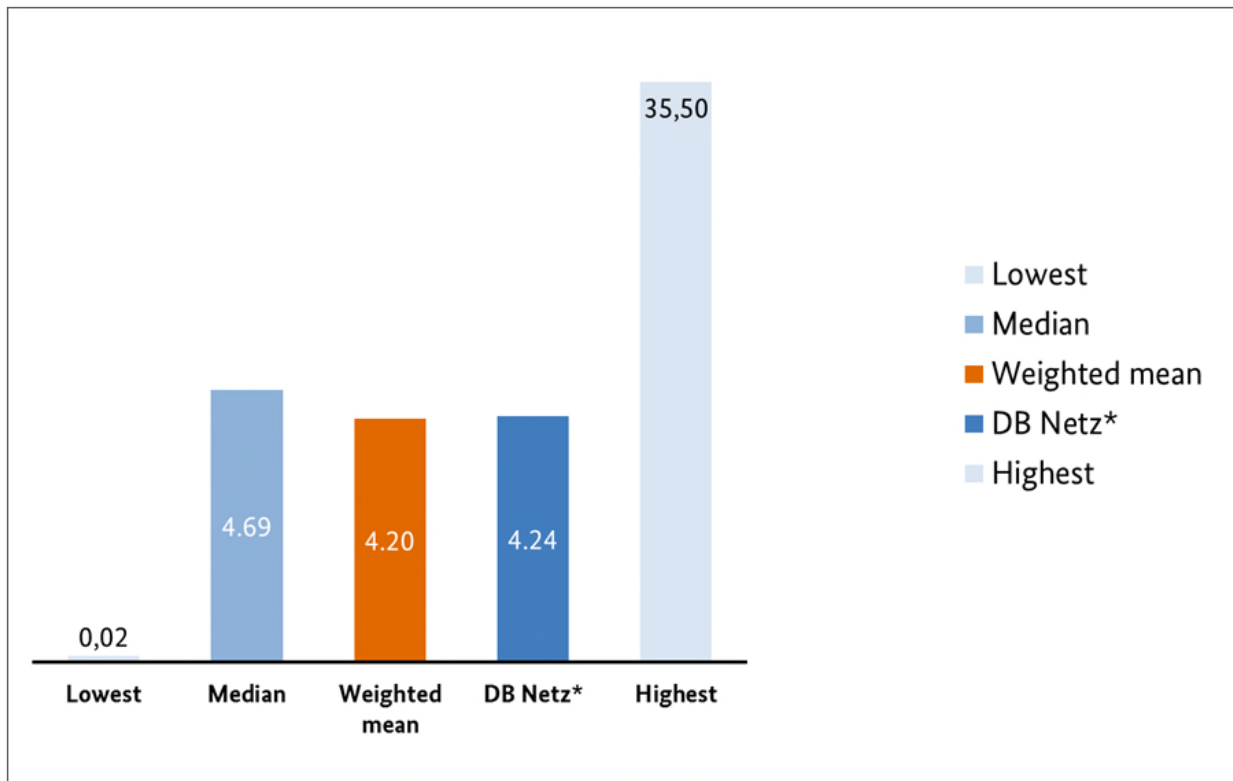
Railway infrastructure access charges which are needed to help finance the railway infrastructure are a significant cost factor for railway undertakings. Approximately one-third of the revenue generated by a railway undertaking goes to infrastructure managers. For this reason, the level of these charges and their development in the future are very - and in some cases even crucially - important, particularly for smaller railway undertakings.

### 5.1 Level and development of track access charges

The level of the infrastructure managers' track access charges is based on the costs incurred in connection with maintaining the track infrastructure. Important cost factors are not only the age and complexity of the railway infrastructure (tunnels, bridges, switches, electrification, etc.), but also topographical features, traffic density and the state of development (multi-track lines, permissible maximum speeds).

Public funding accounts for a significant part of financing for nearly all railway line infrastructure operators. In some cases, the granting of public funding for necessary infrastructure measures is the factor that decides whether the infrastructure will continue to exist.

The weighted arithmetic mean of the track access charges that infrastructure managers levied in 2014 was €4.20 per train-kilometre. At €4.69 the median value is somewhat higher. Thus the majority of railway line infrastructure operators charge an amount that is above the mean track access charge.



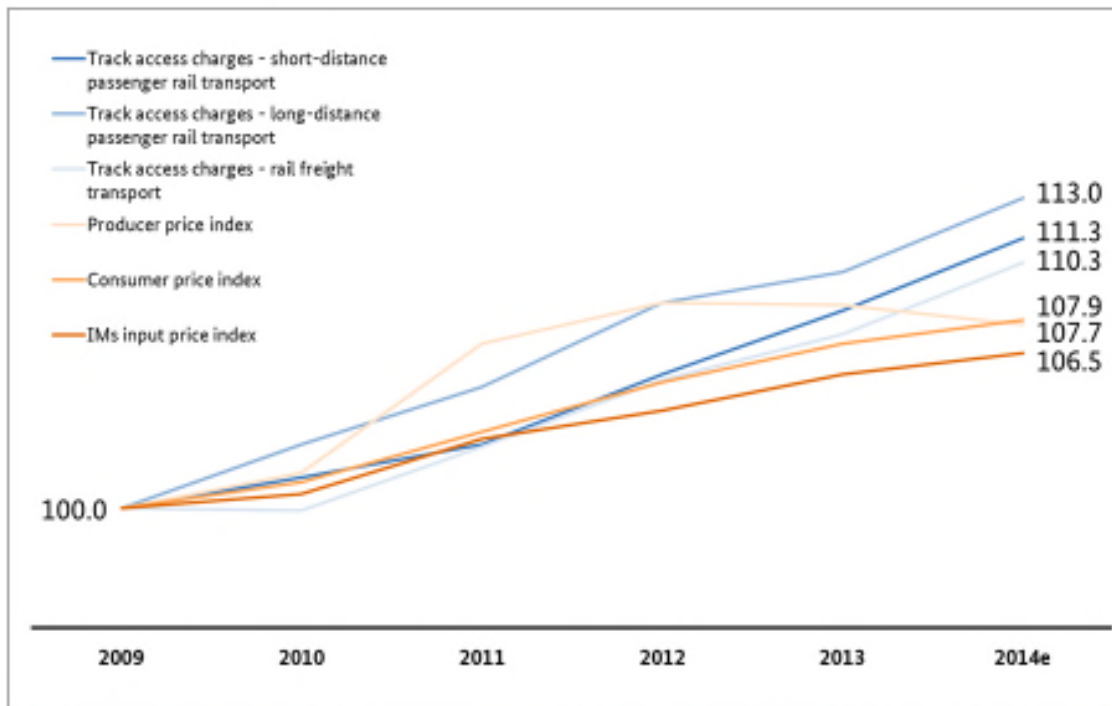
\* Calculated on the basis of figures taken from the respective annual report

Figure 30: Range of mean track access charges in euros

An examination of the mean track access charges reveals a continuous increase over the last five years. Since 2009, the track access charges that railway undertakings must pay increased by 10% in the rail freight transport segment, 11% in the short-distance passenger rail segment and by up to 13% in the long-distance passenger rail segment. These calculations include the price adjustments effected between 2013 and 2014.

The Bundesnetzagentur expects important benchmark indicators such as the consumer price index and the producer price index for industrial products to increase by only 8% each during the same period. The railway infrastructure input price index which replicates an infrastructure manager's typical cost structure based on the publicly available indices of the Federal Statistical Office shows an increase of 7% during the same period.





\* Calculated as the quotient of track access charges and operating performance (train-km) of all railway line infrastructure operators; indexed to 2009  
 Sources: Bundesnetzagentur, Destatis (Federal Statistical Office)

Figure 31: Development of railway line infrastructure operators' railway infrastructure access charges



The trend seen in the charges for several of DB Netz AG's frequently requested train-path products is shown below. The charges for individual train-path products have increased by between 37% and 49% since 2002. This corresponds to an annual rate of price increase of between 2.4% and 3.1%.

#### Development of specific DB Netz AG track access charges

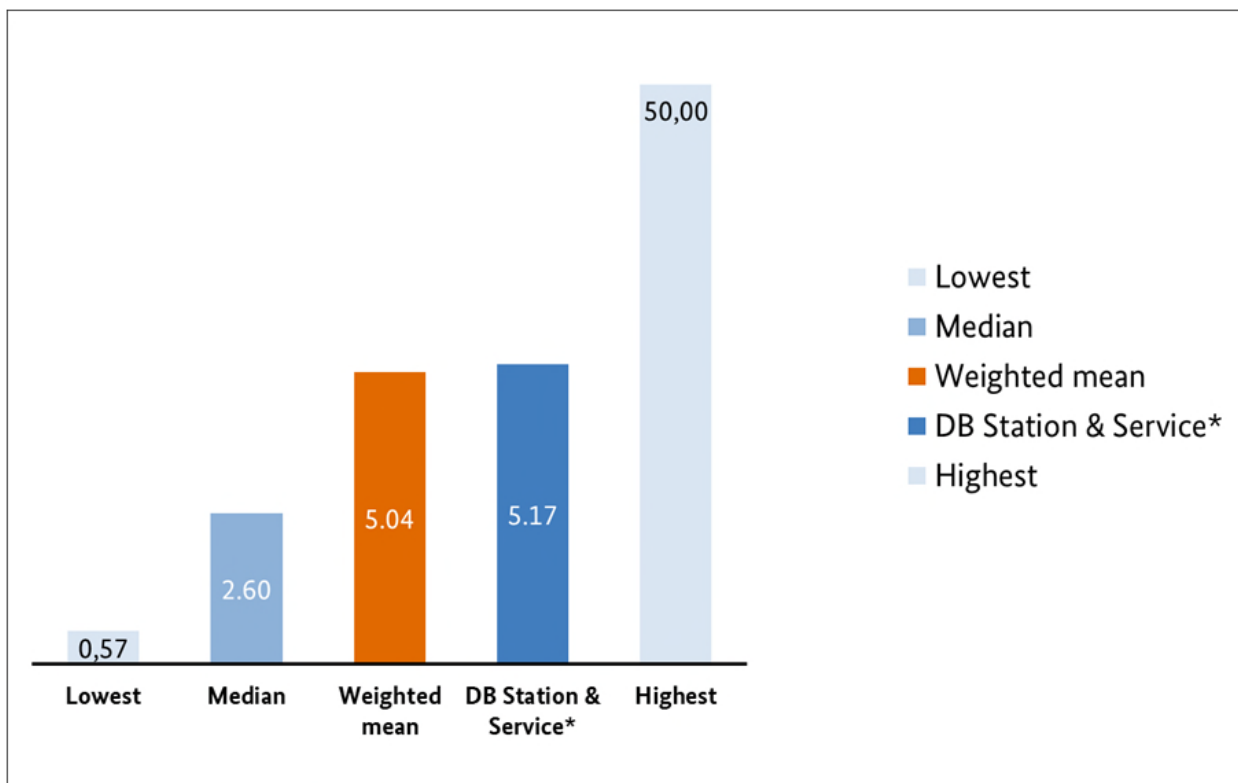
Train path product	F1, long-dist. passenger rail transport	F2, passenger rail transport	F4, short-dist. passenger rail transport*	F3, standard rail freight transport
2002	5.58	3.71	3.50	2.17
2003	5.58	3.70	3.42	2.12
2004	5.79	4.17	3.63	2.28
2005	6.07	4.17	3.65	2.29
2006	6.25	4.13	3.58	2.26
2007	6.63	4.59	3.89	2.47
2008	6.80	4.70	3.99	2.53
2009	6.95	4.80	4.13	2.61
2010	7.08	4.92	4.24	2.68
2011	7.22	5.02	4.32	2.73
2012	7.39	5.13	4.42	2.80
2013	7.59	5.26	4.54	2.88
2014	7.80	5.41	4.67	2.96
2015	8.00	5.54	4.79	3.03
Increase 2002 - 2015	43%	49%	37%	40%
CAGR**	2.8%	3.1%	2.4%	2.6%
* Regional factors not taken into account	** Average annual rate of increase			

Sources: DB Netz AG, Bundesnetzagentur

Table 1: Development of specific DB Netz AG track access charges

## 5.2 Level and development of station usage charges

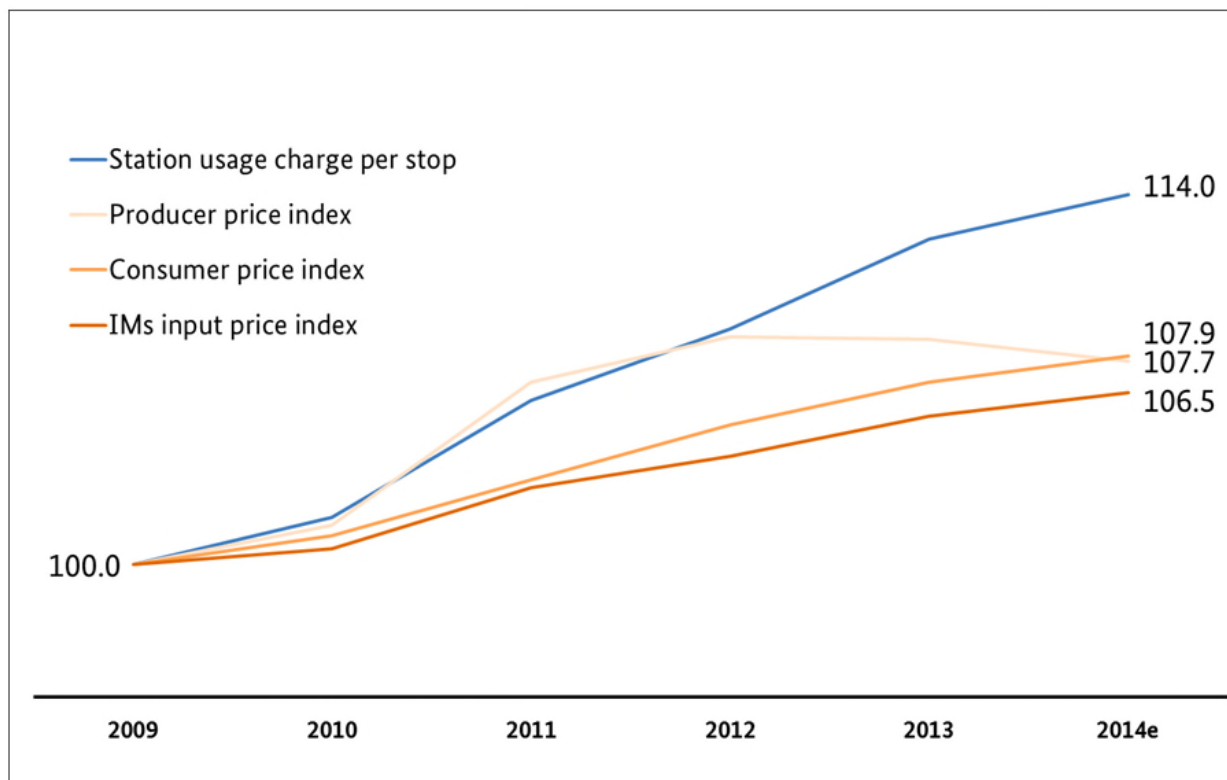
The passenger station operators realised an average of €5.04 per station stop in 2014 (Figure 32). At €2.60 per stop, the median is significantly less. Thus one out of every two passenger station operators charges less than €2.60 per station stop on average. DB Station & Service AG reported an average station usage charge of €5.17, which is slightly more than the average charge.



\* Calculated on the basis of the respective annual report

Figure 32: Range of station usage charges in euros

The charges levied for train stops at DB Station & Service AG's passenger stations have continually increased, parallel to the trend seen in DB Netz AG's track access charges. The Bundesnetzagentur expects that station usage charges will increase by an average of 14% during the period between 2009 and 2014. The index in the following diagram is calculated on the basis of the ratio of station usage charges to station stops of all passenger station operators. In contrast, important benchmark indices indicate increases of only 7% and 8% during the same period.



\* Calculated as the quotient of station usage charges and station stops of all passenger stations operators; indexed to 2009

Figure 33: Development of the station usage charges of passenger station operators

### 5.3 Rating and development of pricing systems

In addition to assessing the current state of access to railway infrastructure, parties with access entitlement also have the opportunity during the annual market survey to rate the level of non-discrimination and the price performance of the infrastructure managers' pricing systems. Generally speaking, issues that directly involve financial aspects continue to be judged more critically than access issues. The ratings for the pricing systems' level of non-discrimination fall between the ratings for price performance and the ratings for access-related matters.

Railway undertakings see a significant need for improvement in the area of non-discrimination in the pricing systems for traction current (mark: 3.0). With a mark of 2.9, the assessments of passenger stations / stopping points, railway sidings and marshalling yards were also lower than average.

The pricing systems for track access received a better rating (mark: 2.4). Just under half of the participating railway undertakings gave the pricing systems of maintenance facilities and ports a "good" or "very good" rating for their level of non-discrimination.

„How do you rate the level of non-discrimination in the infrastructure managers' pricing systems?“

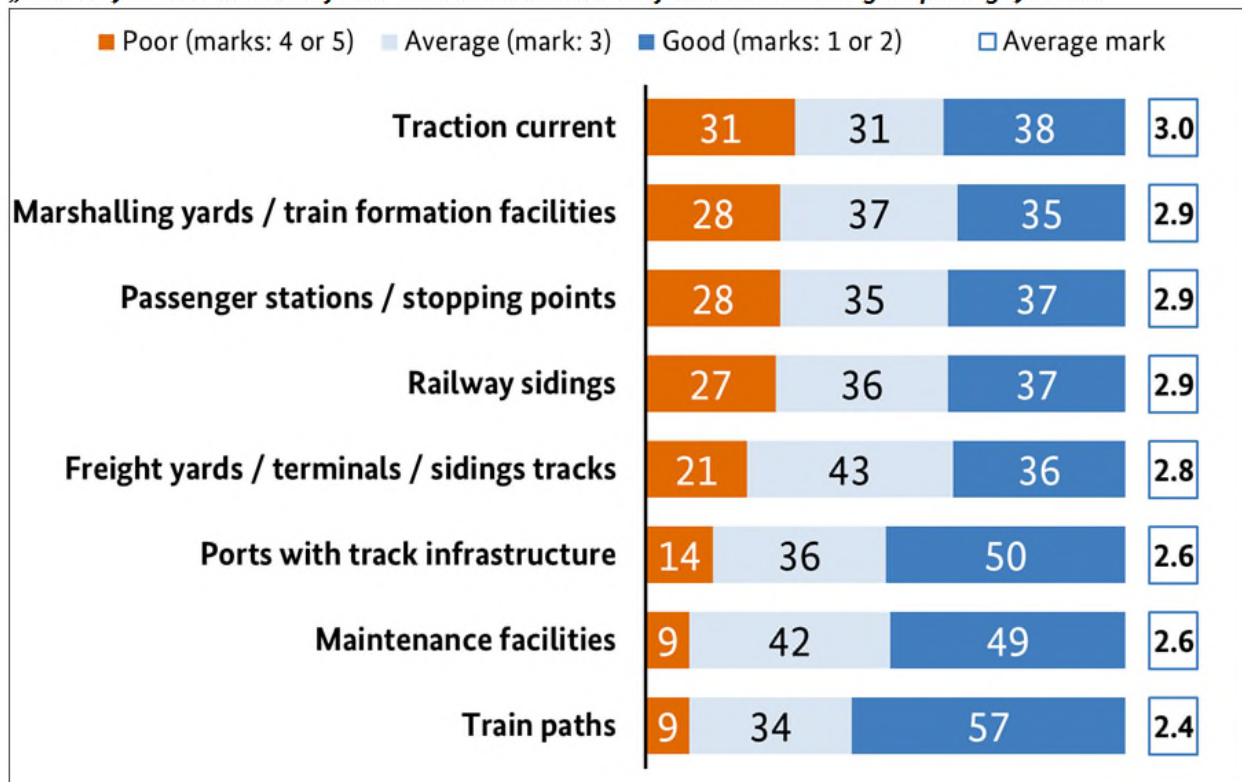


Figure 34: Ratings for the level of non-discrimination in pricing systems

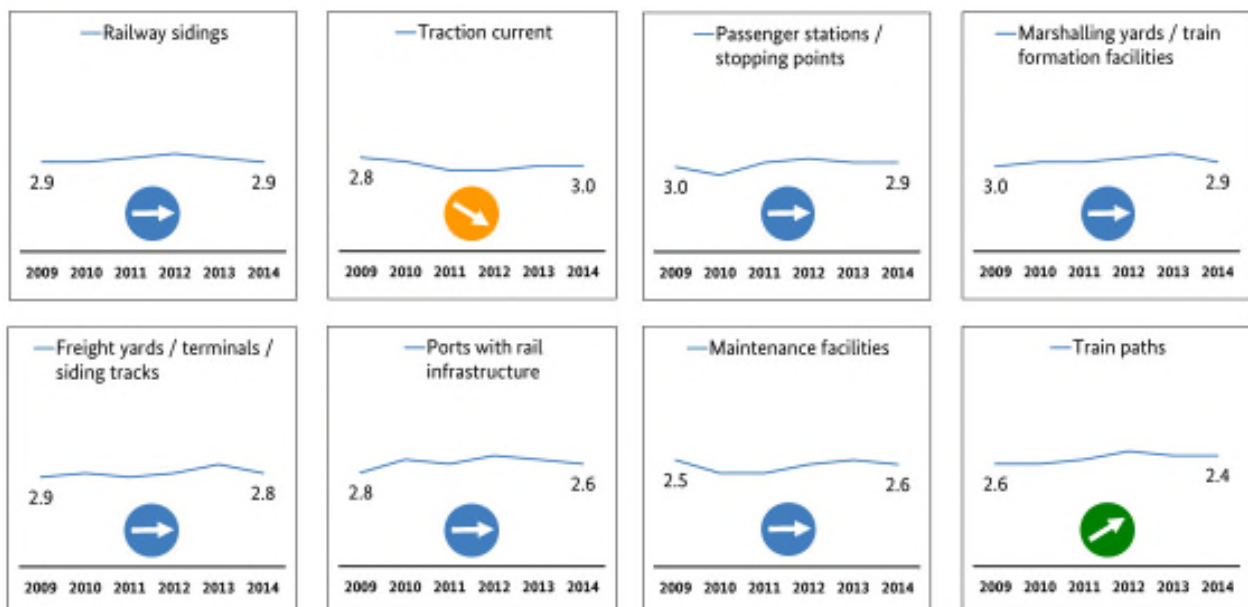


Figure 35: Development of ratings for the level of non-discrimination in pricing systems

The regional transport authorities rated the level of non-discrimination in the pricing systems for railway infrastructure (mark: 2.9) and passenger stations (mark: 3.3) as only satisfactory. However, a slightly positive trend can be seen in recent years.

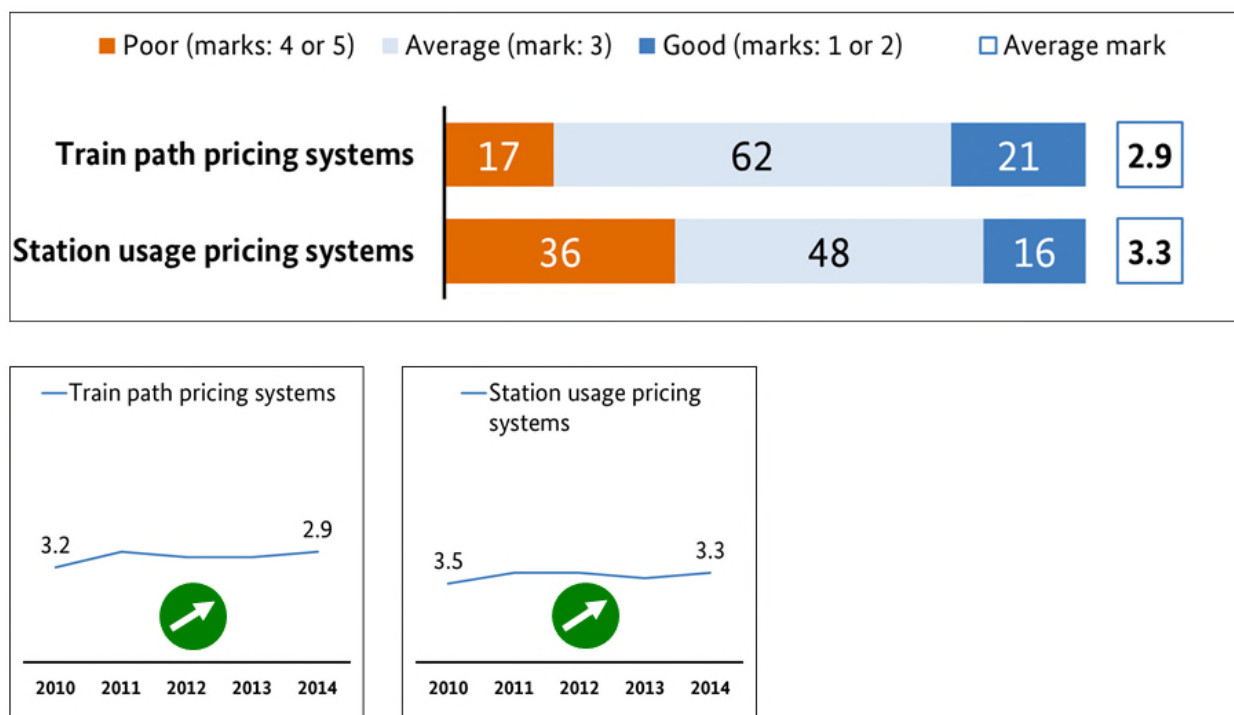


Figure 36: Regional transport authorities' ratings for the level of non-discrimination in pricing systems

Once again, railway undertakings rate the price performance for railway infrastructure usage less positively than they do the other areas that are subject to regulation. The sustained dissatisfaction over the continuous increases in infrastructure charges thus remains unchanged.

The railway undertakings criticise what is in comparison a particularly poor price performance for passenger stations / stopping points (mark: 3.5), as well as for railway sidings (mark: 3.2) and traction current rates (mark: 3.1).

With the exception of refuelling facilities (mark: 2.5), the railway undertakings gave all categories of service facilities marks worse (i.e. higher) than 2.9. Approximately one-fifth of the participating railway undertakings are dissatisfied with the price performance of maintenance facilities.

A comparison over a longer period reveals that the assessments have remained generally constant. The railway undertakings did not signal any improvements in this area.

„How do you rate the price performance of the infrastructure managers, bearing in mind the costs incurred to the IMs?“

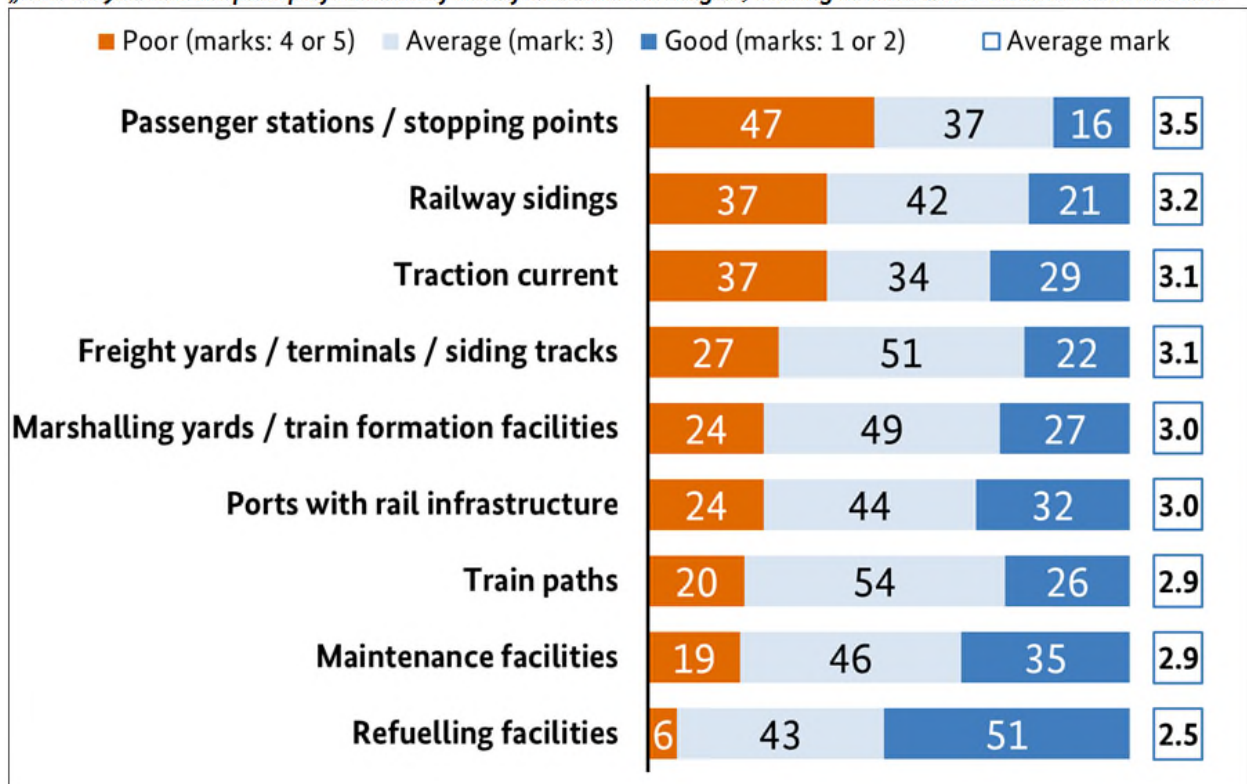


Figure 37: Price-performance ratings for the infrastructure managers

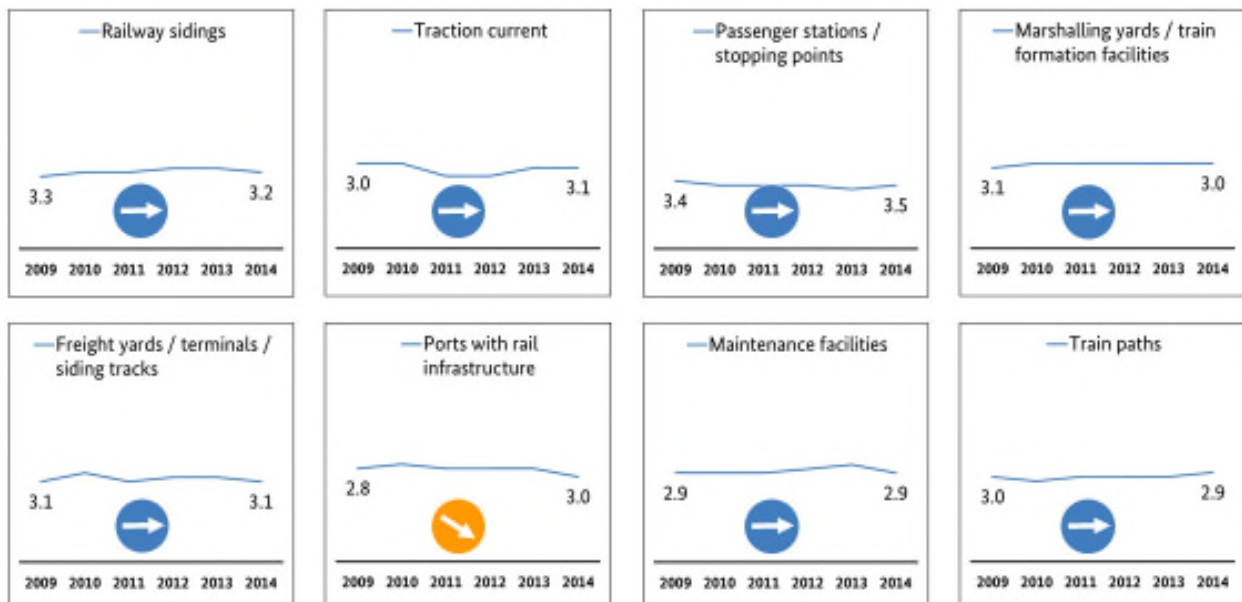


Figure 38: Development of the infrastructure managers' price-performance ratings

The regional transport authorities were even more critical in their assessments of the infrastructure managers' price performance. Neither the price performance for train paths nor the price performance for passenger stations / stopping points received an overall satisfactory rating. In addition, very few individual ratings were "good" or "very good". Only slightly less than one out of every five regional transport authorities rated the reasonableness of the station usage charges as "satisfactory".

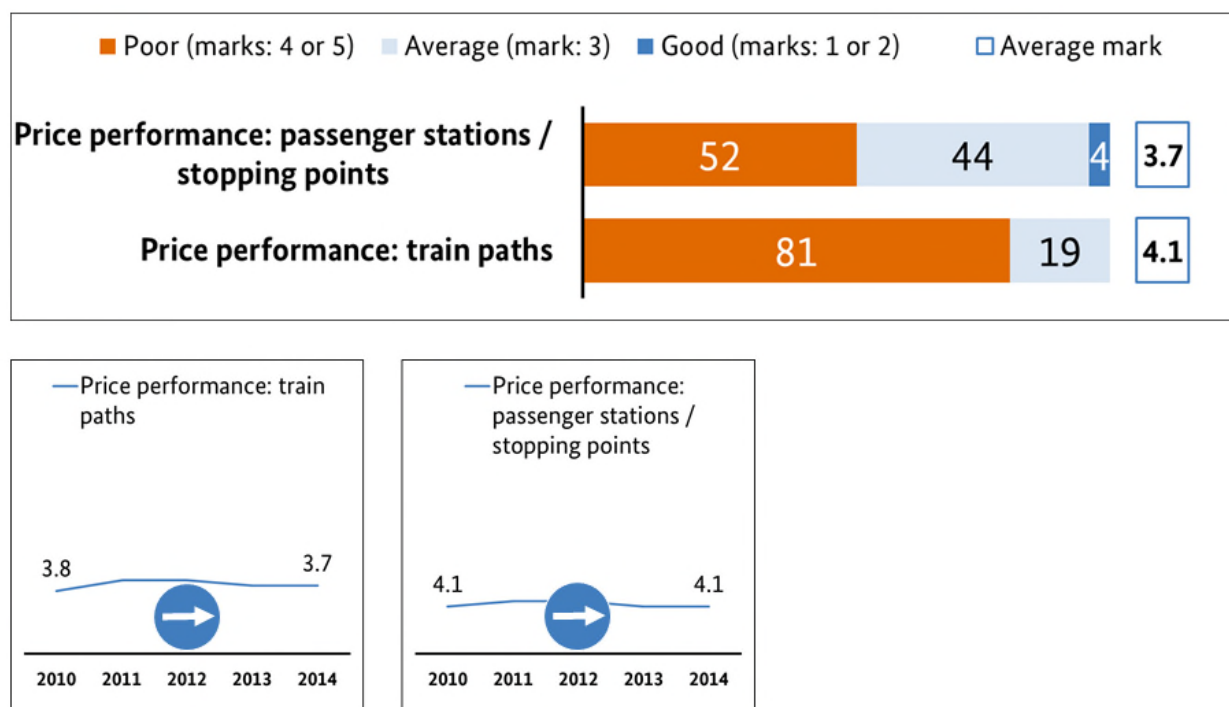
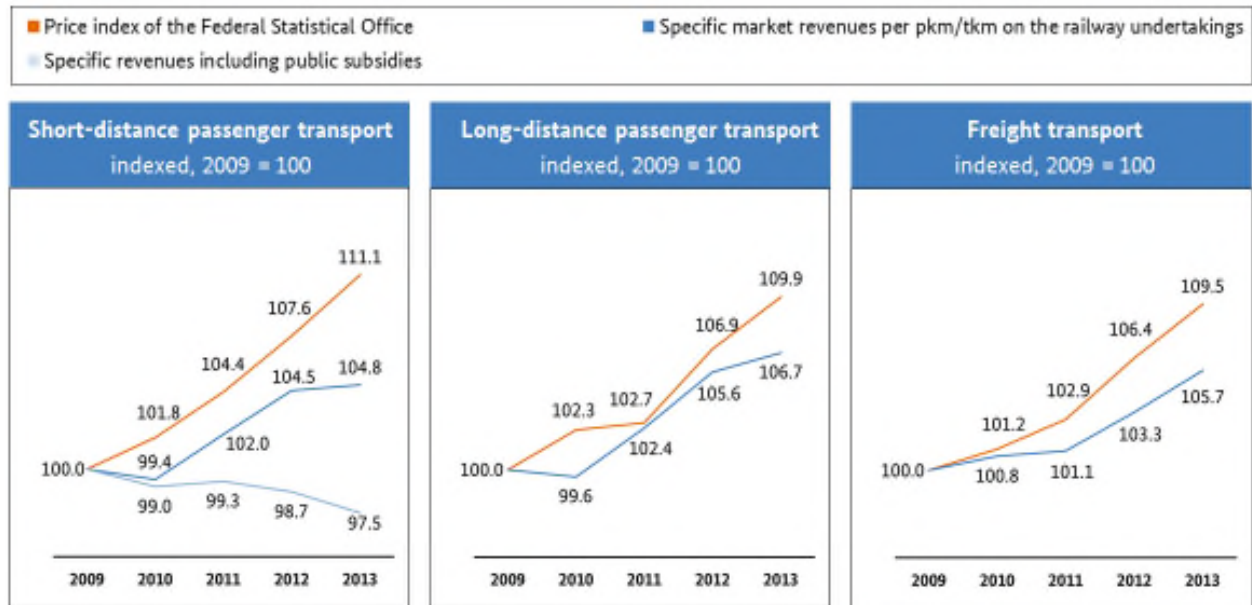


Figure 39: Regional transport authorities' rating of the infrastructure managers' pricing systems

#### 5.4 Retail prices

The Bundesnetzagentur's regulatory activities in the railway sector do not directly pertain to passengers or rail freight customers. Consequently, the Bundesnetzagentur cannot exert any significant influence on the development of ticket or transport prices since the regulated usage charges comprise only part of the retail price. However, ticket prices - alongside convenience and the range of offerings - are important for end customers when assessing how attractive passenger rail service is.





\* Some values have been corrected. Statistics from Destatis: Consumer price index for passenger transport in the short-distance and long-distance passenger rail transport market and the producer price index for freight transport and logistics services (only partial index available for freight transport in the rail transport market)  
Sources: Bundesnetzagentur, Destatis (Federal Statistical Office)

Figure 40: Development of retail prices

For its examination of how retail prices have developed, the Bundesnetzagentur drew on indices published by the Federal Statistical Office and on its own data analyses. The differences in the trends seen in the Federal Statistical Office's indices and the specific market revenues can be attributed to the fact that the indices published by the Federal Statistical Office show the price development for precisely-defined services in combination with a fixed quantity structure, whereas the average revenue per tonne-kilometre or passenger-kilometre is additionally influenced by shifts in the quantity structure. For example, greater use of rail passes or discount offers such as special prices or the Bahncard (railcard) can lead to a drop in market revenues.

Market revenues in all segments, with the exception of short-distance passenger rail transport, continue to rise. The railway undertakings operating in the rail freight transport segment reported the largest increase in their specific revenues. The average revenue in the long-distance passenger rail transport segment also increased slightly once again. Thus the railway undertakings succeeded in increasing their prices outside of the short-distance passenger rail transport segment in a market environment that is generally tending toward stagnation.

On the other hand, market revenue per passenger-kilometre has hardly changed in the short-distance passenger rail transport segment. As a consequence the individual passenger has to spend only slightly more per kilometre than last year, despite the general rise in fare prices.

However, when the subsidies from the regional transport authorities are taken into account, the revenue generated in the short-distance passenger rail transport sector exhibits a primarily downward trend since 2009. This is mainly due to the steadily rising average number of passengers per train (see Figure 12).



## 6 Economic situation of enterprises operating in the railway market

For its previous market analysis, the Bundesnetzagentur asked railway undertakings and infrastructure managers for detailed business information for the first time. Initial conclusions about the economic structure and financial stability of the German railway market were deduced from this and presented in the Market Analysis. For this latest edition of the Market Analysis, the Bundesnetzagentur surveyed the market participants regarding business information once again in order to validate the previous findings and obtain new insights into the economic situation of the railway undertakings and the infrastructure managers. The following assessments are therefore based primarily on the feedback received by the Bundesnetzagentur. Consequently, the quality of the statements made here is largely determined by the answers provided by the market players.

A total of 137 responses to the business questions were counted for the category “railway undertakings”. Based on the number of all railway undertakings participating in this market survey, this equals a response rate of approximately 45%. This is at first glance a low response rate and could give the impression that the following assessments have little or no informative value regarding the current situation in the market. It should therefore be noted that this 45% of the railway undertakings account for nearly 90% of the train-kilometres travelled in 2013. For the business analyses, the calculations in those analyses that focus on a specific segment included only those undertakings that operate exclusively in that particular segment.

### 6.1 Cost development and results situation of the railway undertakings

The survey of the market participants showed that a total of 76% of all railway undertakings reported positive operating results for the year 2013. Railway undertakings that operated only in the long-distance passenger transport segment generated positive operating results. The situation was more difficult for railway undertakings in the short-distance passenger rail transport and rail freight segments. The operating results of railway undertakings in the short-distance passenger rail transport segment were positive in only 73% of the cases. The share of railway undertakings with a positive operating result was 81% in the rail freight segment. Looking at the overall market, it can therefore be said that the economic situation is stable throughout the sector because significantly more undertakings generated positive operating results than negative operating results in every segment. The following diagram reflects this positive picture.

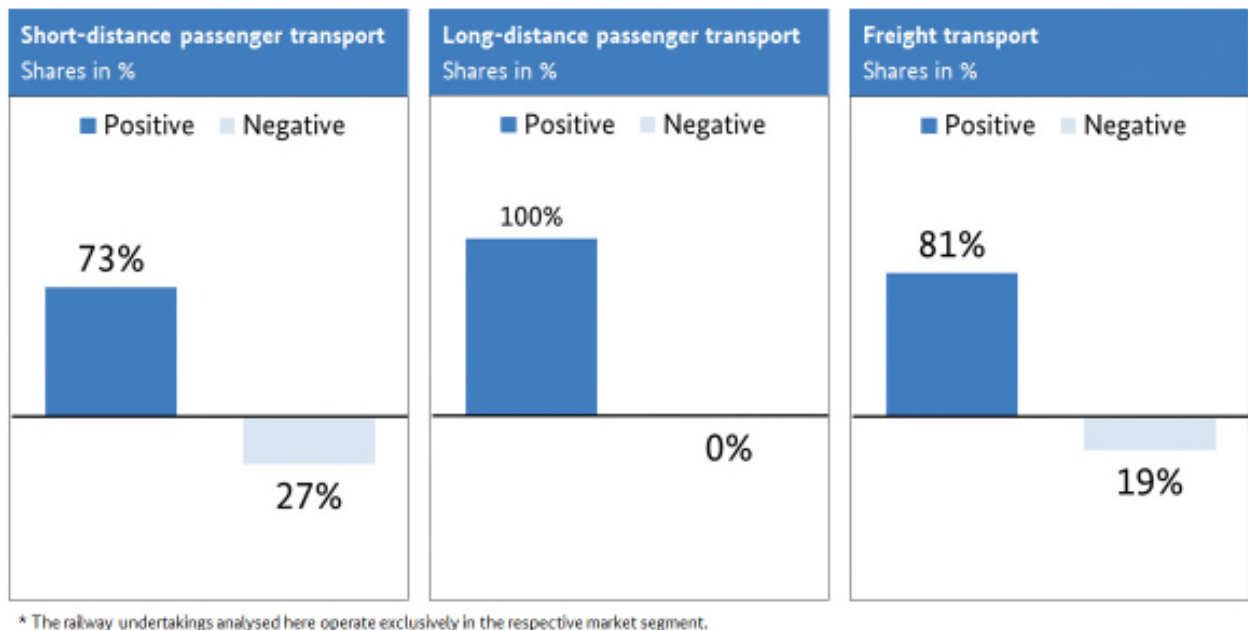


Figure 41: Market overview: railway undertakings' operating results

The market analysis also revealed that the net interest income and net results from investments do not play a very big role for the railway undertakings. Looking at results from ordinary activities, 77% of the railway undertakings generated a positive result.

Not only is the share of undertakings with a positive operating result considerably larger than the share of undertakings with a negative operating result, the sum of the positive operating results also exceeds the losses many times over. Thus, the sum of the negative operating results is considerably smaller than the sum of the positive operating results. Looking at the percentage of undertakings reporting a positive operating result, the results situation improved over the previous year. Here too, the sum of the positive operating results increased and the sum of the negative operating results declined.

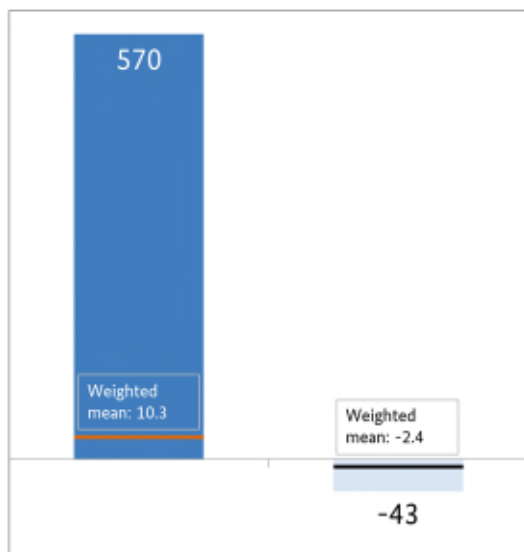


Figure 42: Range of operating results in millions of euros

To further analyse the railway undertakings' cost structures, the infrastructure access charges were calculated as a percentage of the respective revenues. Infrastructure usage charges as a percentage of the revenues generated by the railway undertakings vary considerably, depending on the type of transport, but continue to be stable within the respective category. Infrastructure access charges equal 23% of the revenues generated in the long-distance passenger rail transport segment. This figure is 19% in the rail freight segment. In the short-distance passenger rail transport segment, this percentage rose from 36% in 2012 to 37% in 2013.

An examination of the previous five years shows that the long-distance passenger rail transport segment in particular has developed positively, with a cost reduction of 3%. The rail freight segment likewise reduced the percentage share of this segment's revenue that infrastructure usage charges equal by one percentage point, from 19% to 18%. The short-distance passenger rail transport segment - which already reports the largest share of its revenues going to infrastructure usage charges - exhibited the least favourable development, with a cost increase of 1%.

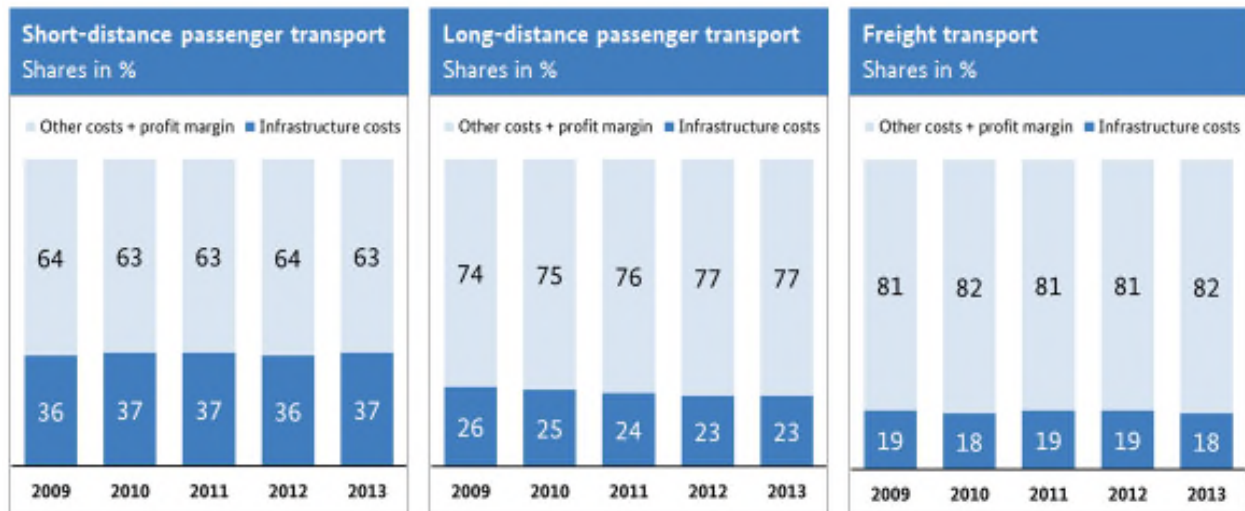


Figure 43: Infrastructure access charges as a percentage of railway undertakings' revenue, by transport segment

As part of the market analysis, various drivers of infrastructure costs were identified for the respective mode of transport. In the short-distance passenger rail transport segment, track access charges contributed to total costs with an amount equalling 29% of revenue. When only non-federally-owned railway undertakings in this segment are observed, track access charges come to 37% of revenue while total infrastructure costs equal 44% of revenue, both considerably higher than the levels seen for the market as a whole. Station usage charges account for nearly 7% of the infrastructure costs, and charges for other service facilities are the source of less than 1% of the infrastructure costs.

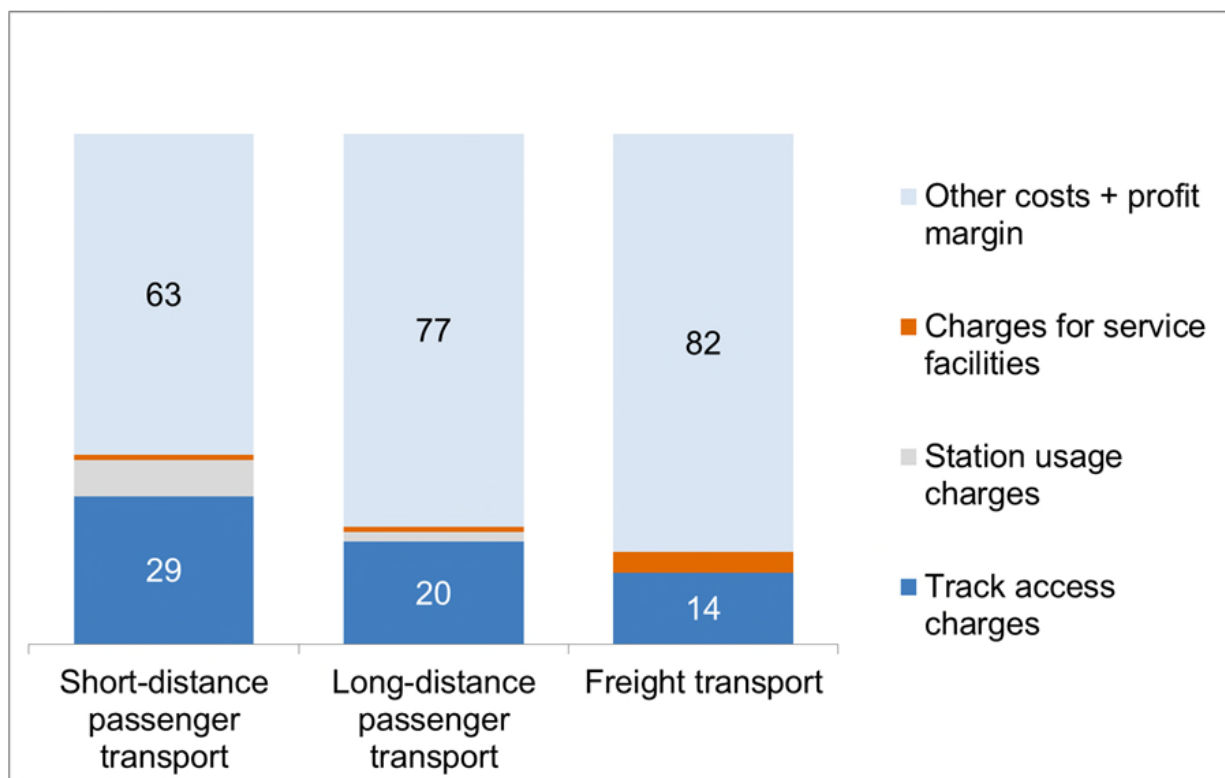


Figure 44: Drivers of infrastructure costs, in per cent

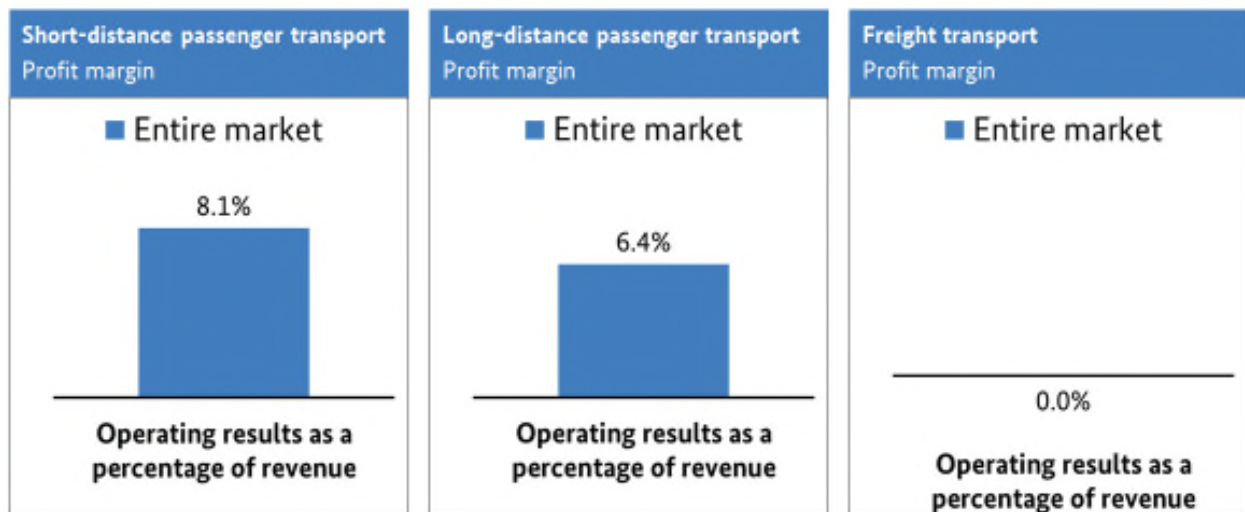
Equalling 20% of revenue, track access charges also accounted for a large share of the infrastructure costs in the long-distance passenger rail transport segment. Station usage charges equalled only 2% of revenue and service facility access charges came to just under 1%. Thus, track access charges were nine percentage points and station usage charges five percentage points lower than in the short-distance passenger rail transport segment. Station usage charges were lower due to the fewer number of stops.

Looking at the rail freight segment, track access charges equalled 14% of revenue, making this category also a large pool of costs. This figure is 21%, markedly higher, in the case of non-federally-owned railway undertakings. The non-federally-owned railway undertakings can partially compensate for their higher proportion of track access charges through the smaller proportion of service facility access charges. Equalling 4% of revenue, service facility charges for non-federally-owned railway undertakings are one percentage point less than they are for federally owned railway undertakings. This is probably due to the fact that federally owned railway undertakings use marshalling yards more.

The market analysis revealed that the profit margins<sup>7</sup> vary greatly between the individual transport segments. While the short-distance passenger rail transport segment reported an average profit margin of 8.1% and the long-distance passenger rail transport segment at 6.4% also posted a good result, a profit margin has yet to

<sup>7</sup> As part of the market analysis, information was gathered regarding revenue and operating results; the survey did not, however, include questions about the capital base. As a result, only the profit margins could be calculated and examined as part of the market analysis.

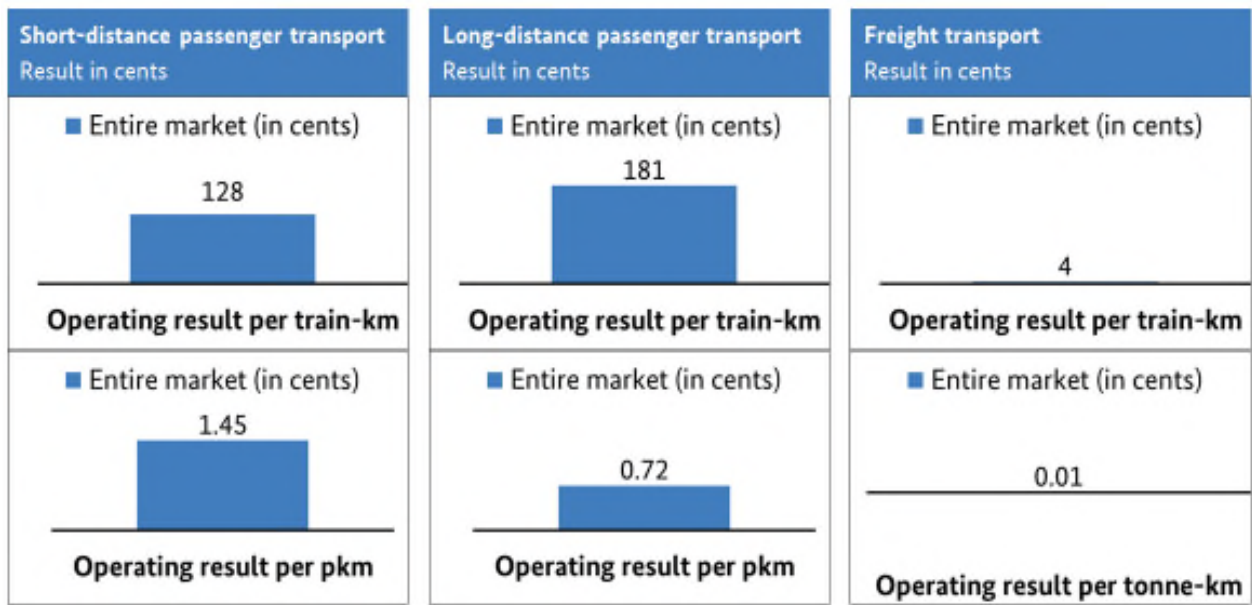
materialise in the rail freight transport segment. It should probably be mentioned here that, compared to the overall market, non-federally-owned undertakings in the short-distance passenger rail transport segment generate only an average profit margin of just under 2%. The rail freight transport segment, however, generates a profit margin of 2%, exceeding that of the overall market. Looking at the entire market, it can be said that the highest profit margin was generated in the short-distance passenger rail transport segment and the lowest in the rail freight transport segment.



\* The railway undertakings analysed here operate exclusively in the respective market segment.

Figure 45: Railway undertakings' profit margins

In order to establish a better basis for comparing the profit situation in the individual transport segments, the operating results are shown in relation to a measure of performance (passenger-kilometres and train-kilometres). This clearly shows that although the operating result per passenger-kilometre is considerably higher in the short-distance passenger rail transport segment, the long-distance passenger rail transport segment generated a better operating result per train-kilometre. These findings are illustrated in the following diagram. This is only a schematic diagram; the individual undertakings' special effects for the results of the respective business year were not taken into account here.



\* The railway undertakings analysed here operate exclusively in the respective market segment.

Figure 46: Specific results, by mode of transport

An examination of the rail freight transport segment reveals an operating result per train-kilometre of four cents on average. When non-federally-owned undertakings are examined separately, this group of undertakings generated positive operating results averaging 50 cents per train-kilometre. A look at the operating results per tonne-kilometre shows that the undertakings generated on average a slightly positive operating result of 0.01 cent; this figure is 0.09 cent per tonne-kilometre for non-federally-owned enterprises.

In the short-distance passenger rail transport segment, the average operating result for the overall market was 128 cents per train-kilometre and 1.45 cents per passenger-kilometre. Non-federally-owned undertakings generated an average operating result of 37 cents per train-kilometre and 0.47 cents per passenger-kilometre.

## 6.2 Cost development and results situation of the railway line infrastructure operators

The results situation of the non-federally-owned railway line infrastructure operators did not improve in 2013. Once again, these undertakings did not generate any profits through their provision of train paths. It should, however, be noted that many of the non-federally-owned undertakings do not operate on a for-profit basis and are often part of an enterprise or group whose core business is not railway operations.

### Operating results of railway line infrastructure operators

In millions of euros	2009	2010	2011	2012	2013
Revenue	71.3	73.5	60.2	68.8	44.8
Expenditure	108.9	106.4	97.2	93.6	70.2
Result	-37.6	-32.9	-37.0	-24.8	-25.4

Table 2: Revenue, expenditure and results of railway line infrastructure operators (only non-federally-owned infrastructure operators)

The above table illustrates the non-federally-owned railway line infrastructure operators' dependence on public subsidies. During the previous reporting period, the non-federally-owned railway line infrastructure operators were not able to cover their costs. The shortfall arising from the difference between expenditure and revenue during the period covered by this report was equal to between 41% and 61% of revenue.

Looking at financing, it was noted that at 32%, the average equity ratio of the non-federally-owned railway line infrastructure operators was slightly less than the approximated equity ratio of DB Netz AG and less than the overall market's average of 35%.



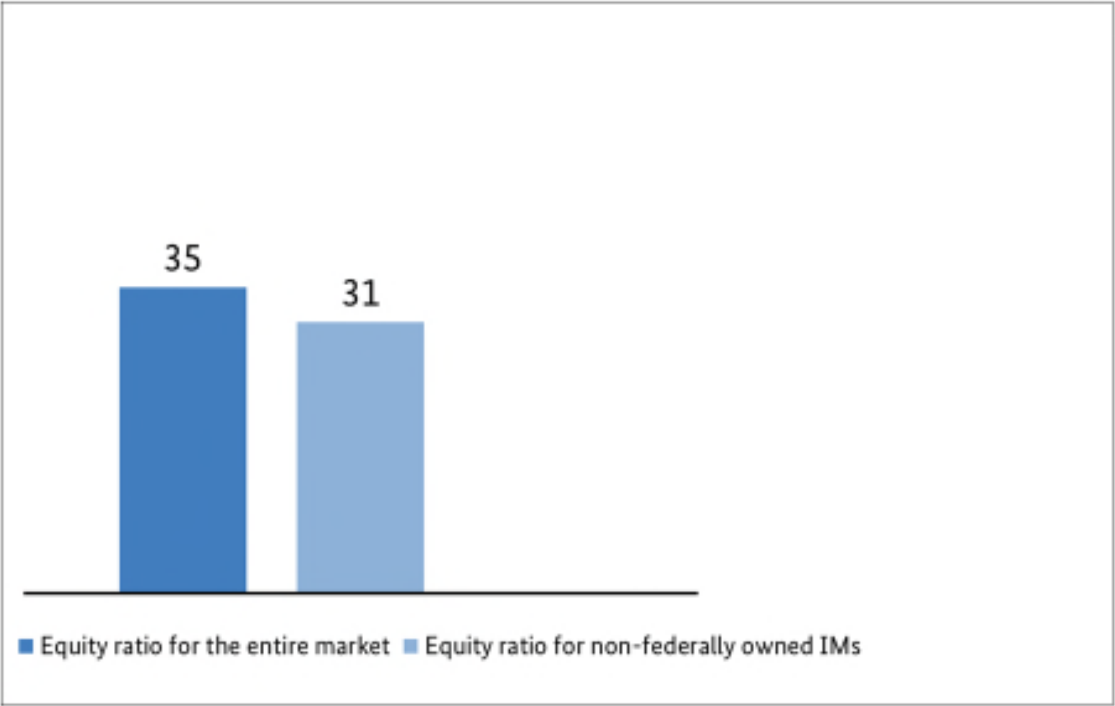


Figure 47: Equity ratios of railway line infrastructure operators

### 6.3 Cost development and results situation of service facility operators

When taken together, the non-federally-owned service facility operators did not generate a positive result from railway infrastructure access charges in 2013. These operators' revenues covered only 52% of their expenditure for maintenance, depreciation and the operation of service facilities (see Figure 48).

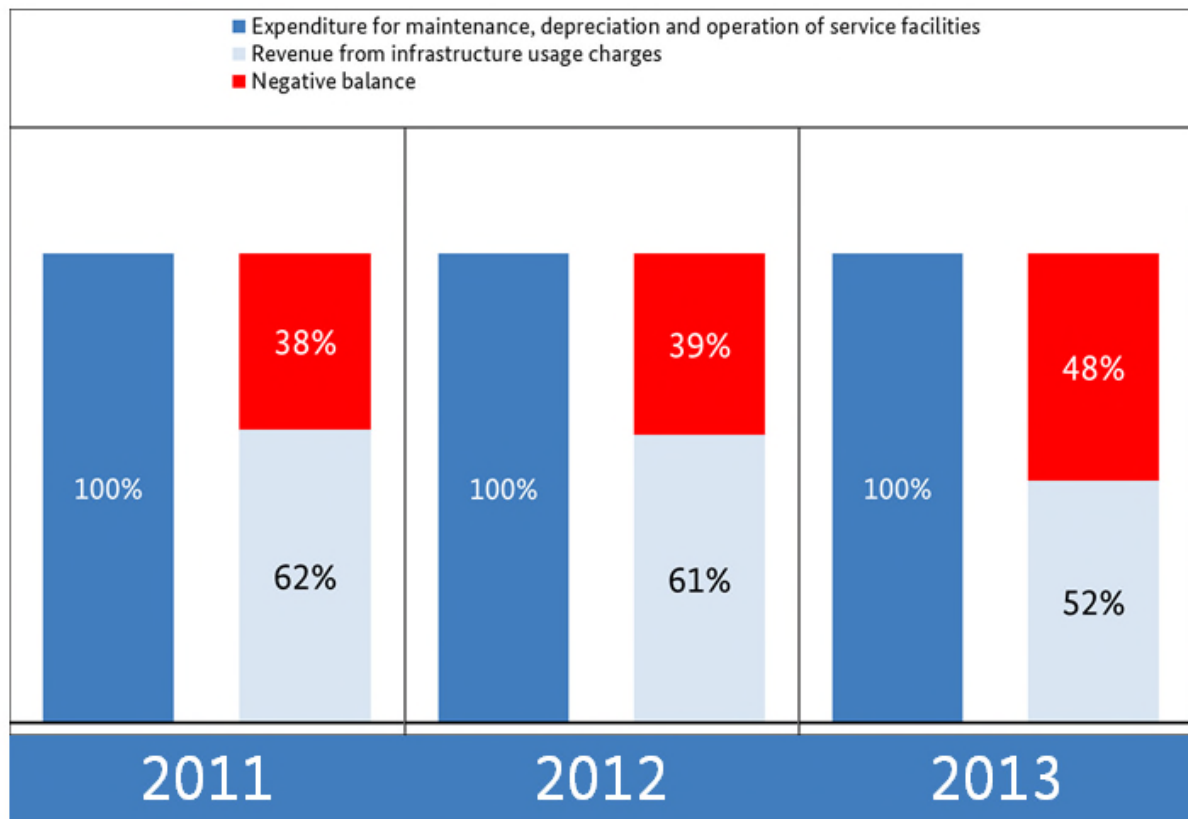


Figure 48: Revenue, expenditure and result of service facility operators of non-federally-owned infrastructure managers

An analysis of the data broken down by type of service facility shows that ports with rail infrastructure and the main private-sidings lines, feeder tracks and factory sidings are largely responsible for this negative result. Similarly to the railway line infrastructure operators, the function of many service facilities is simply to support the respective company's primary business operations or object. Thus, railway operations do not constitute a core business activity for these undertakings. Any shortfalls are offset by other business units.

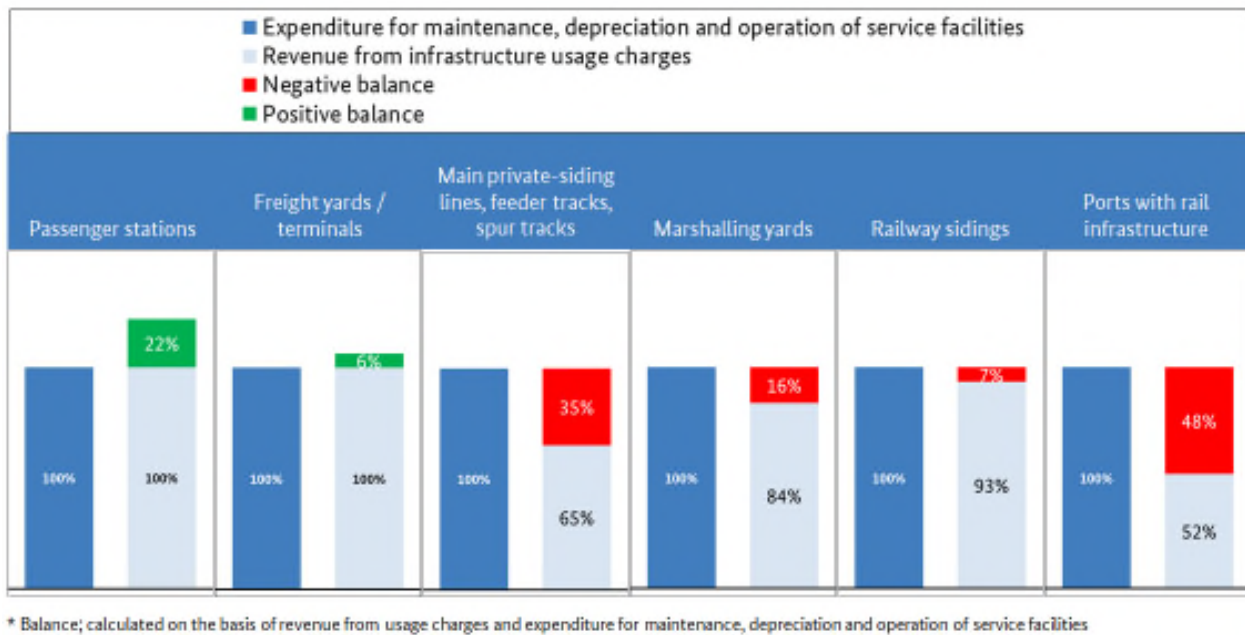


Figure 49: Revenue, expenditure and results of the operators of service facilities of non-federally-owned infrastructure managers, by type of service facility

The non-federally-owned railway line infrastructure operators generated a positive contribution to their operating results with their passenger stations. After deduction of expenditure for maintenance, depreciation and the operation of the service facility, these operators retain 17% of the revenue they have generated.

## 7 International market monitoring

In its capacity as a member of the Market Monitoring Working Group of the Independent Regulators' Group Rail (IRG-Rail), the Bundesnetzagentur was once again actively involved in European market monitoring activities. The IRG-Rail is a network of independent regulatory bodies whose objective is to promote the establishment of a single, competitive, efficient and sustainable market in Europe.

The members of the working group have jointly developed a market survey for identifying and assessing important factors that influence railway undertakings' business operations. The results from IRG-Rail's international market monitoring activities are published in the Annual Market Monitoring Report that is released on the IRG-Rail website (<http://www.irg-rail.eu/public-documents/>) during the first quarter of the respective year.

## 8 Annex

### 8.1 Method used for rating influencing factors

Sections 4 (Rail infrastructure market) and 5 (Infrastructure access and other charges) of this report address, among other things, the issue of how railway undertakings rate specific factors that impact the railway market. This analysis is based on the section “Factors that influence the railway market” in the questionnaire for railway undertakings and the questionnaire for regional authorities responsible for short-distance passenger transport.

In this part of the survey, railway undertakings had the opportunity to assess from their particular standpoint various issues such as the current situation with regard to access to railway infrastructure and service facilities or in connection with non-discrimination. They rated the individual topics on a scale ranging from “1 - Excellent, no need for action” to “5 - Inadequate, urgent action necessary”.

This part of the questionnaire was optional for the respondents. Nonetheless, many of them offered their assessment of the state of the market. The results therefore reflect the market’s perspective rather than just a strictly regulatory view. The order of similar indicators in the ratings particularly reveals the areas where railway undertakings see the most problems.

Since the railway undertakings usually assess the market from their point of view at the time of the survey, these findings – unlike the other analyses presented here – refer to the year in which the Bundesnetzagentur conducted the survey (2014).

## 8.2 DB Netz AG's train-path pricing system, 2002 - 2015

Base price (€)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<u>Train path product</u>														
FPlus	n.v.	8.30	8.30	8.30	8.30	7.90	8.09	8.30	8.38	8.55	8.76	9.00	9.26	9.50
F1	3.38	3.38	3.51	3.68	3.79	4.02	4.12	4.21	4.29	4.38	4.48	4.60	4.73	4.85
F2	2.25	2.24	2.53	2.53	2.50	2.78	2.85	2.91	2.98	3.04	3.11	3.19	3.28	3.36
F3	2.17	2.12	2.28	2.29	2.26	2.47	2.53	2.61	2.68	2.73	2.80	2.88	2.96	3.03
F4	2.12	2.07	2.20	2.21	2.17	2.36	2.42	2.50	2.57	2.62	2.68	2.75	2.83	2.90
F5	2.05	2.02	2.03	1.74	1.76	1.82	1.86	1.90	1.90	1.94	1.99	2.04	2.10	2.15
F6	1.93	1.92	2.00	2.05	2.06	2.13	2.18	2.25	2.31	2.36	2.64	2.71	2.79	2.86
Z1	2.12	2.11	2.13	2.13	2.14	2.21	2.26	2.34	2.40	2.45	2.74	2.81	2.89	2.96
Z2	2.20	2.19	2.20	2.20	2.21	2.29	2.34	2.42	2.48	2.53	2.82	2.89	2.97	3.05
S1	1.48	1.45	1.46	1.46	1.46	1.55	1.59	1.64	1.70	1.73	1.77	1.82	1.87	1.92
S2	n.v.	2.09	2.09	2.09	2.09	2.09	2.14	2.20	2.26	2.31	2.37	2.43	2.50	2.56
S3	n.v.	n.v.	n.v.	2.51	2.51	2.51	2.57	2.64	2.70	2.75	2.82	2.89	2.97	3.05
<u>Product factors</u>														
<u>Passenger transport train paths</u>														
Express train path	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Long-distance regular-interval train path	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Short-distance regular-interval train path	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Economy train path	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Traction unit train path (passenger transport)	n.v.	n.v.	1.00	1.00	1.00	0.65	0.65	0.65	0.65	0.65	0.65	n.v.	n.v.	n.v.
<u>Freight transport train paths</u>														
Express train path	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Standard train path	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Feeder train path	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
traction unit train path (freight transport)	n.v.	n.v.	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
<u>Other surcharges</u>														
Utilisation factor	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	n.v.	n.v.	n.v.
Deviations from the minimum speed (factor)	n.v.	n.v.	n.v.	n.v.	n.v.	n.v.	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Load component rail freight + 3,000 t (in €)*	1.33	1.33	1.33	0.59	0.53	0.90	0.92	0.92	0.92	0.94	0.96	0.98	0.98	0.98
NDTAC surcharge**	n.v.	n.v.	n.v.	n.v.	n.v.	n.v.	n.v.	n.v.	n.v.	n.v.	n.v.	1.00%	1.50%*	2.00%

\* ab 01.06.2014, davor 1.00%

Source: DB Netz AG

\* Prior to 2007 surcharge already payable starting from 1,000 t; surcharge shown for 3,000 t

Source: Train path pricing systems of DB Netz AG

\*\* Only for freight trains whose wagons do not meet at least 80% of the requirements of the Technical Specification for Interoperability (TSI) Noise; the surcharge is one per cent until 31 May 2014.



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