



Bundesnetzagentur

Railway Market Analysis

Germany 2018



Railway Market Analysis Germany 2018

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THE RAILWAY MARKET IN FIGURES

Revenue – Railway undertakings

Δ 16/17

2017	Total	€20.7bn	↑
	Rail freight	€5.7bn	↑
	Long-distance passenger	€4.2bn	↑
	Short-distance passenger	€10.8bn	↑

Revenue – Infrastructure managers

Δ 16/17

2017	Total	€6.4bn	↑
	Track access charges	€5.1bn	↑
	Station charges	€0.9bn	→
	Other charges	€0.4bn	→

Rail traffic

Δ 16/17

2017	Rail freight	129bn tkm	↑
	Long-distance passenger	41bn pkm	↑
	Short-distance passenger	57bn pkm	↑

Competitor's share in rail traffic

Δ 16/17

2017	Rail freight	47%	↑
	Long-distance passenger	<1%	→
	Short-distance passenger	26%	→

Background to the market analysis

The Bundesnetzagentur works to ensure effective competition in the railway market. To accomplish this, it needs up-to-date, reliable information about the railway market and the railway undertakings operating in it. For this reason, the Bundesnetzagentur gathers information each year and publishes its findings in its Railway Market Analysis.

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Introduction

By conducting a market survey and reporting on the market in its Railway Market Analysis, the Bundesnetzagentur helps identify potential for discrimination and, by doing so, fosters competition.

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 railway infrastructure (tracks and service facilities) and the charging of reasonable, transparent and non-discriminatory prices.

The Bundesnetzagentur's specific duties and powers are set forth in the Rail Regulation Act (ERegG) and the General Railway Act (AEG).

Background to the market analysis

To be able to fulfil these tasks, the Bundesnetzagentur needs valid, up-to-date information about the railway market in general and railway undertakings in particular.

For this purpose, it has conducted written surveys to collect market data every year since it took up its work in 2006. Each year, in March or April, it sends questionnaires to railway undertakings and other parties with access entitlements such as regional transport authorities. For the 2017 reporting year, the Bundesnetzagentur sent its questionnaire to more than 2,000 market participants.

The scope of the Bundesnetzagentur's market monitoring activities is defined in Section 17 of the Rail Regulation Act.

This act contains provisions requiring market participants to provide information to the Bundesnetzagentur. Besides the obligation to make available information that is needed for statistical and market monitoring purposes, market participants are also required to provide information on their financial situation.

The obligation to supply information to the Bundesnetzagentur applies to all market participants. The term "market participant" also includes factory railways, heritage railways and non-standard-gauge railways. The Rail Regulation Act does not allow exemptions from the requirement to participate in the annual market survey. In the event of non-compliance with this requirement, the Bundesnetzagentur can, under Section 67 (4) in conjunction with Section 67 (1) of the Rail Regulation Act, impose a penalty of up to €500,000.

The results of the survey are published not only in the "Railway Market Analysis" as required by Section 122 of the Telecommunications Act but also in the Bundesnetzagentur's "Annual Report" and in its "Activity Report - Railways" (Section 71 of the Rail Regulation Act). The focus of the latter two publications is on the regulatory aspects of the market, while the "Railway Market Analysis" contains current statistical data and analyses thereof, which interested parties can use to inform themselves about the railway sector's structure and development.

The Bundesnetzagentur strives to ensure continuity in its collection and analysis of this data. This continuity gives the surveyed enterprises and parties with access entitlements a sound basis for their planning activities.

Moreover, it is the only way that useful time series can be generated.

The European Commission issued Implementing Regulation (EU) 2015/1100 in July 2015. This Regulation requires Member States to provide the European Commission certain information regarding the development of their railway markets. This is done as part of the Rail Market Monitoring Scheme (RMMS).

The market participants were asked a number of new questions for the 2017 reporting year. A number of them pertained to facility-related information regarding freight terminals.

Market definition

The Railway Market Analysis 2018 covers the area of transport via railway infrastructure. Railway infrastructure is also a focus of this analysis.

Depending on the type of infrastructure they operate, companies are referred to as infrastructure managers or service facility operators. For the market survey, service facilities are further broken down into refuelling facilities, passenger stations, freight yards and freight terminals, marshalling yards, train formation facilities, storage sidings, maintenance facilities and ports.

Unless otherwise indicated, the numbers in the following text and charts refer to the 2017 reporting year.

Infrastructure managers' services and charges were rated as part of the market survey conducted in 2018.

Data from other sources (including Germany's Federal Statistical Office, Federal Office for Goods Transport and Federal Railway Authority)

was also used for the publication "Railway Market Analysis 2018".

Figure 1 provides an overview of the definition of the market used in the Railway Market Analysis. It should be noted here that rolling stock manufacturers and railway undertakings, for example, can also be railway infrastructure managers as a sub-function of their primary business.

The analyses drew upon data from a total of 319 railway undertakings operating in the market. One hundred and twenty-four of these railway undertakings provided services in the short-distance passenger rail transport segment. Another 29 provided services in the long-distance passenger rail transport segment and 168 in the rail freight transport segment. In addition, data from 139 infrastructure managers and 506 service facility operators was taken into account in the market analysis.

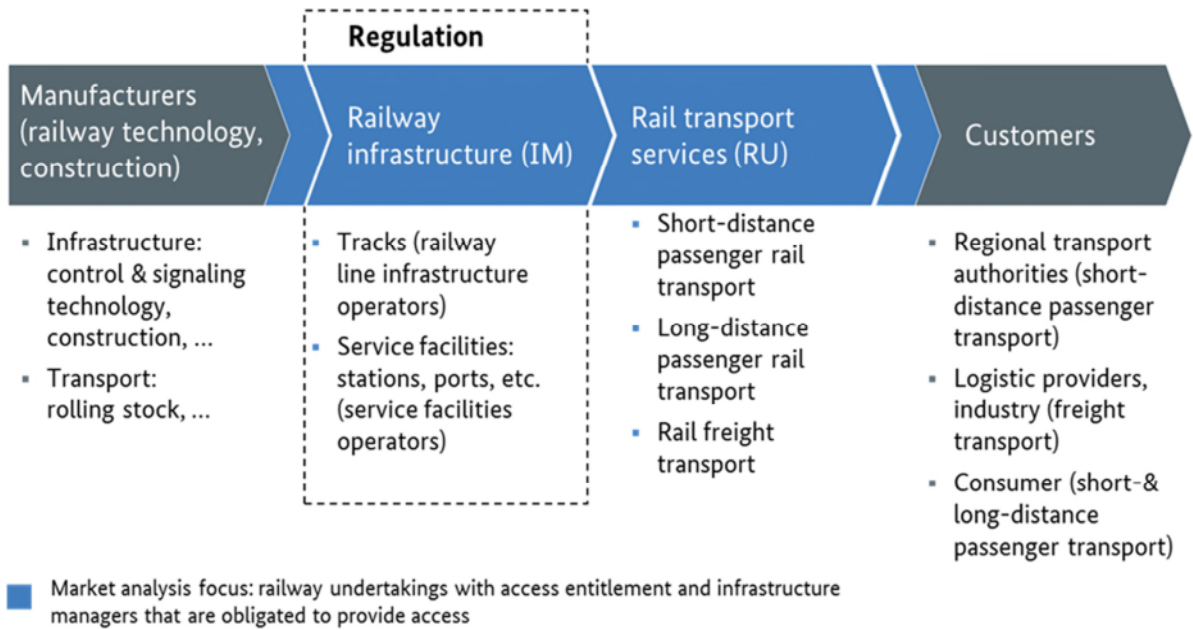


Figure 1: Market definition used in the Railway Market Analysis

Economic environment

In addition to looking at companies in the railway market, the Bundesnetzagentur examines how the economic environment is developing. This allows it to observe and assess company-specific and railway-specific developments in a broader context.

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Railway market overview

The shares that rail transport holds in Germany's overall transport volume remained largely stable in a steadily expanding economic environment.

Market environment

The positive development that the German economy has seen since the crisis in 2009 continued through the year 2017 when Germany's real gross domestic product grew by 2.2 percent over 2016. After having fallen by 0.5 percentage points in 2015, GDP growth has remained constant since 2016.

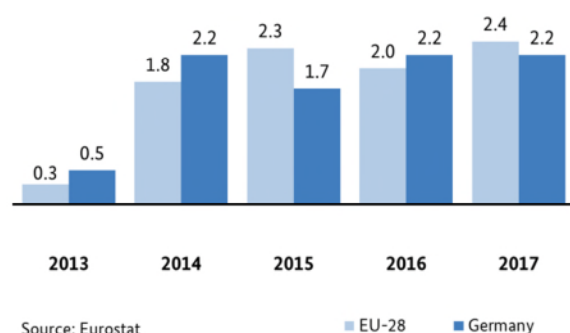


Figure 2: Development of GDP in real terms (2012-2017; year-on-year increase in percent)

The European Union's 28 Member States (EU-28) saw a somewhat different development in the past years. The economy in the EU-28 rebounded in 2010 and 2011 but slowed again in 2012. The gross domestic product for the EU-28 then resumed growing in 2013. Economic growth picked up noticeably in 2014 and 2015 and reached 2.4 percent in 2017.

Development of the modal split

Looking at the modal split in 2017, the share of rail freight transport increased by 0.1 percent, while the share held by inland waterway transport remained stable at 8.4 percent. The share of road freight transport correspondingly declined by 0.1 percent. The share held by inland waterway transport has steadily declined since 2014. Following the pattern seen in the previous year, it has now fallen to its lowest level since 2013.

Based on information regarding rail transport services covered by the Bundesnetzagentur's market surveys, the share of the modal split held by rail freight transport steadily increased through 2016. Further growth was not reported in 2017.

Some of these gains are due to the fact that the surveys are penetrating more deeply into the market, particularly in the case of railway undertakings whose registered offices are located in other European countries.

This underscores the need for a robust legal basis for obtaining valid statistical findings.

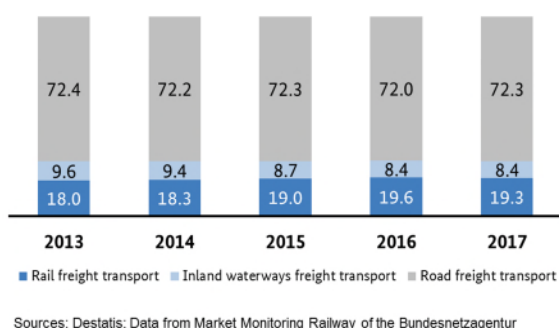


Figure 3: Development of the modal split in the freight transport segment (2013-2017; shares in percent)

The market shares held by the individual modes in the passenger transport segment out of the combined rail transport services remained stable over the previous year. At 8.4 percent, the share held by the passenger rail transport segment was slightly larger than the share reported in recent years. None of the modes of transport saw more than a slight change in their shares during the entire reporting period.

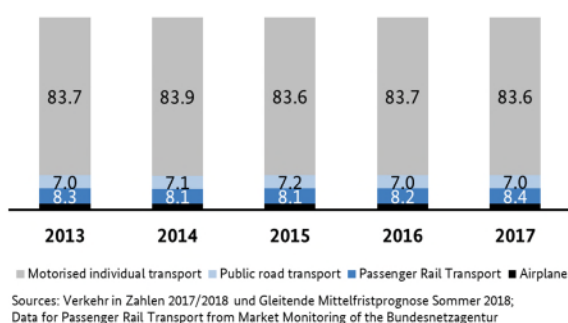


Figure 4: Development of the modal split in the passenger transport segment (2013-2017; shares in percent)

Development of employment in the railway market

After having steadily fallen until 2010, the number of workers employed in the railway sector (measured in terms of full-time equivalents¹) has been on the rise since 2013. The number of workers, particularly those employed by infrastructure managers, continued to increase through 2017. All in all, approximately 153,000 full-time positions were filled in the railway market.

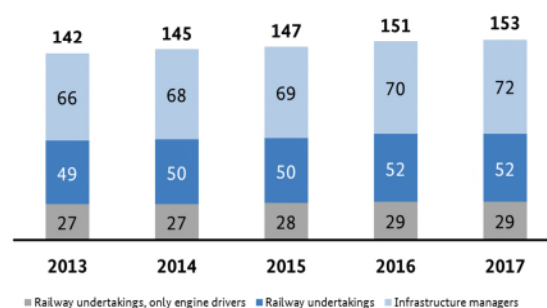


Figure 5: Development of employment in the railway market (2013-2017; full-time equivalents in thousands)

Availability of personnel

As part of the market survey, railway undertakings have the opportunity to rate the availability of personnel for the areas train drivers, technical operational railway personnel and other personnel, using a scale from 1 ("good availability") to 5 ("places company's existence at risk").

¹ When calculating the number of full-time equivalents, part-time positions are counted as partial full-time positions, based on the number of working hours.

The surveyed railway undertakings rated the availability of personnel slightly worse than in the previous year.

Fewer than one third of the surveyed railway undertakings and infrastructure managers rated the availability of technical operational railway personnel as good. The situation is particularly problematic in the case of train drivers. Here, more than half of the undertakings are dealing with an adverse situation.

The railway undertakings are currently in a phase in which they are adding personnel. Furthermore, they are seeing greater outflows due to the age structure of their workforces (demographics). These two factors are unquestionably leading to a shortage of skilled labour. Railway undertakings are having to counter this shortage by conducting training programmes of their own.

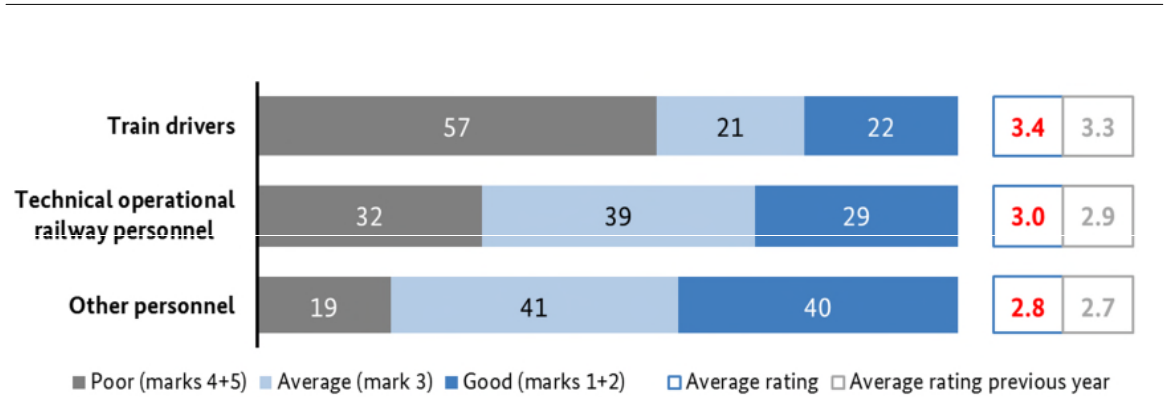


Figure 6: Availability of personnel for railway undertakings (2018; rating shares in percent and average marks)

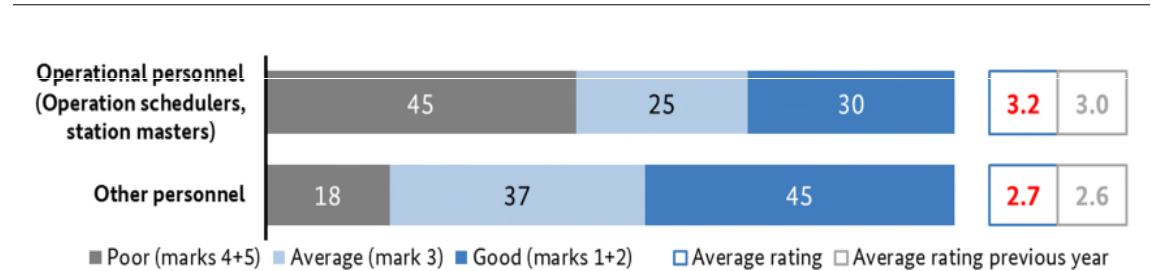


Figure 7: Availability of personnel at infrastructure managers (2018; rating shares in percent and average marks)

Railway transport

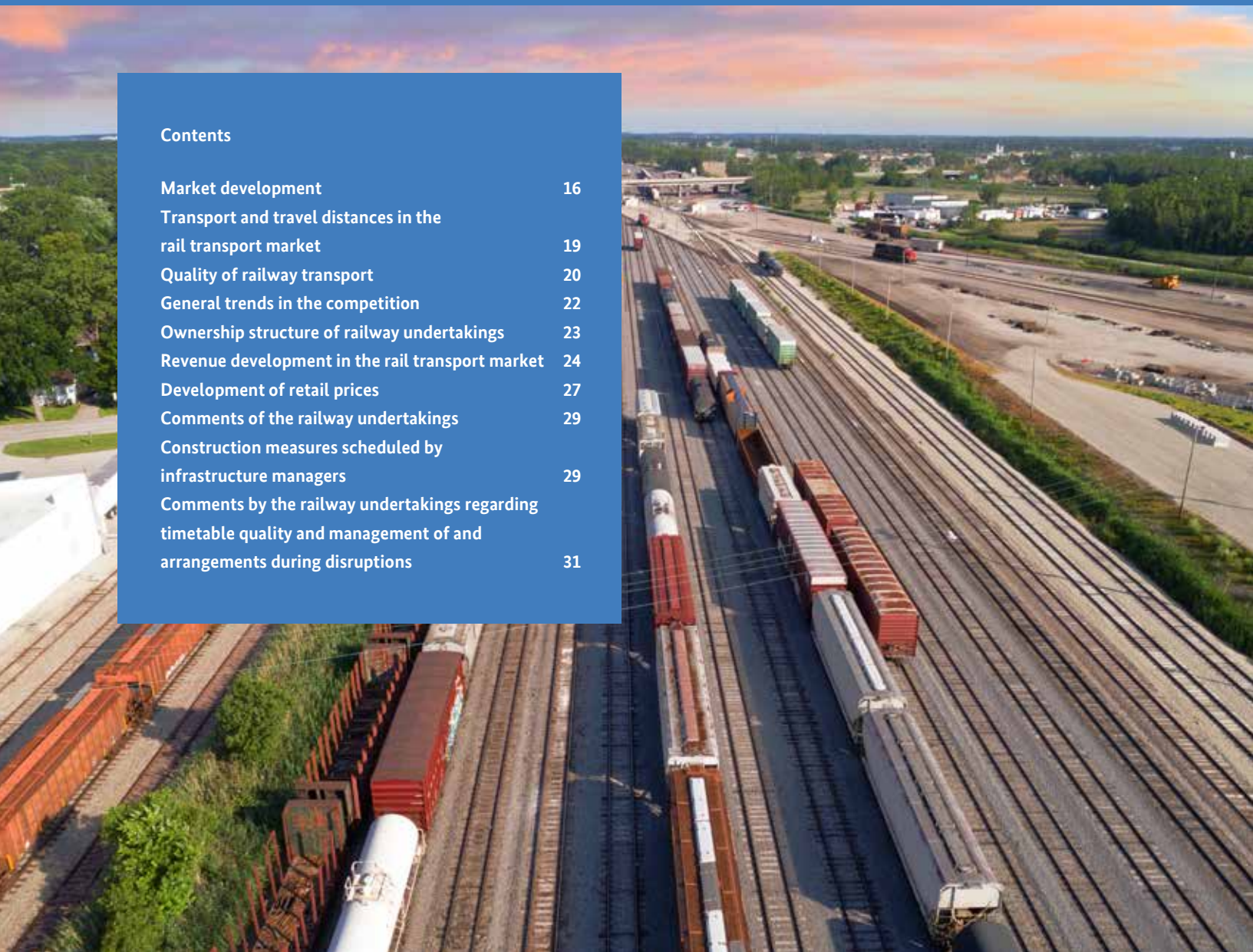
The railway market is divided into the transport market and the infrastructure market.

Railway undertakings provide rail transport services.

The Bundesnetzagentur monitors the railway undertakings operating in Germany. Based on this information, it determines how well the railway market functions and how efficient it is.

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Railway transport market

The number of undertakings operating in the railway transport market has been stagnant for the last few years. The revenue generated in this market has increased moderately from year to year. The volume of transport services provided in 2017 increased.

Market development

Under Section 3 (1), No. 1 of the General Railway Act, a public railway undertaking is a railway undertaking 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 through the year 2014 and then stagnated from 2015 to 2018. In November 2018, 448 railway undertakings were licensed to provide rail transport services for the public.

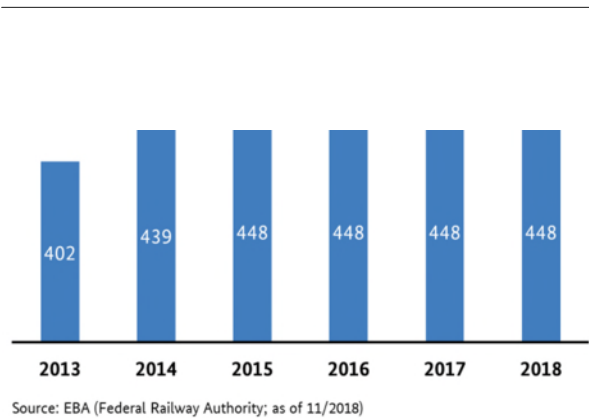


Figure 8: Licensed public railway undertakings (2013-2018; number of railway undertakings in Germany)

According to the Bundesnetzagentur’s annual survey, more than 300 railway undertakings were actively involved in providing railway services in Germany. Compared to other countries, the German railway market counts among those national railway markets with the largest number of competitors.

A total of 168 railway undertakings provided commercial rail freight services. One hundred and twenty-four railway undertakings provided short-distance passenger rail transport services.

The number of railway undertakings operating in the long-distance passenger rail transport segment remained comparatively small. Approximately 29 - mostly smaller - railway undertakings provided transport services in this segment. A large majority of these railway undertakings focuses exclusively on providing special non-scheduled rail services and consequently does not compete with regular (interval) services.

Several railway undertakings provide transport services in both the passenger rail transport segment and the rail freight segment.

The growth seen in the cumulative revenue in the railway market in recent years continued through the reporting period. Revenue growth from 2016 to 2017 reached approximately 2.5 percent. All in all, railway undertakings generated €20.7 billion in revenue in 2017. In the rail freight transport segment, revenue rose slightly, from €5.6 billion to €5.7 billion. Revenue in the short-distance passenger rail transport segment increased from €10.6 billion to €10.8 billion. In the long-distance passenger rail transport segment, revenue rose from €4 billion to €4.2 billion, somewhat more than in the previous year.

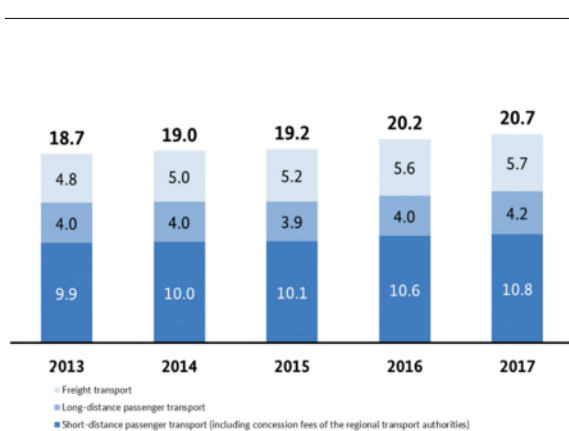


Figure 9: Revenues in the railway market (2013-2017; billions of euros)

Transport volume in the passenger rail transport segment rose to a new high in 2017.

The short-distance passenger rail transport segment transported more than 2.75 billion passengers, once again topping the level seen in the previous year. This represents an increase of more than four percent.

Approximately 144 million passengers were transported in the long-distance passenger rail transport segment in 2017. This represents an increase of a little more than three percent over the previous year.

A total of 411 million tonnes of freight were transported in the rail freight segment, a level that remained more or less steady over the previous year.

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

The number of passenger-kilometres travelled improved again in both the short-distance and the long-distance passenger rail transport segments.

The number of passenger-kilometres in the short-distance passenger rail transport segment rose from 56 billion to 57 billion passenger-kilometres. This represents an increase of something more than one percent, continuing the trend seen in recent years.

The number of passenger-kilometres in the long-distance passenger rail transport segment improved, increasing from 40 billion to 41 billion passenger-kilometres between 2015 and 2016. This translates into an increase of a little more than two percent.

According to data from the Bundesnetzagentur, transport performance in the rail freight segment reached 129 billion tonne-kilometres, compared to just 126 billion the previous year. This represents a further increase of somewhat less than three percent.

Looking at the number of tonne-kilometres and transport volumes in the rail freight transport segment, figures from the Bundesnetzagentur's market analysis have in some cases been a great deal higher than those from the Federal Statistical Office in recent years.

This is due primarily to the fact that the Bundesnetzagentur always draws its data from full surveys. By contrast, in many publications, particularly those based on monthly statistics, the Federal Statistical Office takes only a limited group of reporting companies into account. Meanwhile, the Federal Statistical Office has published updated statistics that are based on an expanded group of reporting companies. The market data these statistics contain diverge only slightly from the Bundesnetzagentur's market data.

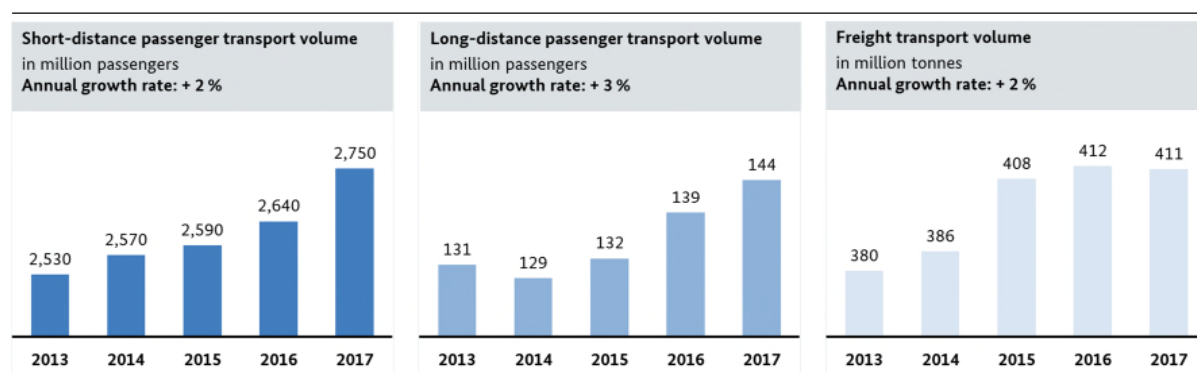


Figure 10: Development of transport volumes, broken down by type of transport service (2013-2017; in millions of passengers/in million tonnes of freight)

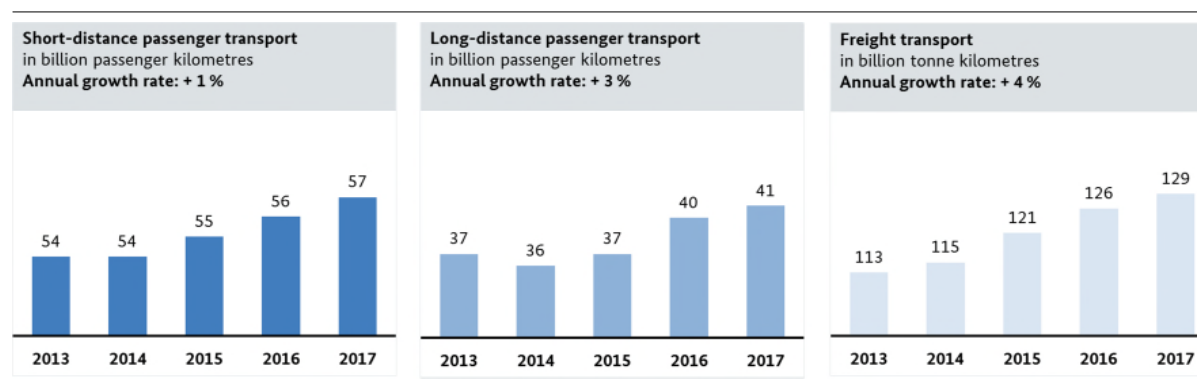


Figure 11: Development of traffic, broken down by type of transport service (2013-2017; in billions of passenger-kilometres/tonne-kilometres)

Transport and travel distances in the rail transport market

The following figure shows the average transport and travel distances calculated on the basis of the respective quotient of traffic volume and transport volume.

In 2017, the average travel distance in the short-distance passenger rail transport segment remained unchanged at 21 kilometres.

After having declined from 2013 to 2014 and then slightly increasing from 2015 to 2016, the average travel distance in the long-distance passenger transport segment declined slightly from 284 to 283 km.

The average transport distance in the rail freight segment increased from 306 to 313 kilometres.

When looking at average travel and transport distances, it should be remembered that the Bundesnetzagentur takes only inland transport services into account in its market analysis. Consequently, only those passenger-kilometres, tonne-kilometres and train-path kilometres from cross-border services that were provided within Germany's borders were included in the survey data.

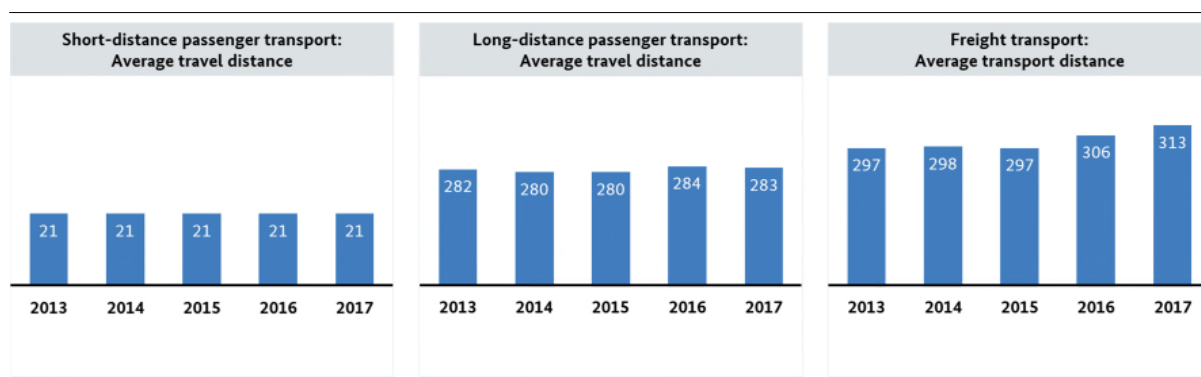


Figure 12: Development of average transport and travel distances (2013-2017; in km)

Quality of railway transport

Punctuality

A passenger train is considered to be delayed when it runs five or more minutes behind schedule. A freight train is considered to be delayed when it runs 15 or more minutes behind schedule.²

Infrastructure managers have the opportunity, in the course of the Bundesnetzagentur's annual market survey, to provide statistics regarding train punctuality.

The share of delayed trains out of all trains in operation was slightly more than seven percent in the short-distance passenger rail transport segment. There was no change over the previous year.

Slightly more than 75 percent of the trains in the long-distance passenger rail transport segment were punctual in 2017. This represents a slight decline in punctuality compared to the previous year.

The share of delayed trains out of all trains in operation was more than 35 percent in the rail freight transport segment; this means that approximately 65 percent of the trains were on time. By comparison, a little more than 67 percent of the freight trains travelling on the tracks in Germany were punctual in 2016.

The decline in punctuality affects the amount of the contractual penalties that the railway

undertaking must pay to regional transport authorities and reimbursements to passengers.

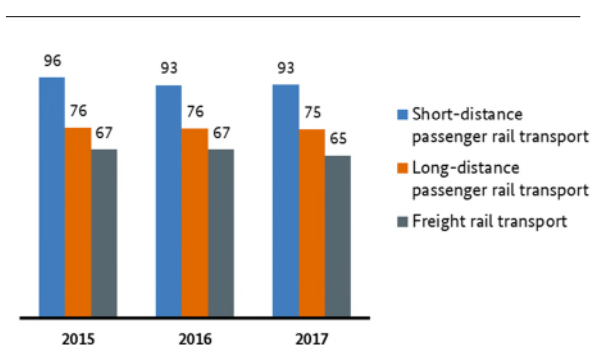


Figure 13: Development of punctuality, broken down by type of transport service (2015-2017; shares in percent)

Contractual penalties/ penalty payments that railway undertakings pay to regional transport authorities

According to the Bundesnetzagentur, railway undertakings paid more than €161 million in contractual penalties/penalty payments to regional transport authorities in the 2017 reporting year. This figure was approximately €139 million in the previous reporting period. This constitutes an increase of slightly more than 15 percent between 2016 and 2017.

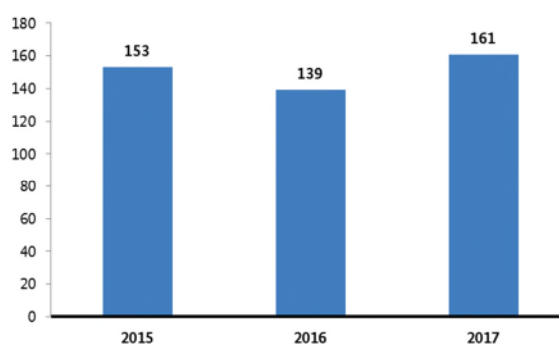


Figure 14: Development of contractual penalties/penalty fees that railway undertakings paid to regional transport authorities (2015-2017; in millions of euros)

² These limits have been standardised in the European Commission's Implementing Regulation (EU) 2015/1100. In Germany however infrastructure managers still apply different limits. For example, the limits used by DB Netz AG are approximately six minutes and 16 minutes respectively.

Refunds made to passengers

Railway undertakings refunded more than €38 million to passengers in 2017 for various reasons including compliance with regulations governing passenger rights or as a gesture of good will. This represents an increase of more than 50 percent over 2016.

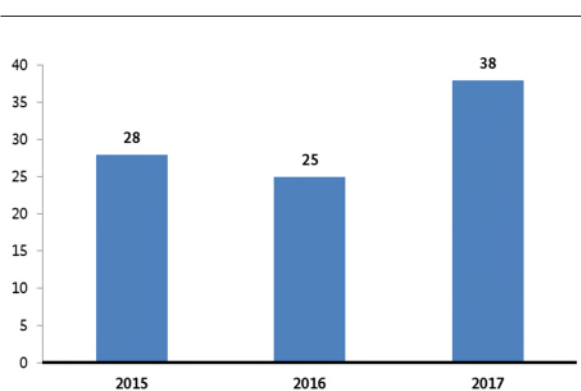


Figure 15: Development of reimbursements made by railway undertakings to passengers (2015-2017; in millions of euros)

General trends in the competition

Competition in the rail freight transport segment continued to grow in 2017. The competitors in this segment increased their market share to 47 percent of the transport services provided in the rail freight transport market.

The market shares held by competitors in the passenger rail transport segment stagnated in 2017.

The competitors' share of traffic handled in the short-distance passenger rail transport segment remained constant over the previous year at 26 percent. Their share is however expected to increase further in the coming years since a number of high-volume networks (e. g. RRX in North Rhine-Westphalia) have been awarded to competitors.

As in previous years, the share held by competitors in the long-distance passenger rail transport segment is significantly less than one percent. As a result, the market leader continued to dominate the long-distance passenger rail transport segment, with the exception of a few connections which were offered by Thalys, HKX and other providers in 2017.

One reason why the competition in this sector has been so rudimentary to date is that sizable investments must be made in suitable rolling stock in combination with the need to ensure safety when accessing and using infrastructure.

For operators, the availability of line capacity that can be used on a medium- or long-term basis on attractive routes during suitable time slots is very important for being able to provide economically viable long-distance passenger rail transport service.

Lastly, long-distance passenger rail transport has on average the highest track access charges compared to the other modes of transport. This is one reason why long-distance passenger rail transport operates on a deficit basis on certain sections of individual routes and why, from an economic standpoint, service in many cases cannot be offered for sections where demand is weak.

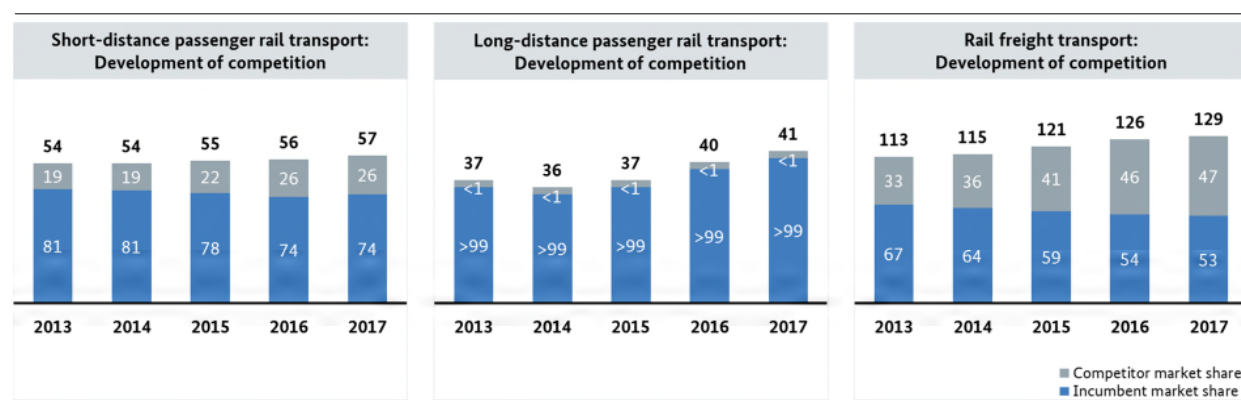


Figure 16: Development of the competition, broken down by type of transport service (2013-2017, traffic handled in billions of passenger-kilometres or tonne-kilometres and percentages based on passenger-kilometres/tonne-kilometres)

Ownership structure of railway undertakings

Following the liberalisation of the German railway market which was part of the 1994 Railway Reform, Deutsche Bahn AG (DB AG) railway undertakings faced ever-growing competition from other railway undertakings in the following years.

At the same time, the German railway market is also attractive for foreign railway undertakings. Besides privately-run railway undertakings, state-owned railways of other European countries operate in the German railway market and compete with publicly controlled and privately-owned companies.

Measured in terms of the volume of the transport services they provide, railway undertakings belonging to Deutsche Bahn AG continue to be the dominant force.

When however federally owned railway undertakings are disregarded, it is apparent that the remaining competition in the short-distance passenger rail transport segment is divided between three groups of owners: Germany's federal states and local authorities (29 percent), privately owned companies (23 percent) and subsidiaries of foreign state-owned railways (48 percent). These figures have changed only slightly over 2016.

In the rail freight market, railway undertakings owned by Germany's federal states or local authorities play a less important role, accounting for only eight percent of the transport services provided by non-federally owned railways. State-owned railways of other countries provide 38 percent of the total transport services, while privately operated railway undertakings with registered offices in Germany account for 44 percent.

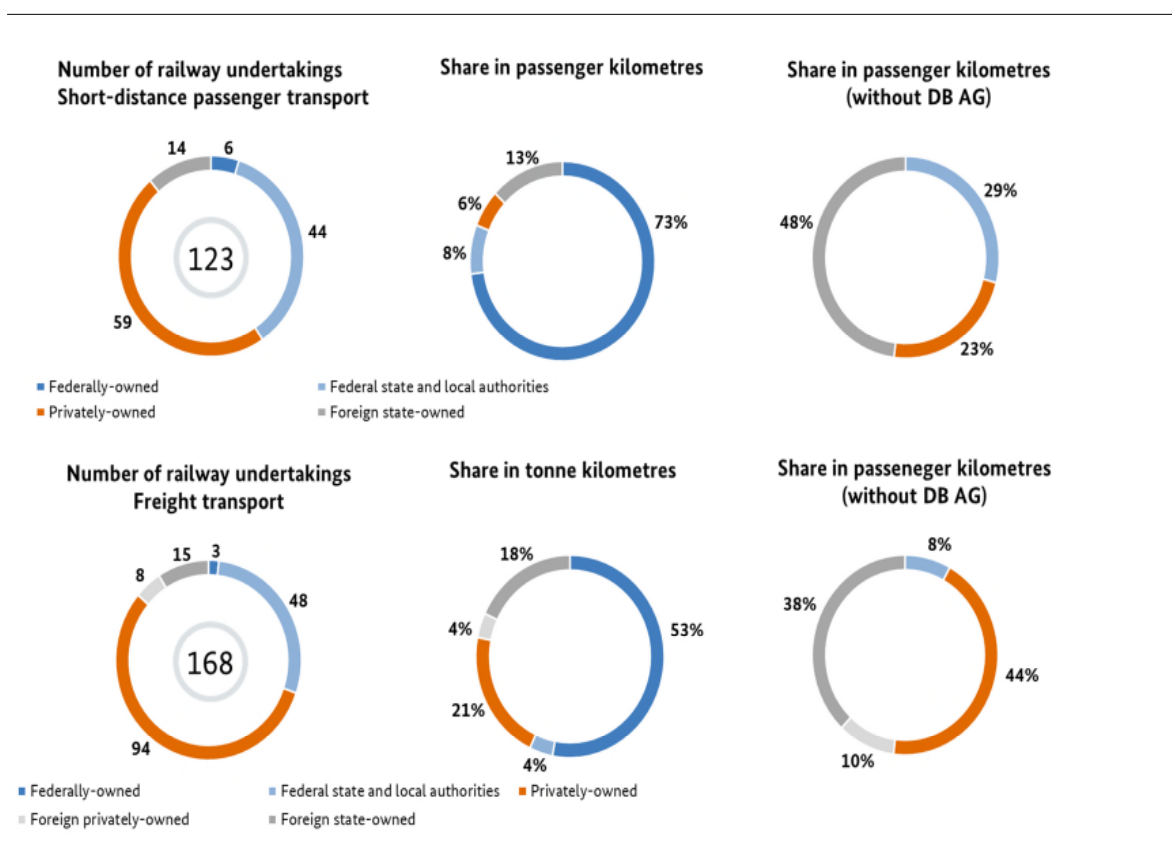


Figure 17: Ownership structures of railway undertakings (2017, number/share of traffic handled in percent)

Revenue development in the rail transport market

Revenue generated per train-path kilometre travelled in the short-distance passenger rail transport segment increased slightly, from €15.40 in 2016 to €15.50 per train-path kilometre in 2017.

During the 2017 reporting year, railway undertakings generated revenue of 18.9 cents per passenger-kilometre in the short-distance passenger rail transport segment. This represents a slight decline over the previous reporting year.

Looking at short-distance passenger rail transport, the average number of passengers per train increased once again in 2017, after having declined slightly in 2016.

The second chart below shows the figures for non-federally owned railways.

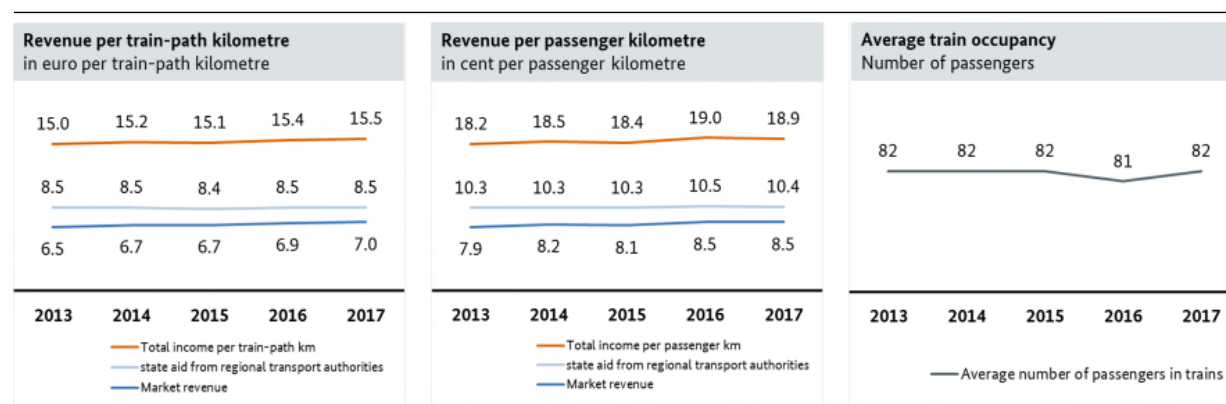


Figure 18: Development of revenues and average train occupancy in the short-distance passenger rail transport (2013-2017)

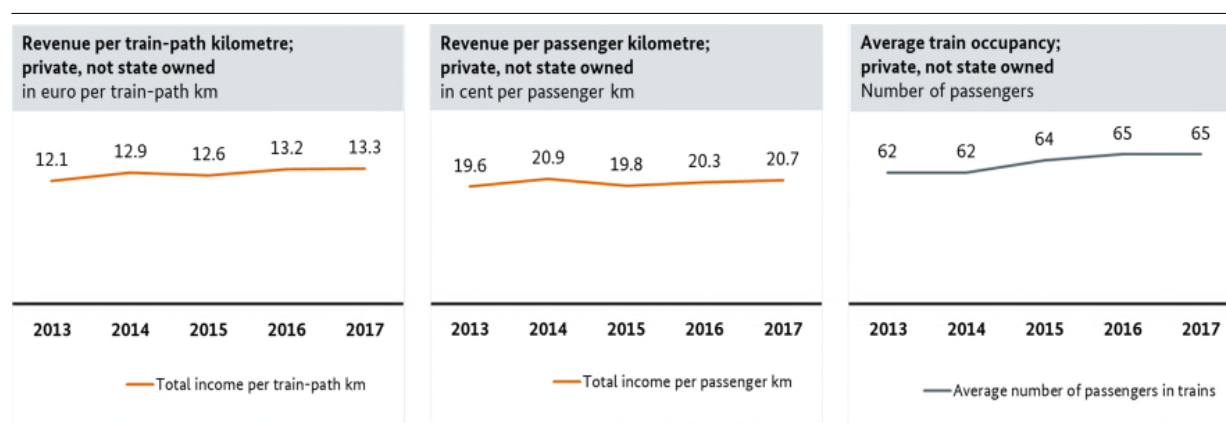


Figure 19: Development of revenues and average train occupancy of non-federally owned railways in the short-distance passenger rail transport (2013-2017)

Since average train occupancy is much higher in the long-distance passenger transport segment than in the short-distance transport segment, revenue per train-path kilometre travelled 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, approximately 10.4 cents per passenger-kilometre, is significantly lower than in the short-distance segment, where revenue is 18.9 cents per passenger-kilometre.

In 2017 revenue per passenger-kilometre in the long-distance passenger transport segment rose for the first time in several years. At the same time, the average number of passengers per train rose once again, from 276 to 289.

As a result, revenue generated per train-path kilometre travelled in the long-distance passenger rail transport segment rose significantly compared to 2016 to a total of €30 per train-path kilometre.

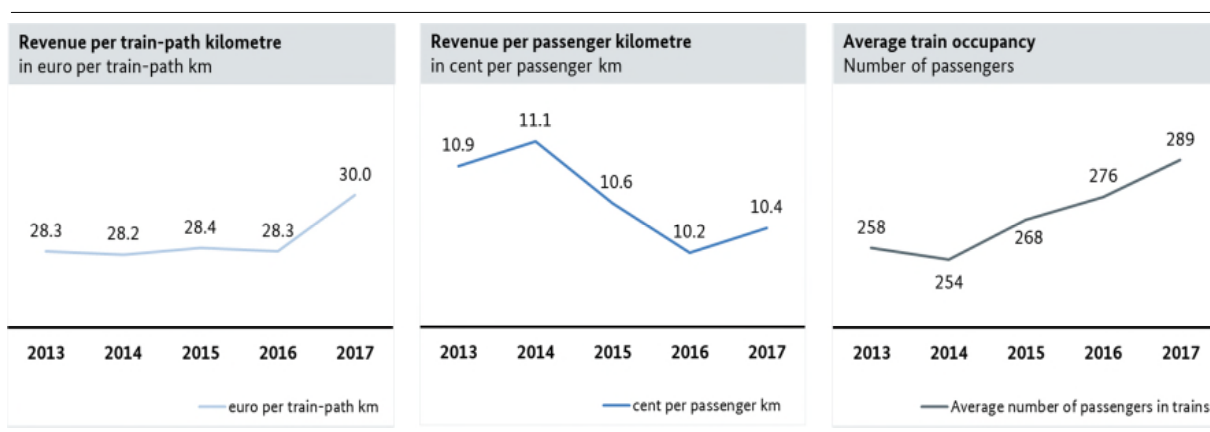


Figure 20: Development of revenues and average train occupancy in the long-distance passenger rail transport (2013-2017)

In the rail freight segment, revenue per tonne-kilometre stagnated at 4.3 cents.

The transport volume per train was 497 tonnes in 2017.

Revenue per train-path kilometre reached €21.20 in 2017.

The second chart below shows the figures for non-federally owned railways. In this segment, revenue declined to €16.50 per train-path kilometre.

Revenue per tonne-kilometre fell slightly to 3.3 cents in 2017.

For non-federally-owned railways, the average freight load per train was 508 tonnes in 2017. This represents a slight increase over the level reported for 2016.

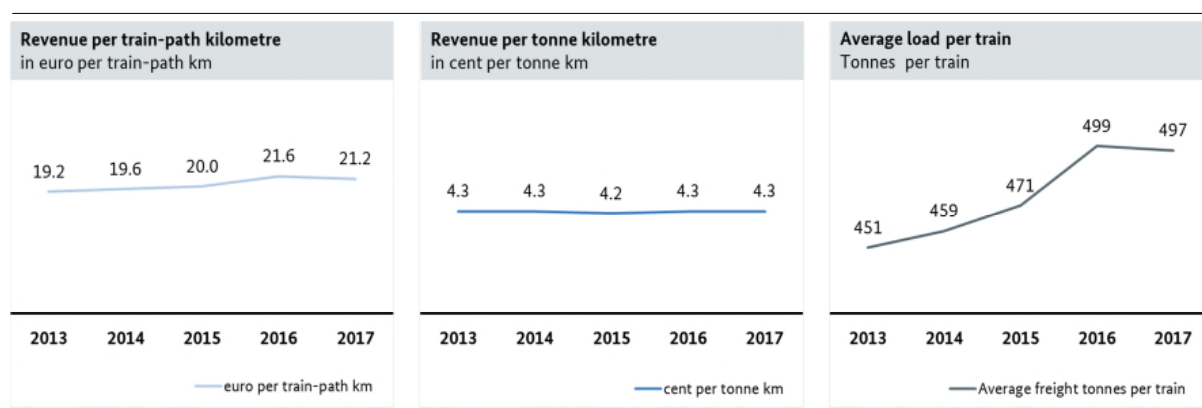


Figure 21: Development of revenues and average freight load in the rail freight transport (2013-2017)

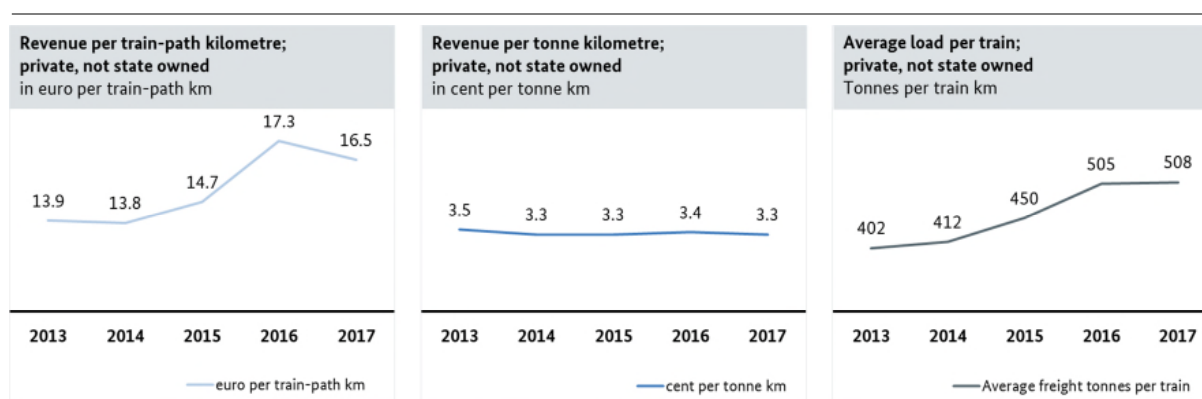


Figure 22: Development of revenues and average freight load of non-federally owned railways in the rail freight market (2013-2017)

Development of retail prices

The Bundesnetzagentur's regulatory activities in the railway sector only indirectly affect prices for the customers of railway undertakings because the regulated infrastructure usage charges comprise only part of the fare and transport prices to be paid. However, ticket prices - alongside convenience and the range of the offerings - are very important when assessing how attractive passenger rail services are or how competitive they are at intermodal level. Transport charges are also an important criterium for freight customers in the rail freight transport segment when deciding whether or not to use rail transport services.

In order to assess how retail prices have developed, the Bundesnetzagentur draws on indices made available to the public by the Federal Statistical Office and on its own data analyses. The indices published by the Federal Statistical Office show the development of prices for precisely-defined services based on constant fixed quantities whereas the average revenue per tonne-kilometre or passenger-kilometre as determined by the Bundesnetzagentur additionally shows differences in the quantities of the demanded products or services.

For example, changes in the demand for rail passes or discount offers such as special prices or the Bahncard (railcard) can impact the development of these particular market revenues.

Therefore, the price indices published by the Federal Statistical Office tend to reflect the perspective of end customers who follow the

development of prices for specific services. By contrast, examining the specific charges allows for a more precise assessment of the revenue development from the railway undertakings' perspective.

Using 2013 as the base year, the index for ticket prices in the short-distance passenger rail transport segment increased by 13.7 percent on average between 2013 and 2017. Looking at the railway undertakings, fare revenue per passenger-kilometre (pkm) increased by more than eight percent and total revenue per passenger-kilometre, including public subsidies, grew by about four percent.

The index for ticket prices in the long-distance passenger rail transport segment has also risen faster than the revenues generated per passenger-kilometre. The increase in this segment totalled 3.7 percent during the period 2013 to 2017. Revenue per passenger-kilometre declined by 5.3 percent during the same period. This was primarily due to a greater number of reduced-price tickets (including budget fares) being offered in response to the intermodal competition that has grown significantly in recent years as a result of long-distance intercity coach service. In 2017 revenue per passenger-kilometre increased for the first time since 2014.

Looking at the rail freight transport market, the average revenue generated by railway undertakings per unit of measure (tkm) declined slightly. By contrast, the transport charges reported to the Federal Statistical Office increased.

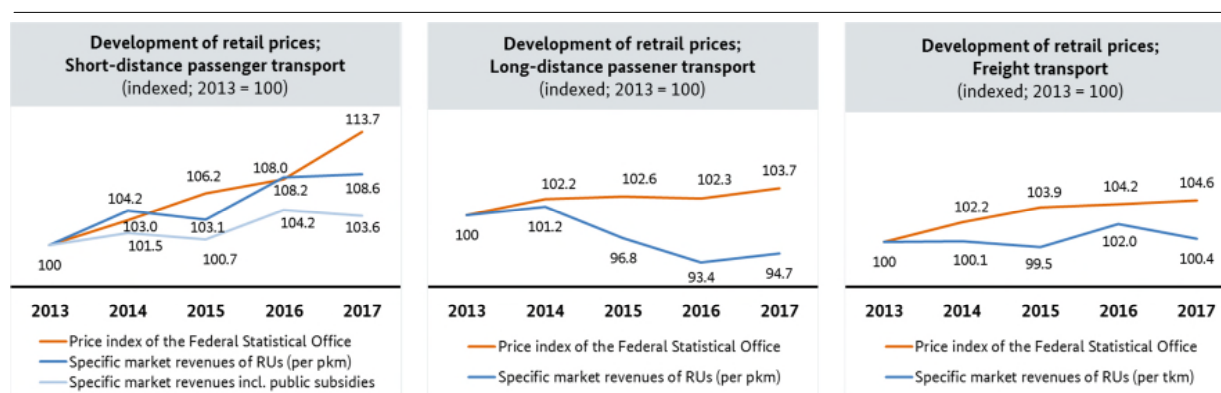


Figure 23: Development of retail prices (2013-2017; indexed 2013 = 100)

Comments of the railway undertakings

As part of the market survey, railway undertakings have the opportunity to draw attention to issues or problems that are important to them. In addition to rating general influencing factors (see the chapter “Ratings for access to railway infrastructure”) railway undertakings can voice their concerns about specific issues. The comments received during the survey conducted in 2018 revolved particularly around the issues: construction measures scheduled by infrastructure managers, timetables, scheduling and communication.

Construction measures scheduled by infrastructure managers

Looking at the subject of scheduled construction measures to be undertaken by the infrastructure managers, railway undertakings have the opportunity to provide their own assessment, based on a scale from “applies completely/very often” to “average” all the way to “does not apply/applies only seldom”. The following two charts show how the respondents rated this set of topics. In none of the cases was an improvement over the previous year to be seen.

Seventy-nine percent of the railway undertakings indicated that they had frequently been informed on a timely basis of construction measures scheduled during the period covered

by the working timetable. The ratings in this area declined slightly over the previous year.

More than half of the railway undertakings surveyed stated that they had received timely information regarding construction measures to be conducted during the course of the year. The overall average rating worsened slightly, from 2.4 in the previous year to 2.5 in the latest survey.

Approximately half of the railway undertakings (49 percent) reported that they were frequently included in the planning of construction measures. However more than one out of every four (26 percent) said they were rarely included in the planning of construction measures. The overall average worsened slightly, from 2.7 in the previous year to 2.8 in the latest survey.

Half of the railway undertakings reported that they were seldom able to exert any influence on the planning of construction measures.

Approximately one quarter (24 percent) of the railway undertakings were frequently able to exert influence on the planning of construction measures. The average rating remained unchanged at 3.5.

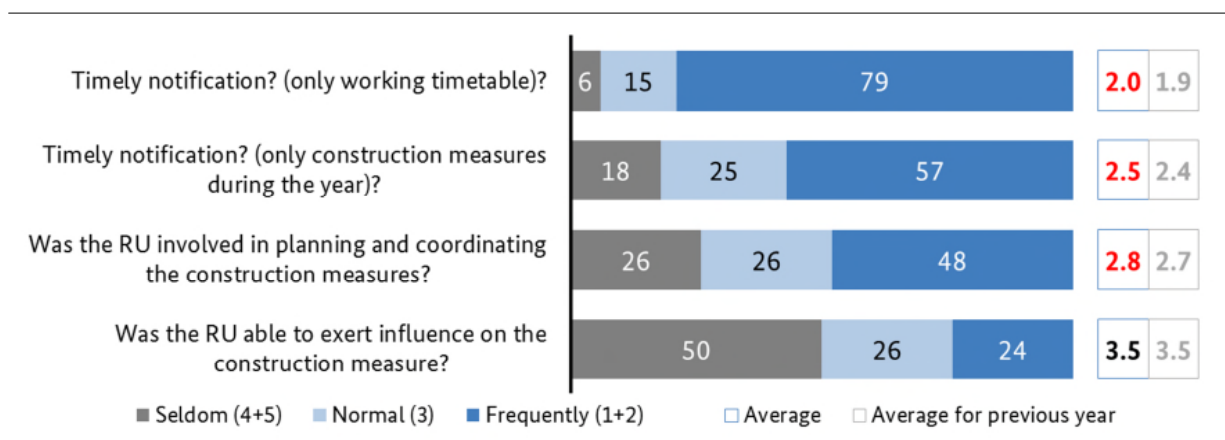


Figure 24: Ratings of the infrastructure managers' scheduled construction measures (2018; ratings in percent and average marks)

The last value in particular clearly shows where railway undertakings consider the infrastructure managers' greatest deficits are to be found. The railway undertakings' requirements and the infrastructure managers' activities are not in line with one another.

construction measures. Compared to the previous year, this figure worsened, from 2.7 to 2.8.

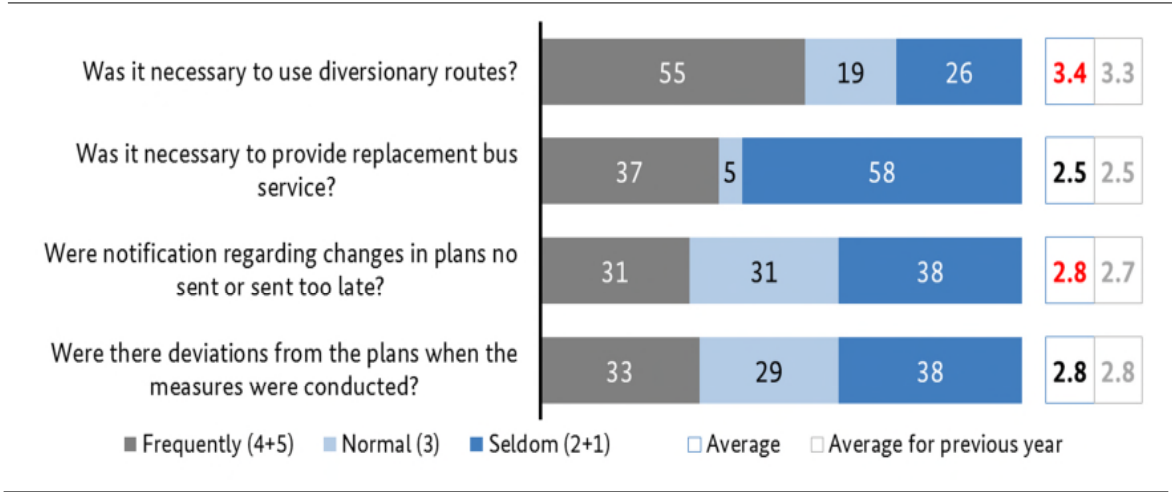


Figure 25: Ratings of the infrastructure managers' scheduled construction measures (2018; ratings in percent and average marks)

A total of 55 percent of the railway undertakings said it was often necessary to use diversionary routes due to construction measures. More than one fourth (26 percent) said that they seldom needed to use the diversionary routes. Compared to the previous year, the average rating worsened, from 3.3 to 3.4.

More than half (58 %) of the railway undertakings reported that it was seldom necessary to provide replacement bus service during construction measures. However, 37 percent reported that this had often been the case for them. The overall average rating for this topic remained constant at 2.5.

Approximately one third (31 percent) of all railway undertakings were affected relatively frequently by late notifications of changes in plans or deviations from the original plans for

About one out of every three (33 percent) railway undertakings stated that there were frequent deviations from the original plans when construction measures were conducted. Thirty-eight percent reported that this tended to be seldom the case. The average remained the same at 2.8.

The railway undertakings again lamented the reliability of the scheduled time frames for construction measures. These time frames are often very tight and it is therefore not possible to adhere to them. The uncertainty about the timely completion of construction work makes it more difficult for railway undertakings to plan their operations.

Comments by the railway undertakings regarding timetable quality and management of and arrangements during disruptions

Although the ratings given “timetable quality” and “train operation during disruptions” tended to be positive, a large number of railway undertakings commented in greater detail about these specific issues.

The comments made regarding timetable quality and train operation during disruptions can be broken down into different categories. Most of the railway undertakings lament the time it takes to process timetables and the long time it takes on average to forward information. Among other things, it sometimes happens that timetables are released after the particular train departs a station, they say.

Furthermore, there are significant differences in the quality of the staff working at the respective operations control centre. Railway undertakings see very large differences between the individual DB Netz AG branch offices. Arrangements between railway undertakings and schedulers are adhered to, to varying degrees, depending on the person in charge of the particular case.

Another important point of criticism involves train-path availability. The level of infrastructure capacity utilisation is so high, they say, that there are delays and cancellations. These disruptions can cascade into major disruptions that hamper all train traffic.

This happens not only because the entire infrastructure is overloaded but also because there is such a large number of construction sites. For railway undertakings, the use of diversionary routes that are necessary for bypassing construction sites leads to higher track access charges and energy costs.

They particularly see much room for improvement in the area of non-scheduled service. The timetables arriving after a train departs are not sufficiently reliable and the arrival and departure times seldom correspond with the times listed in the timetable. The reliability of the assigned routes continues to present particular problems in some cases because construction sites are not being taken sufficiently into account when drafting the timetable.

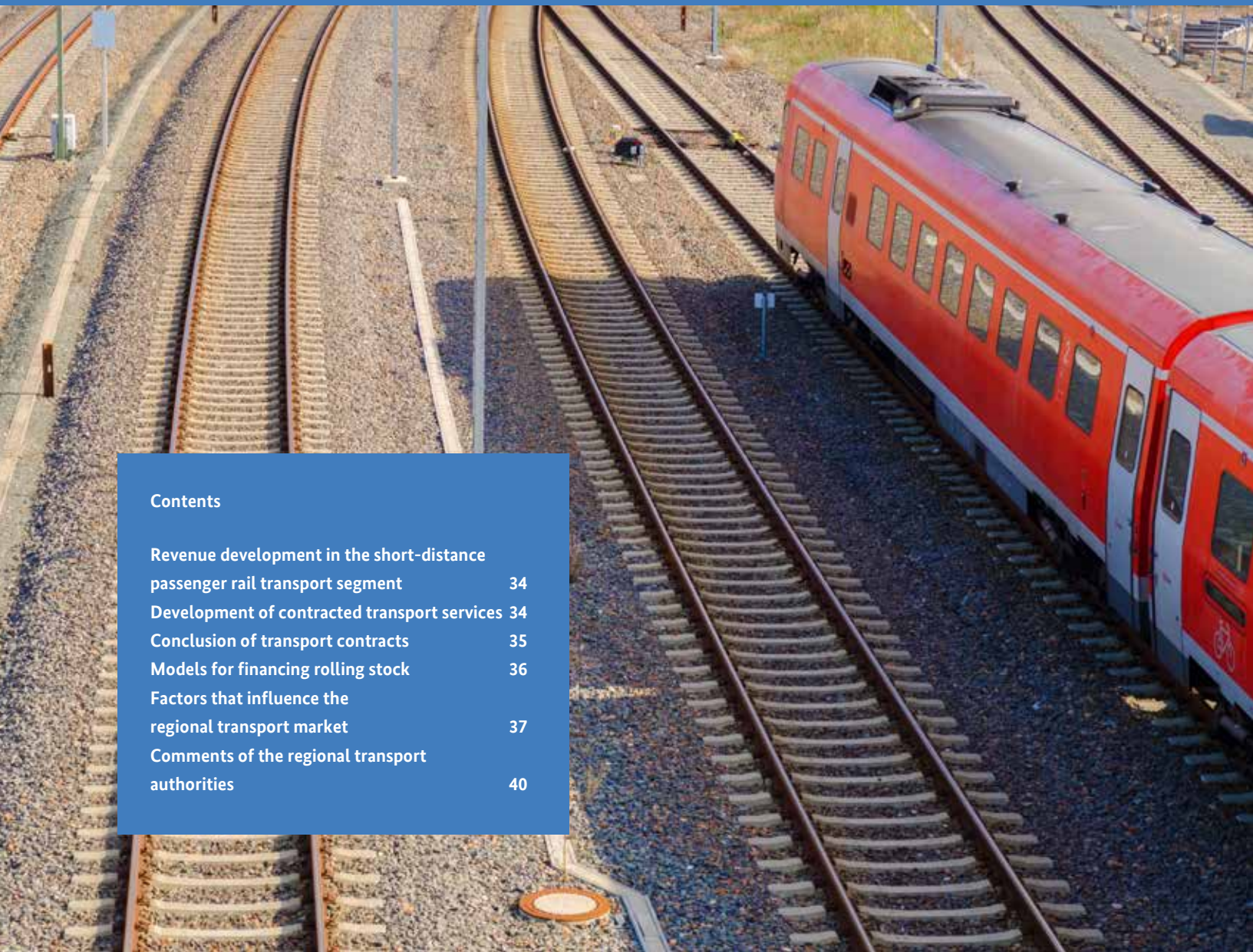
Looking at disruptions, some railway undertakings report improvements in the amount of time needed to process them compared to the previous year. However, the handling of problems is still not efficient, especially in the case of larger disruptions. In such cases, it is possible that the individual operations control centre cannot be reached at all for a short time.

Financing short-distance passenger rail transport service

Germany's federal states are entitled to receive regionalisation funds from federal tax revenue in order to provide local public transport. The federal states use regionalisation funds to finance short-distance passenger rail transport service.

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Regional transport authorities and the short-distance passenger rail transport market

The share of transport services that are contracted on the basis of competitive tendering continues to grow. The number of transport contracts concluded by regional transport authorities declined slightly.

Revenue development in the short-distance passenger rail transport segment

The most important sources of revenue for railway undertakings operating in the short-distance passenger rail transport segment, in addition to market revenue, are public subsidies which bodies (regional transport authorities) contracting short-distance passenger transport services pay to railway undertakings that have been contracted to provide transport. These subsidies largely come from funds made available by the Federal Government to Germany's federal states under the Regionalisation Act from 27 December 1993.

Using a breakdown of the revenue components, the following diagram shows the importance of public subsidies for the short-distance passenger rail transport segment. Public subsidies accounted for 57 percent of total revenue in 2013. This figure fell to 55 percent in 2017.

Market revenue (primarily from the sale of tickets) covered an average of approximately 45 percent of the revenues of short-distance passenger rail service in 2017.

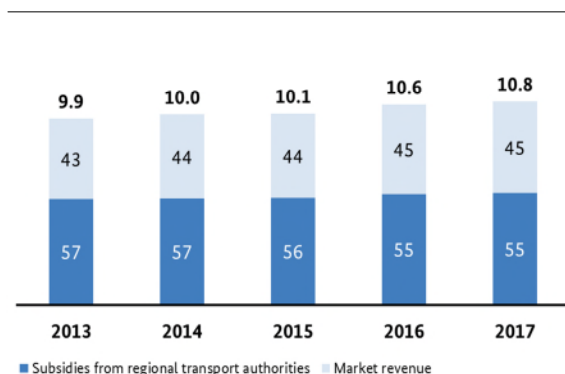


Figure 26: Shares of subsidies from regional transport authorities in revenue generated in the short-distance passenger rail transport segment (2013-2017; revenues in billions of euros; shares in percent)

Development of contracted transport services

The amount of transport service provided in the short-distance passenger rail transport segment increased only slightly in 2017. As in the case of passenger kilometres, the share of non-federally owned railway undertakings stagnated. A little more than one third of the train-path kilometres in the short-distance passenger rail transport segment is provided by non-federally owned railway undertakings.

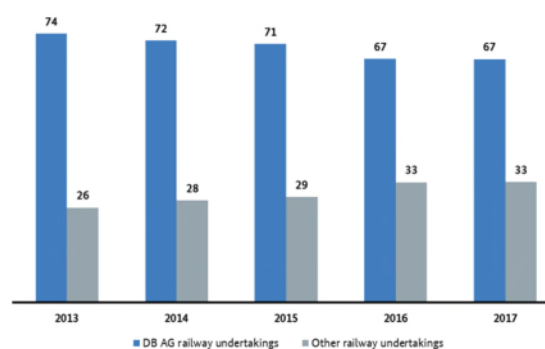


Figure 27: Development of market shares for contracted transport services in the short-distance passenger rail transport segment (2013-2017; shares in percent)

Conclusion of transport contracts

Regional transport authorities contract railway undertakings to provide short-distance passenger rail transport services. These contracts are largely awarded through tendering. Under certain conditions, particularly in the case of interim contracts or short-term contracts, tendering was not used as the basis for awarding contracts. The number of transport contracts concluded increased sharply from 2014 to 2015, from 18 to 45. This was followed in 2016 and 2017 by a slight decline in the number of newly concluded transport contracts. The number of transport contracts concluded is expected to rise again in 2018, from 34 in 2017 to 41 in 2018.

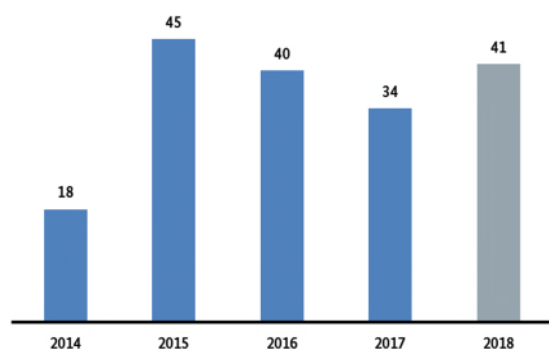


Figure 28: Number of concluded transport contracts and anticipated number of concluded transport contracts (2014-2018; number)

Of the 34 transport contracts awarded by regional transport authorities in 2017, 20 were awarded by tender and 14 were awarded without the use of the tendering process. In the previous year, 31 contracts were awarded by tender and nine were awarded without the use of the tendering process.

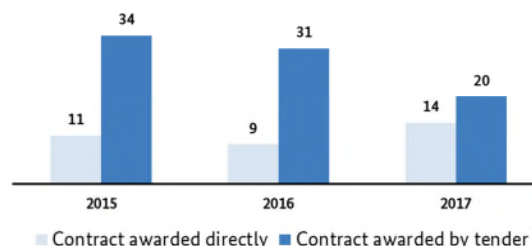


Figure 29: Award of transport contracts by regional transport authorities, by tender and without tendering (2015-2017; number)

When only contracts awarded by tender are considered, tenderers submitted a total of 47 offers for the 20 transport contracts concluded in 2017. This means that a little more than two tenderers took part in the respective contract-award procedure. This was a slight increase over 2016.

Approximately 75 percent of all train-path kilometres provided in 2017 were contracted through the tendering process and slightly more than 25 percent were awarded without the use of tendering. Of the train-path kilometres provided during 2014, some 44 percent were awarded without the use of the tendering process.

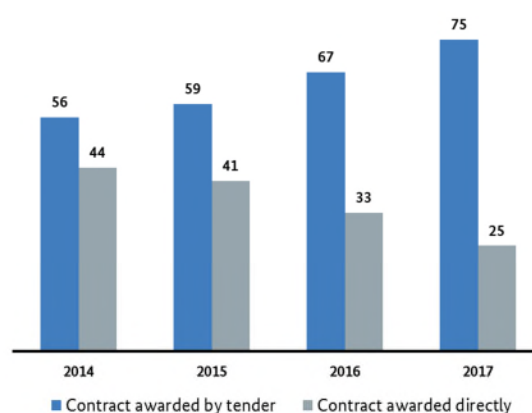


Figure 30: Shares of contract-award procedures in the short-distance passenger rail transport segment (2014-2017; shares in percent)

Fourteen transport contracts were awarded without the use of tendering in 2017. Eight of these contracts were awarded to railway undertakings belonging to Deutsche Bahn AG and six were awarded to non-federally owned railway undertakings in the short-distance passenger rail transport segment.

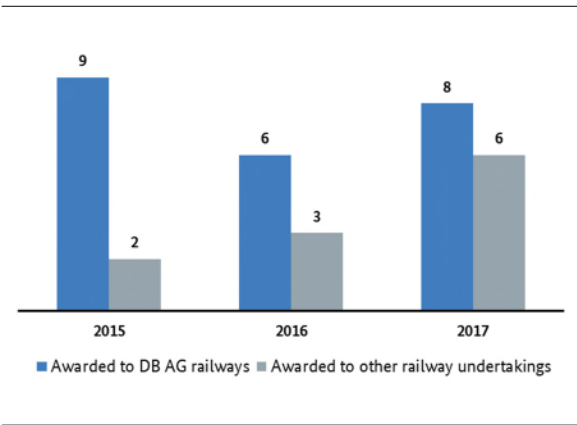


Figure 31: Award of transport contracts by regional transport authorities to railway undertakings, without tendering (2015-2017; number)

Of the 20 transport contracts awarded by regional transport authorities through tendering in 2017, 11 were awarded to Deutsche Bahn AG railway undertakings and nine were awarded to non-federally owned railway undertakings in the short-distance passenger rail transport segment.

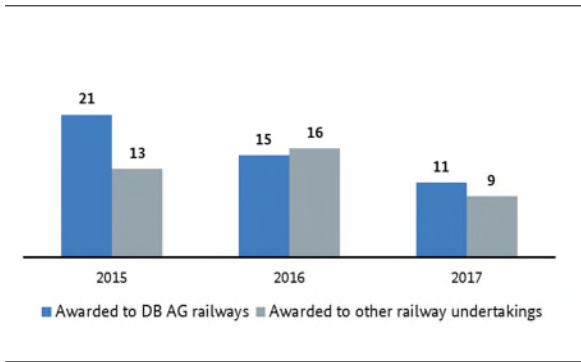


Figure 32: Award of transport contracts to railway undertakings by tender by regional transport authorities (2015-2017; number)

Models for financing rolling stock

The tendering process for 16 transport contracts in 2017 included an offer from the regional transport authorities to provide assistance with financing rolling stock.

The variants of the rolling stock financing offered in these contracts included debt servicing guarantees, re-use guarantees and the provision of rolling stock through the regional transport authorities via a rolling stock pool.

In the case of 13 transport contracts, the respective railway undertaking also took advantage of the offer of financial assistance with the procurement of rolling stock. In three cases, the railway undertaking did not make use of the assistance offered for financing rolling stock. The financing models on offer that the railway undertakings made use of include the provision of a rolling stock pool, the RRR-NRW model, the BW model, a debt servicing guarantee and bare acknowledgement of debt / abstract contractual performance with a reuse guarantee.

Factors that influence the regional transport market

As in past years, the Bundesnetzagentur gave all regional transport authorities participating in its

annual survey the opportunity to evaluate and rate market-related aspects on a scale of 1 (very good) to 5 (unsatisfactory). The regional transport authorities' assessments of short-distance passenger rail transport in 2017 changed only slightly over the previous year. Half of the regional transport authorities (50 percent) rated the level of modernisation of the infrastructure as average. One out of every four regional transport authorities (25 percent) rated this area as good. Compared to the previous reporting period, the average rating improved slightly from 3.1 to 3.0.

The regional transport authorities assigned train-path condition an average rating of 3.3. The rating for this area was slightly worse than

in the previous year. A little more than one third of the regional transport authorities (36 percent) rated this factor with a four or five ("poor").

The regional transport authorities for short-distance passenger rail transport gave the condition of passenger stations an average rating of 3.1 in 2017. Approximately one third of the regional transport authorities (29 percent) rated this area with a four or five ("poor"). This was the same rating as in the previous year. Their rating of the level of modernisation of passenger stations averaged 2.6. More than half of the regional transport authorities (54 percent) gave this factor a rating of 3.0.

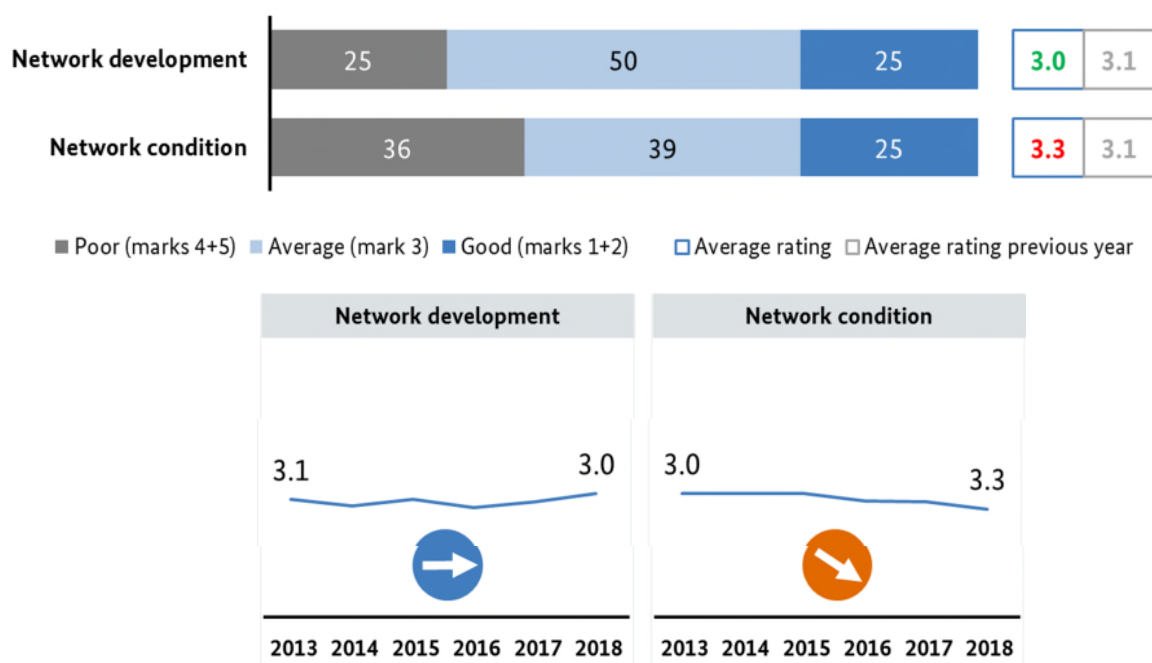


Figure 33: Ratings for train-path condition and development assigned by regional transport authorities for short-distance passenger rail transport (2013-2018)

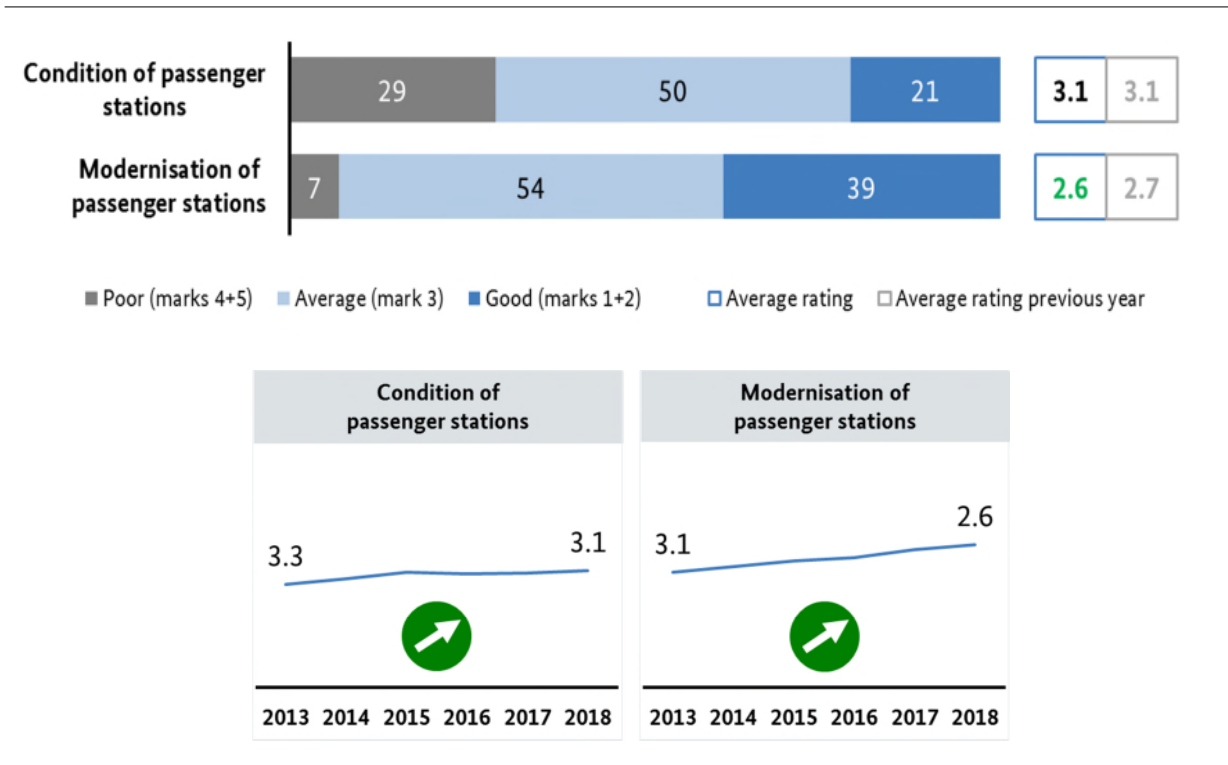


Figure 34: Ratings for the development and condition of passenger stations and stopping points assigned by regional transport authorities for short-distance passenger rail transport (2013-2018)

The regional transport authorities gave a rating of 2.9 for the level of non-discrimination in the infrastructure managers’ pricing systems for station use. The rating remained unchanged over the previous reporting period. The regional transport authorities gave an average rating of 2.5 for the level of non-discrimination in track access charge systems. This represents another slight improvement over the previous year.

Looking at stations, the regional transport authorities gave the infrastructure managers’ price-performance ratio a rating of 3.6. They assigned a 3.4 just the year before. The infrastructure managers’ price-performance ratio for train paths received a rating of 3.6 from the regional transport authorities, worse than in the previous year when the rating averaged 3.4.

When viewed over the long term however, the ratings assigned the level of non-discrimination in the pricing systems and the price-performance ratio have developed positively.

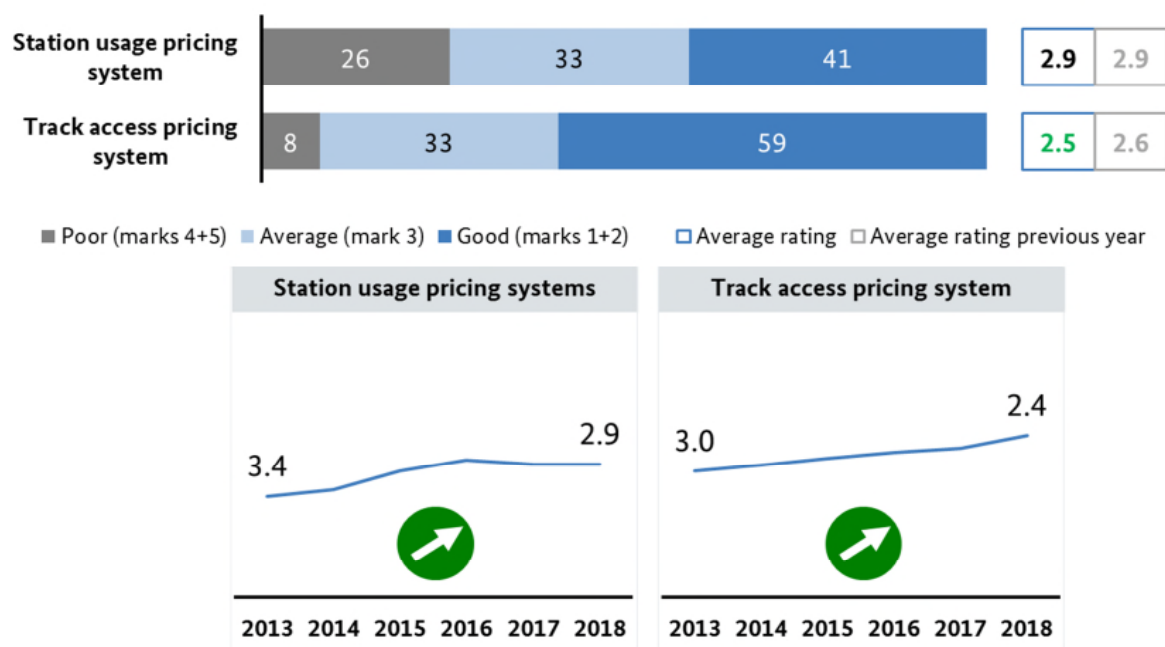


Figure 35: Regional transport authorities' rating of the level of non-discrimination in the infrastructure managers' pricing systems (2013-2018)

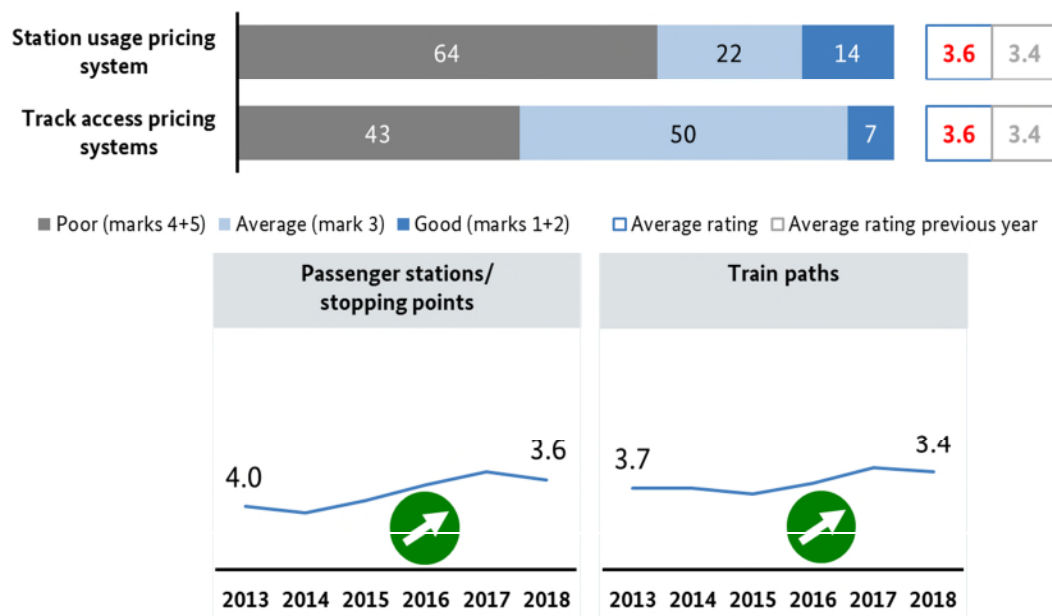


Figure 36: Regional transport authorities' rating of the infrastructure managers' pricing systems (2013-2018)

Comments of the regional transport authorities

As part of the annual market survey, the Bundesnetzagentur gives the regional transport authorities the opportunity to provide recommendations, tips and requests for its future regulatory work. They can also provide comments, tips and information about their own experience relating to access to the railway infrastructure market.

Construction measures

In their comments regarding this area, the regional transport authorities noted that continual adjustments had to be made for construction measures undertaken by DB Netz AG and DB Station&Service AG. Further, they reported that action is very urgently needed to improve timetable quality when construction work is underway.

Regulation

Looking at the subject of regulation, regional transport authorities would like to see regulation undertaken in the area of passenger information as well. In addition, they said that non-discriminatory access for all market participants is needed in the area “tariffs and sales” too.

Train paths

In the case of train paths, the regional transport authorities noted that as part of its formal train path request process DB Netz AG has introduced a preliminary evaluation of the effects additional traffic would have on the operational quality of new and existing transport services. Further, they indicated that finding solutions to conflicts is apparently being given priority over the regular request process. The case described by the respondents involved only DB railway undertakings which were potentially affected, but

no non-federally owned railway undertakings. It is unclear, they say, what the point of this new practice is.

Regionalisation funds

Here the regional transport authorities welcome the possibilities for expanding services in the area of Stations, taking account of Section 37 of the Rail Regulation Act. This will make it possible, they said, to meet the needs of the individual stations better than with a standardised list of fittings and equipment that applies nationwide. They also noted it is necessary to ensure that the basic services from the respective category that were provided in 2016 and for which the station usage charges were raised by approximately 1.8 percent, continue to be provided on a long-term basis.

Provision of infrastructure

Statutory regulation in the railway sector focuses on infrastructure managers in the railway market. This regulation ensures non-discriminatory access to railway infrastructure in Germany for all railway undertakings.

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Railway infrastructure market

The revenue generated by infrastructure managers rose once again in 2017. The number of train-path kilometres travelled also increased over the previous year.

Infrastructure managers

For its 2018 railway market survey, the Bundesnetzagentur gathered data for the 2017 reporting year from approximately 140 infrastructure managers, more than 500 service facility operators and around 800 operators of factory railways. Almost every infrastructure manager operates service facilities as well.

For the first time, the Bundesnetzagentur was also able to include in its survey many of the private siding owners operating in Germany. Most of the private siding tracks that were covered by the survey for the first time are operated as factory railways as defined in Section 2 (8) of the Rail Regulation Act.

There is still no central register for railway infrastructure that covers all infrastructure managers.

The establishment of a central register is made more difficult by the fact that a licence is not required in order to operate most service facilities. In light of this, it must be assumed that the Bundesnetzagentur does not have a comprehensive overview of the railway infrastructure market in some segments.

According to data currently available to the Bundesnetzagentur, German infrastructure managers operate routes totalling some 39,100 kilometres with a track length of approximately 60,800 kilometres (excluding tracks in service facilities). Tracks with a total length of more than 11,100 kilometres are operated in service facilities.

Revenue development among infrastructure managers

The infrastructure managers' revenues came primarily from the charges they collected for the use of train paths and service facilities and from subsidies. At approximately €5.1 billion, track access charges accounted for approximately 80 percent of total revenue from infrastructure usage in 2017. Station charges account for a little more than 14 percent of total revenue; charges for the use of other service facilities are responsible for the remaining six percent.

Looking back at recent years, this represents a steady increase in the revenues generated from usage charges. This figure has grown from €5.6 billion in 2013 to a total of €6.4 billion in 2017. This is equal to an average annual increase of somewhat more than three percent.

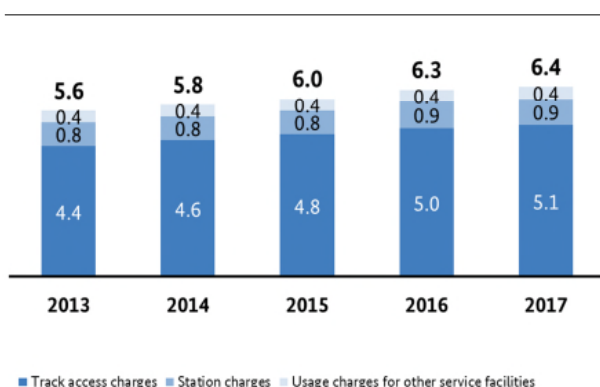


Figure 37: Revenues generated from usage charges in the railway infrastructure market (2013-2017; in billions of euros)

Approximately two thirds of total revenue from track access charges collected in the overall railway market are generated in the short-distance passenger rail transport segment. Long-distance passenger rail transport accounts for 18 percent of the revenue from track access charges. Rail freight transport holds the remaining share. The shares of the individual transport services remained virtually unchanged over the period examined here.

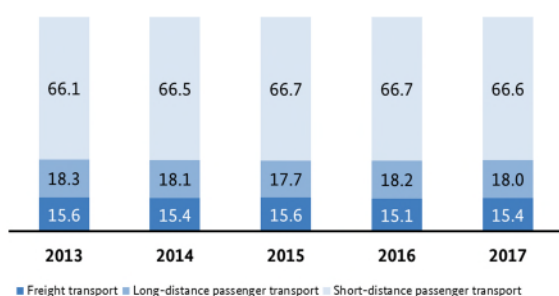


Figure 38: German infrastructure managers' total revenues from track access charges, broken down by type of service (2013-2017; in percent)

Trend in operating performance

The number of kilometres travelled in Germany's public railway network continued to grow in

2017. The year's total of 1,104 million train-path kilometres set a new record. During the period examined here, the number of train-path kilometres travelled in the German railway network steadily increased. The number of train-path kilometres exceeded the one billion mark for the first time in 2004.

Although the rail freight segment reported a noticeable increase over the previous year in the number of train-path kilometres travelled, short-distance passenger rail transport reported only a slight increase. Despite this, both types of transport service posted new records. By contrast, the long-distance passenger rail transport segment saw a slight decline in the number of train-path kilometres travelled.

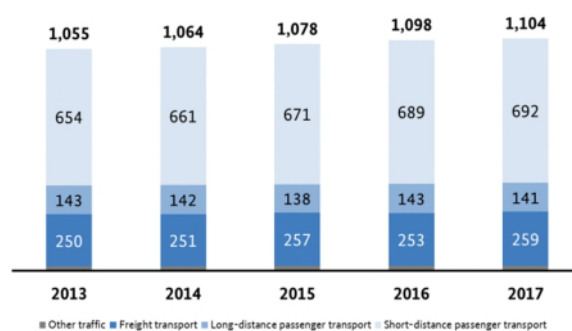


Figure 39: Development of train-path kilometres, broken down by type of service (2013-2017; million train-path kilometres)

Non-federally owned railway infrastructure was used for just under three percent of the train-path kilometres travelled. The other 97 percent of the transport services used the line infrastructure of the infrastructure managers belonging to DB KONZERN which however accounts for only some 85 percent of the total length of railway lines operated in Germany. The average traffic density is thus significantly lower on non-federally owned railway infrastructure, making it

more difficult to establish track access charges that cover costs and are at the same time marketable.

Publication of network statements for railway infrastructure

All rail infrastructure managers are required by law to provide all parties with access entitlement under non-discriminatory terms and conditions to the infrastructure they operate. Under certain circumstances however, the Rail Regulation Act which went into force in September 2016 allows for limiting free access, such as in the area of factory railways (Section 15 of the Rail Regulation Act), when the respective infrastructure is deemed to be of little or no competitive importance.

Infrastructure managers are required to draw up network statements for railway infrastructure and service facilities statements for service facilities outlining the terms for the use of railway infrastructure that they operate. There are exceptions to this, such as for factory railways and non-standard-gauge railways.

Before a network statement can go into effect, it must be reviewed by the Bundesnetzagentur to ensure that it conforms to the law; it takes effect only after the Bundesnetzagentur confirms its conformity with the legal requirements. The Bundesnetzagentur provides assistance to infrastructure managers to ensure that the statements they develop are in conformity with the law.

In 2018, 92 percent of the infrastructure managers and 62 percent of the service facility operators had published network statements or service facility statements.

Infrastructure managers that have been exempted from the requirement to draw up network statements have not been included in

the shares calculated here. Of the remaining companies, some are still in the process of drawing up their network statement or the exemption procedure has not yet been completed.

Furthermore, in the course of its market monitoring activities the Bundesnetzagentur has identified further undertakings as service facility operators and has asked them to prepare service facility statements that are in conformance with the law.

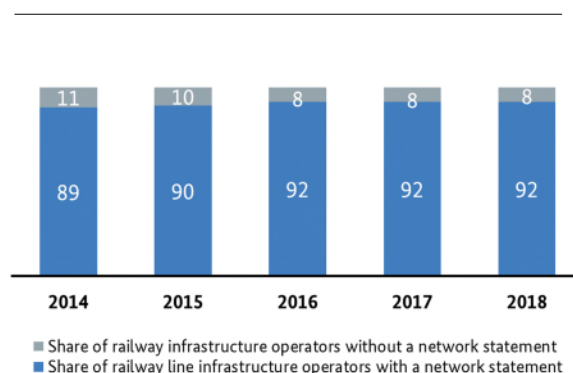


Figure 40: Share of infrastructure managers that have published a network statement (2014-2018; share in percent)



Figure 41: Share of service facility operators that have drawn up a network statement for service facilities (2014-2018; share in percent)

Publication of charge schedules

Infrastructure managers are required to draw up and publish schedules of their charges for the use of their infrastructure. Service facility operators are likewise required to draw up schedules of their charges.

A total of 86 percent of the infrastructure managers had drawn up and published corresponding schedules of their charges, slightly more than in the previous year.

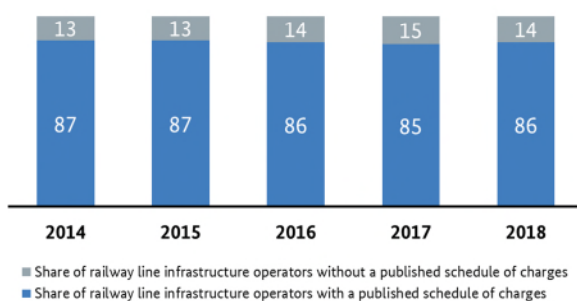


Figure 42: Share of infrastructure managers that have published schedules of their charges (2014-2018; share in percent)

The share of service facility operators that had drawn up schedules of their charges fell to 61 percent in 2018. This is primarily due to the fact that the Bundesnetzagentur now knows of more service facility operators.

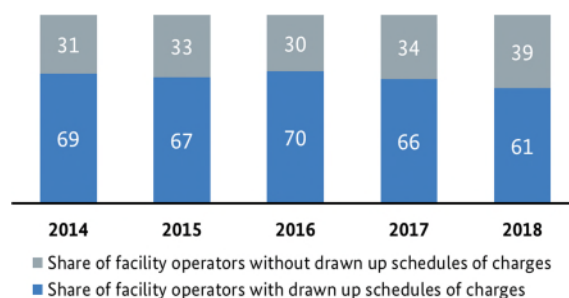


Figure 43: Share of service facility operators that have drawn up schedules of their charges (2014-2018; share in percent)

Ratings for access to railway infrastructure

As part of its regular survey the Bundesnetzagentur gives all parties with access entitlement the opportunity to evaluate and rate market-related aspects on a scale of 1 (very good) to 5 (unsatisfactory). In addition, the Bundesnetzagentur also conducts a survey of the regional transport authorities that task railway undertakings with providing transport services in the short-distance passenger rail transport segment. The findings for the regional transport authorities are summarised in Chapter 4, starting on page 34.

Average values are calculated on the basis of the estimates provided by the parties with access entitlement. Using these figures, it is possible to conduct comparisons with other points and generate time series.

In the current survey, there were only slight changes over the previous year in most areas. This is a trend that has been observed for some years now. Consequently, the areas regulated by the Bundesnetzagentur are to be found in the top bracket once again. The parties with access entitlement taking part in the survey gave the best ratings for “non-discriminatory pricing

systems”, “access to service facilities” and “access to train paths” - all of which are regulated by the Bundesnetzagentur - alongside “IMs’ customer friendliness”.

As in the previous year, the infrastructure managers’ price-performance ratio received a rating of 2.8 which is only satisfactory. Most of the criticism from the railway undertakings focused primarily on the areas “network development /condition” (3.1), “international access” (3.0) and “tariffs and sales” (2.9).

When asked about “access to train paths” area, the railway undertakings gave the best ratings on average for the “allocation of train paths for working timetable train paths” and the “allocation of train paths for non-scheduled rail services”.

A slight year-on-year decline can be observed in the ratings in most categories. Criticism of “construction site planning” and “network development/condition” was particularly harsh, with each being rated with a 3.1.

By contrast, half of the railway undertakings taking part in the survey rated train operation during disruptions as “good” or “very good”. Nonetheless, the railway undertakings submitted a large number of comments and tips to the Bundesnetzagentur indicating difficulties with the scheduling of traffic in individual cases (see problems from the perspective of parties with access entitlement in the chapter “Railway transport market”).

In the medium term however, a slight trend toward a decline in the ratings for “timetable quality” and “management of and arrangements during disruptions” is discernible. There was no significant change in the ratings the railway undertakings have given to the area “access to railway infrastructure” in recent years.

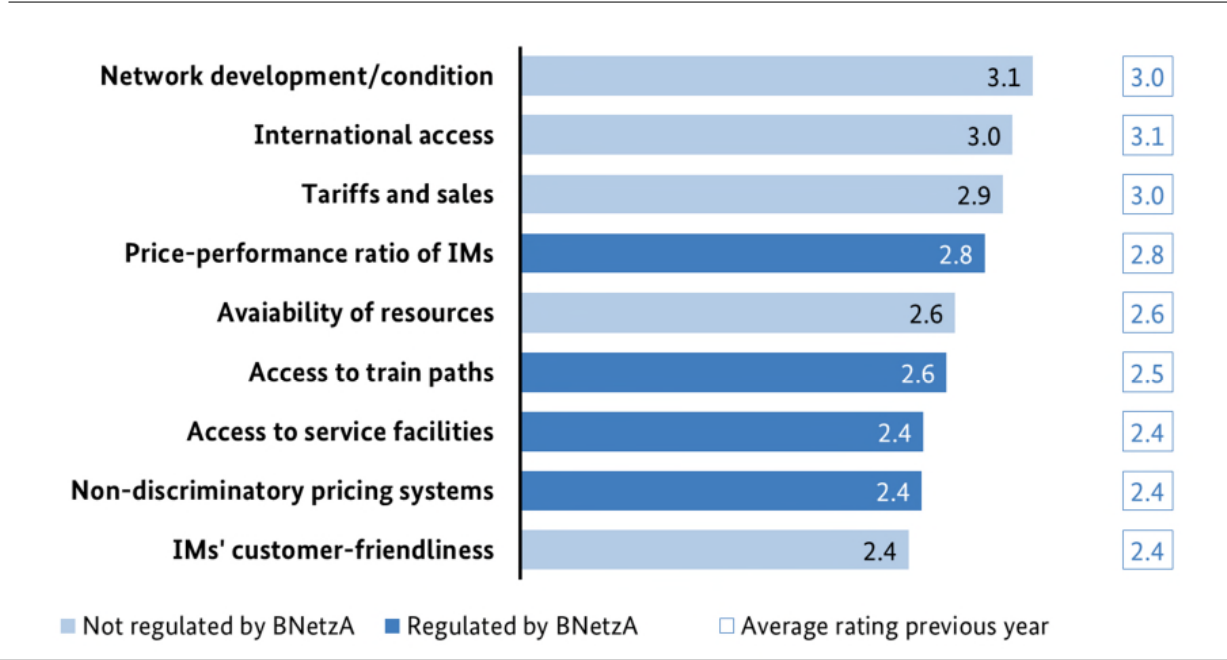


Figure 44: Factors that influence the railway market (2018; average values)

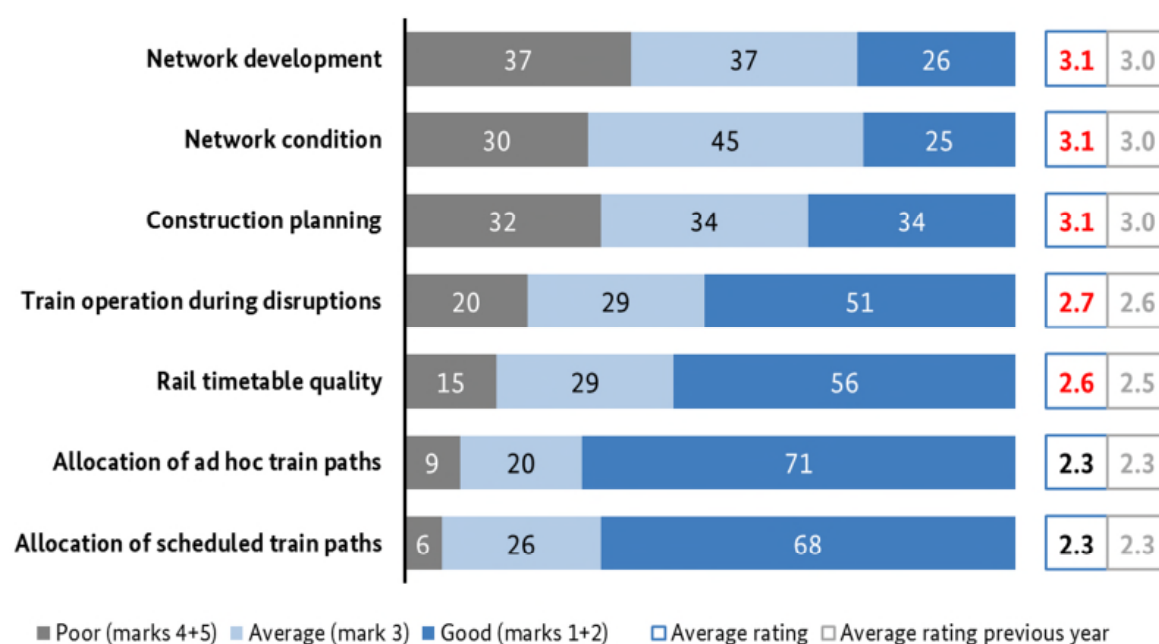


Figure 45: Ratings given for track access (2018; rating shares in percent and average marks)

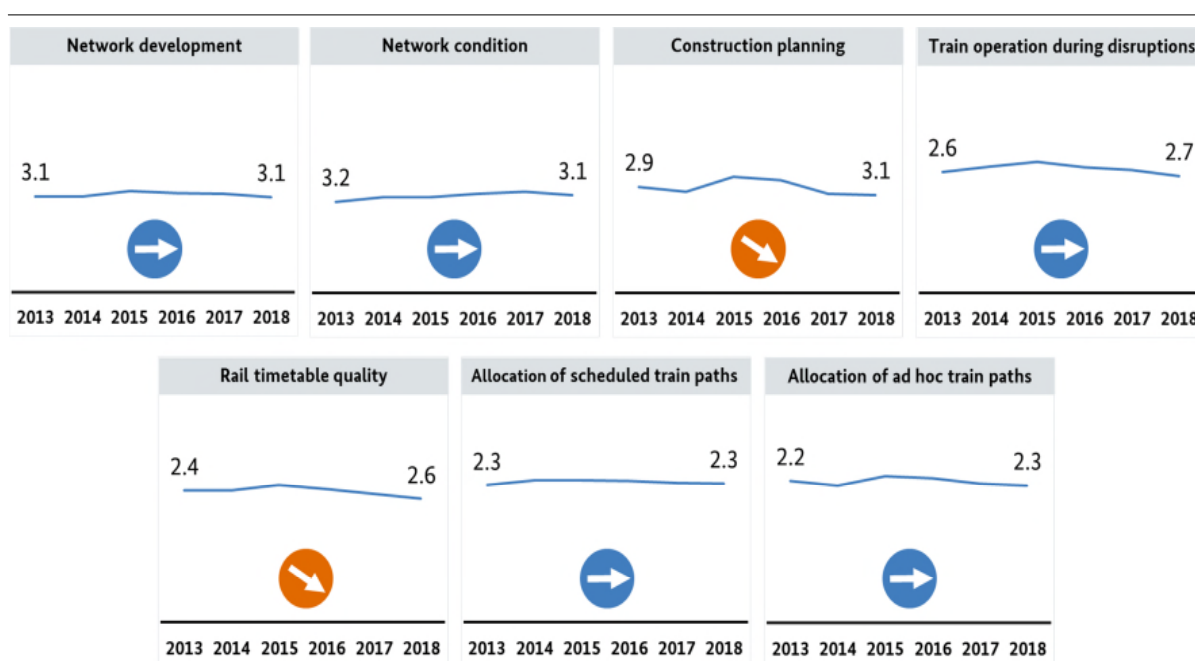


Figure 46: Trends in the ratings given for areas pertaining to train paths (2013-2018)

The majority of the ratings for “access to service facilities” were above average during the current reporting period.

The only area to be rated with just “satisfactory” was “access to storage sidings” (2.9).

Approximately one third of the railway undertakings (30 percent) rated “access to storage sidings” as “poor” or “unsatisfactory”.

The area “refuelling facilities” received the best ratings: 2.1. Seventy-six percent of the participating railway undertakings rated access to these facilities as good or very good.

Parties with access entitlements expressed an above-average amount of criticism of the condition and modernisation of passenger stations - two aspects that are particularly important in connection with passenger contact. The railway undertakings’ ratings - 2.9 for the condition of passenger stations and 2.8 for the level of modernisation of passenger stations - were significantly more negative than for access-related areas that are regulated by the Bundesnetzagentur.

All in all, there have been virtually no changes in the area “access to service facilities” in recent years.

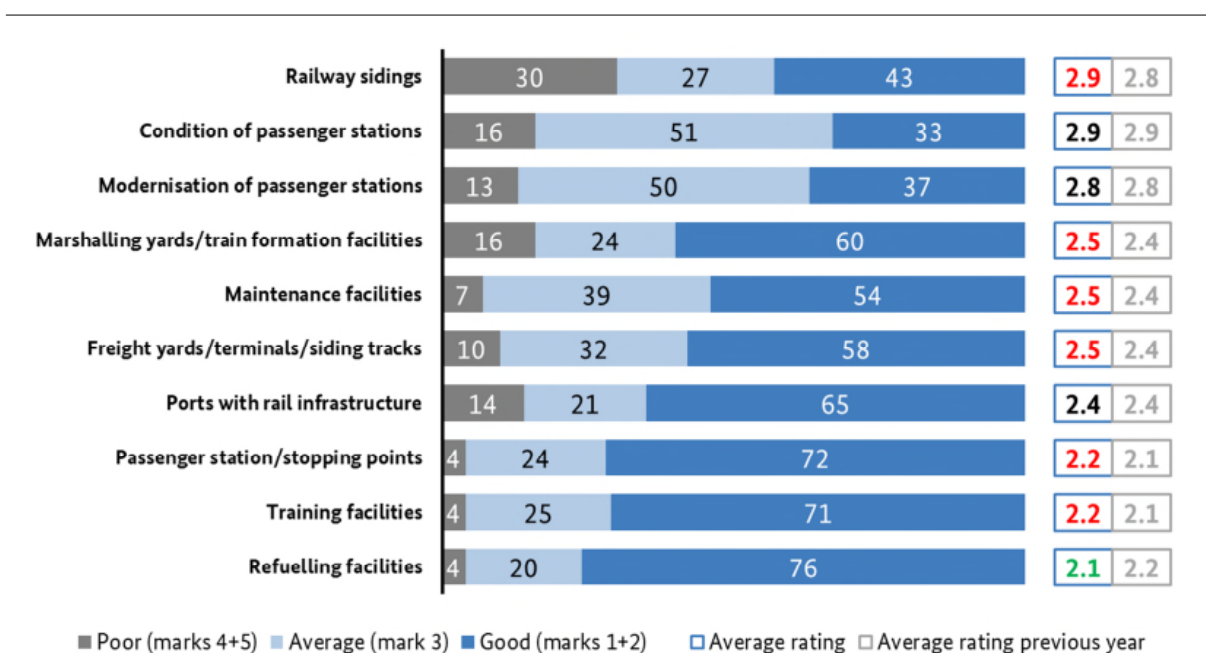


Figure 47: Ratings given for access to service facilities (2018; rating shares in percent and average marks)

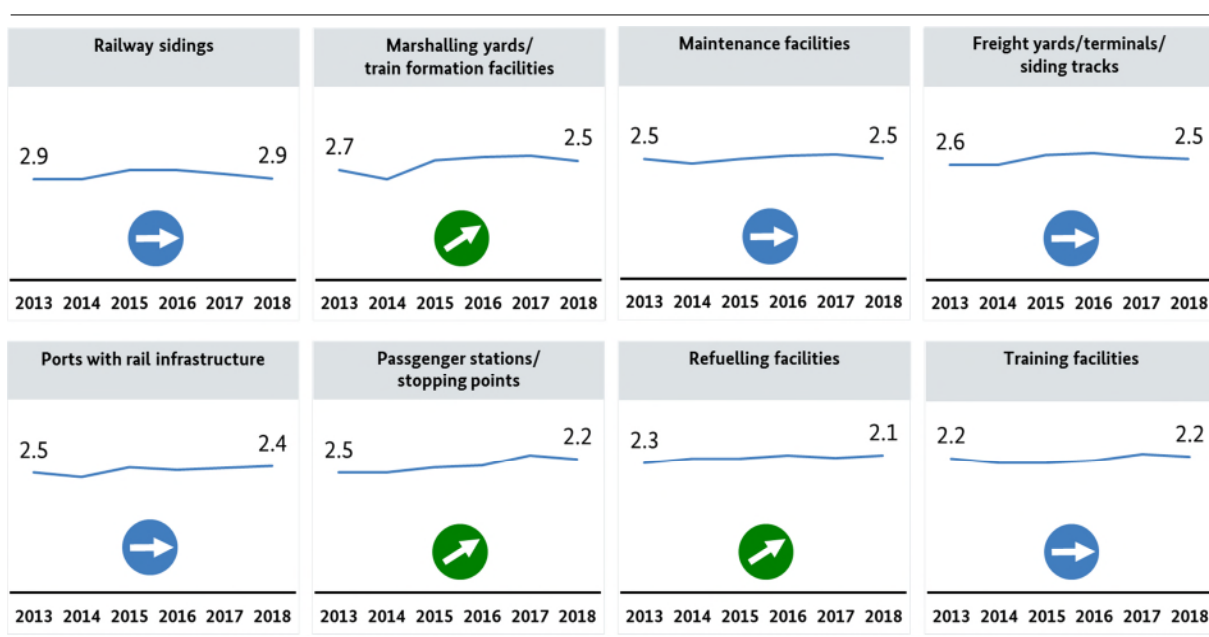


Figure 48: Trends in the ratings given for areas pertaining to service facilities (2013-2018)

Maintenance facilities

Regular maintenance is of crucial importance for the safe and reliable operation of rolling stock.

Maintenance services are provided in maintenance facilities which are categorised as service facilities. One hundred and seventy-five of the approximately 500 service facility operators covered by the Bundesnetzagentur's survey operate a total of 300 maintenance facilities with about 20,000 employees. Deutsche Bahn AG subsidiaries operate approximately one third of these facilities with more than 17,000 employees.

The recorded volume of the market for maintenance and repair services totals approximately €2.9 billion. Add to this the by no means insignificant volume of maintenance and repair services many operators provide for their own rolling stock and are not reported as revenue.

Factory railways

Provisions for factory railways were included in the amendment of the General Railway Act which went into force on 2 September 2016 and the Rail Regulation Act which went into effect at the same time. Under Section 2 (8) of the General Railway Act, factory railways are railway infrastructure which is operated exclusively for the respective company's own freight transport activities. Factory railways are to be used only for intra-plant transport or for the receipt and delivery of freight by rail for the company that operates the railway infrastructure as well as for other companies that are affiliated with it under corporate law. From a legal standpoint, most private siding tracks are therefore to be categorised as factory railways. Factory railway infrastructure may also be used to conduct transports for railways connected to it or for companies bordering it, and occasionally or to a limited extent for other uses.

The rules governing access to factory railways are defined in Section 15 of the Rail Regulation Act. Under this provision, a factory railway operator may reserve the right to conduct transports on the railway infrastructure it operates, or on parts of it, or to have such transports conducted by a railway undertaking it contracts accordingly. When an factory railway operator contracts a railway undertaking to conduct its transports for it, it must notify the undertakings bordering the railway infrastructure of this in writing or electronically. In addition, the factory railway operator must ensure that these transport services are provided on the basis of reasonable, non-discriminatory and transparent conditions.

Under Section 15 (1) of the Rail Regulation Act, the operator of a factory railway may terminate access to the railway pursuant to Section 15(2) of the Act at the beginning of a working timetable period.

The areas focused on in the 2018 market survey for the 2017 reporting period included the total route and track length and the electrified part thereof.

In the view of the Bundesnetzagentur, "route length" comprises the length of all routes used for train service, regardless of the number of tracks. This includes leased lines, operational but unused lines, and lines from operating agreements. By contrast, track length covers the length of all tracks of the operators of open and closed factory railways.

When only the more than 1,300 factory railway sites are considered, the total track length is something more than 5,500 km.

Private siding operators/operators of open and closed factory railways received more than €25 million in subsidies in 2017 in connection with the Guidelines on Funding for the Construction, Upgrading and Reactivation of Private Sidings.

Further funding for factory railways totalled approximately €3 million.

The market survey covered somewhat more than 700 factory railway operators with slightly more than 1,300 private siding tracks. More than 80 percent of them did not have their own railway undertaking or were not affiliated under company law with a railway undertaking. More than 80 percent of these companies are also owners of the factory railway infrastructure.

Of the more than 1,300 private siding tracks, more than 60 percent will be closed in their entirety or in part during the 2018 working timetable period (10 December 2017 - 8 December 2018) and during the 2019 working timetable period (9 December 2018 - 14 December 2019).

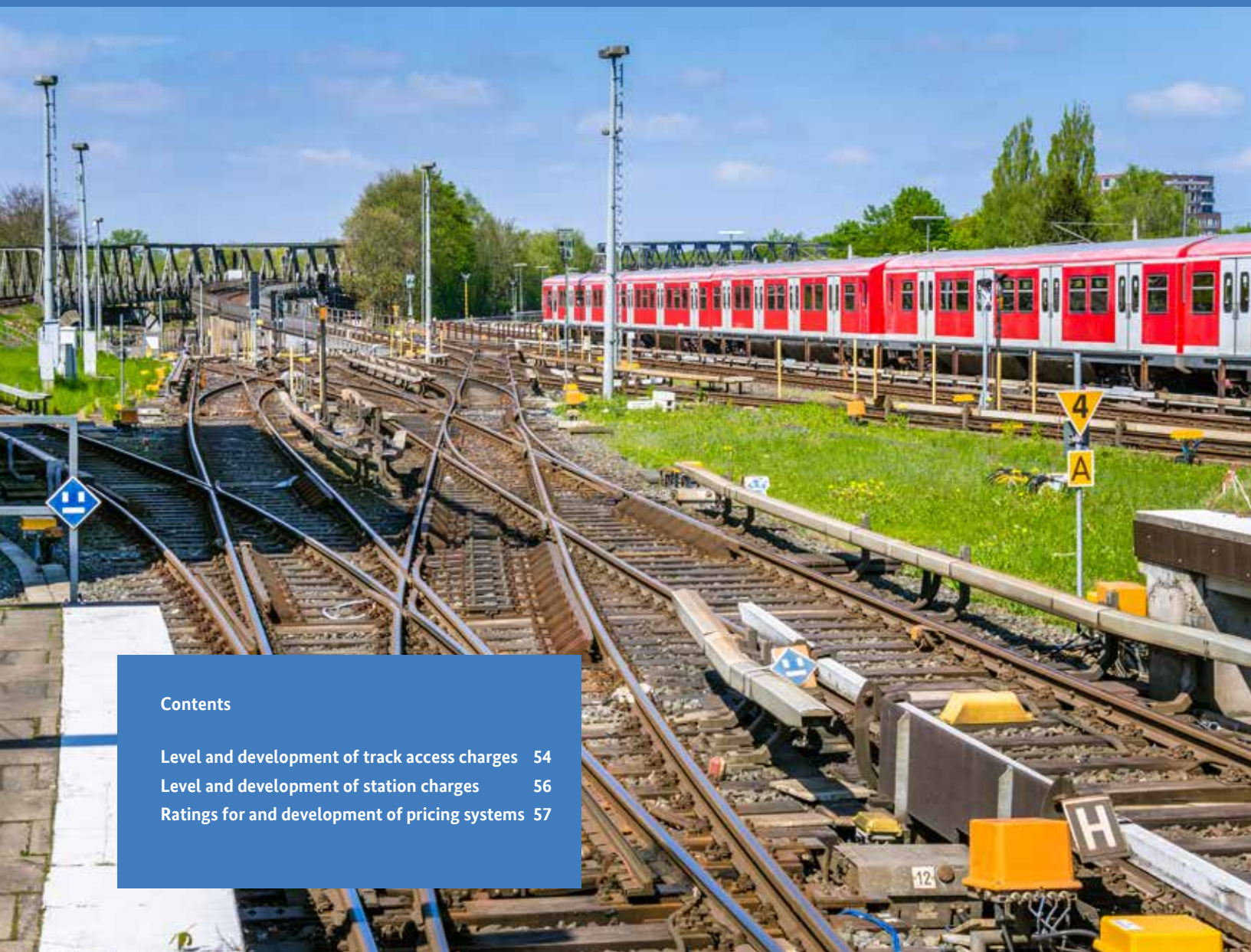
Price trends

Operating within its statutory framework, the Bundesnetzagentur reviews the charges railway undertakings have to pay infrastructure managers for the provision of railway infrastructure.

The following chapter examines these charges from the market perspective.

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Level and development of track access charges	54
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Infrastructure access charges

The steady rise in track access and station usage charges is having a significant impact on the cost effectiveness of the railway undertakings’ business operations.

Infrastructure managers incur costs during the operation and the maintenance of railway infrastructures. They pass these costs on - in the form of infrastructure access charges - to railway undertakings and other parties with access entitlement when they use this infrastructure. Given that railway undertakings across the entire market spend approximately one third of their revenue on usage charges, the level of these charges represents one of their largest cost factors.

Under German law, the Bundesnetzagentur is charged with monitoring, the infrastructure managers’ pricing systems within the framework of currently applicable legal or regulatory provisions. Overall, in many cases it has been possible to bring about improvements to the benefit of parties with access entitlement. Reliable, non-discriminatory access rules and usage charges that are viable in the market are essential factors for ensuring that rail transport can hold its own in the face of intensive intermodal competition.

Level and development of track access charges

As a rule, track access charges payable to infrastructure managers must be based on the costs incurred in connection with operating and maintaining the railway infrastructure. These charges can vary greatly, depending on

operating density and the general condition of the railway infrastructure.

In addition, maintenance and repair measures (such as bridge restoration) can have a strong influence on the level of usage charges in the longer term. Important cost factors include not only the usage profile, age, level of modernisation and condition of the railway infrastructure but also topographical features (bridges/tunnels, costly routing).

Public funding accounts for a significant part of the financing of the transport infrastructure in Germany. Consequently, in the case of necessary infrastructure measures, for example, public funding can be the factor that decides whether the railway infrastructure continues to exist.

The weighted arithmetic mean of the track access charges that infrastructure managers levied in 2017 was €4.65 per train-path kilometre. This was approximately two percent more than in the previous year. The median increased somewhat to €4.79 per train-path kilometre.

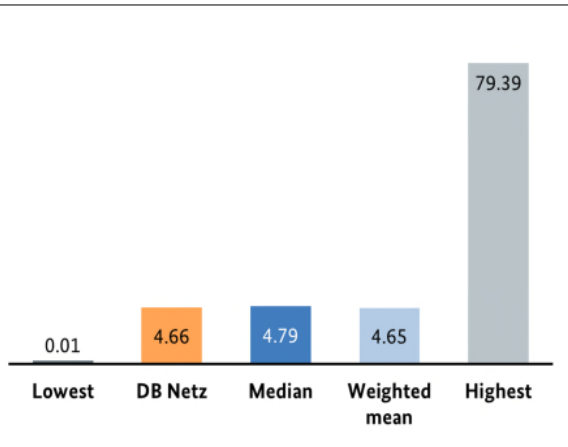


Figure 49: Range of the average track access charges (2017; euros per train-path kilometre)

The track access charges of non-federally owned infrastructure managers whose infrastructure is used primarily or exclusively for rail freight transport are often significantly higher than the average. In some cases, the amount to be paid per train-path kilometre is considerably higher than €30. The primary reasons for this are probably the greater wear caused by the heavier trains and the generally lower utilisation rates for these train paths.

The average fee being charged for track access has steadily increased over the last five years. Between 2013 and 2018, the track access charges railway undertakings had to pay increased by an average of approximately 18 percent in the long-distance passenger rail transport segment, and by 13 percent in the short-distance passenger rail transport segment and the rail freight transport segment. These increases are markedly higher than those for important benchmark indicators such as the consumer price index or the producer price index for industrial products. The consumer price index rose by only roughly five percent while the producer price index for industrial products hardly increased during the reporting period.

The typical cost structure of an infrastructure manager can be reconstructed more precisely by combining publicly available indices published by the Federal Statistical Office instead of using universal indices.

The “infrastructure managers’ input price index” posted an increase of seven percent for the period examined here, once again following the development of the consumer price index relatively closely.

Track access charges in the short-distance passenger rail transport segment in 2017 averaged €4.92 per train-path kilometre. Track access charges in the long-distance passenger

rail transport segment were significantly higher. Here the average charge was €6.53 per train-path kilometre. In the rail freight segment, railway undertakings had to pay an average of €3.03 per train-path kilometre.

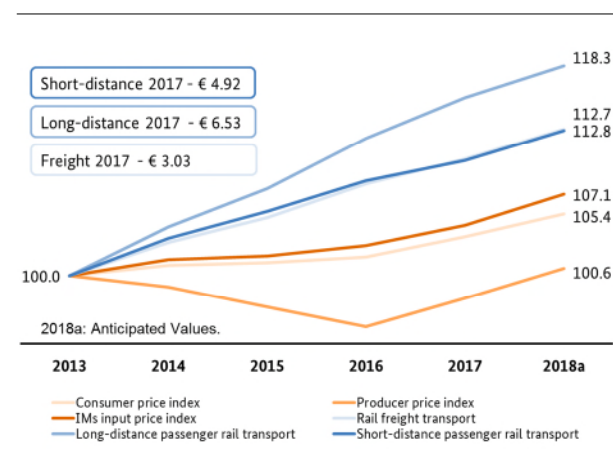


Figure 50: Development of the infrastructure managers’ average track access charges (2013-2018a; “a” - anticipated values; indexed 2013 = 100)

The Master Plan for Rail Freight Transport was approved in 2017. According to this plan, the Federal Government is to provide during the second half of 2018 a total of €350 million in subsidies to the rail freight transport segment to compensate for track access charges.

Level and development of station charges

The operators of passenger stations charged an average of €5.40 per station stop in 2017. At €3.11 per stop, the median is significantly less. Thus, one out of every two passenger station operators charges parties with access entitlement less than €3.11 per station stop on average. Many non-federally owned operators of passenger stations run basic stations. DB Station&Service AG on the other hand also operates significantly larger train stations with more extensive features and facilities. Correspondingly, its average station charge (€5.69) is somewhat higher than the overall average and markedly higher than the median.

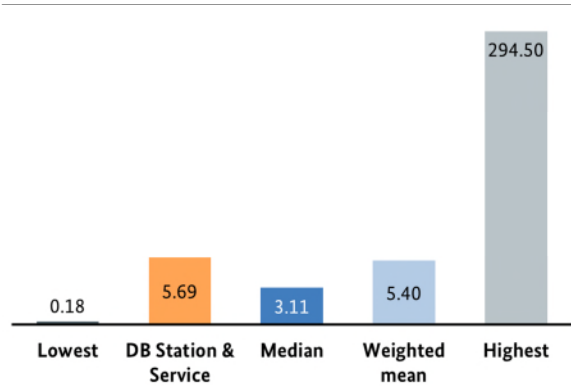


Figure 51: Range of average station charges (2017; euros per station stop)

The charges for train stops at passenger stations increased slightly more between 2013 and 2018 than the consumer price index and the infrastructure managers' input price index did during the same period. The Bundesnetzagentur expects the average station charge to have increased by approximately 10 percent between 2013 and 2018.

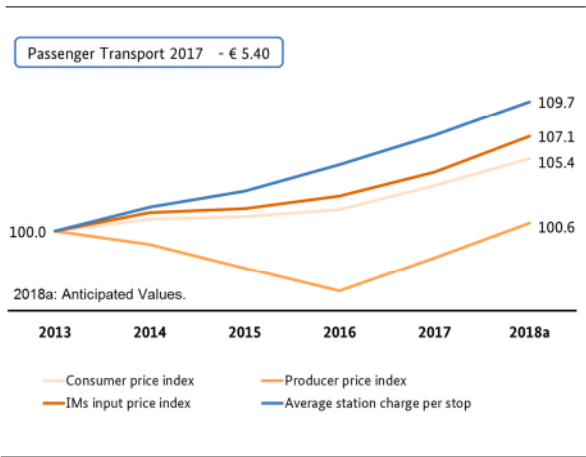


Figure 52: Development of infrastructure managers' average station charge (2013-2018a); "a" – anticipated values; indexed 2013 = 100)

Ratings for and development of pricing systems

As part of the Bundesnetzagentur's annual market survey, railway undertakings are not only asked quality-related questions regarding access to railway infrastructure, but also receive the opportunity to rate the level of non-discrimination and the price-performance ratio of the infrastructure managers' pricing systems.

In recent years, the ratings pertaining to the level of non-discrimination in the pricing systems have improved for the most part. All in all, this subject cluster received above-average ratings.

The best ratings were assigned to the pricing systems for traction current infrastructure and for train paths (2.3). However, most of the ratings were slightly less positive than in the previous year.

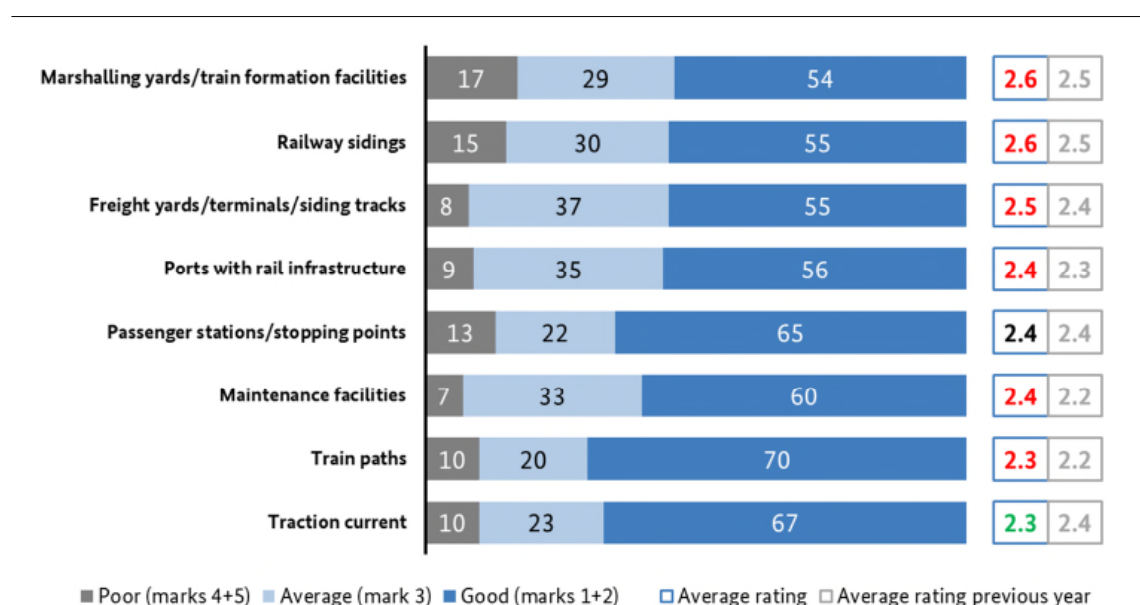


Figure 53: Ratings given for the level of non-discrimination in infrastructure managers' pricing systems (2018; rating shares in percent and average marks)

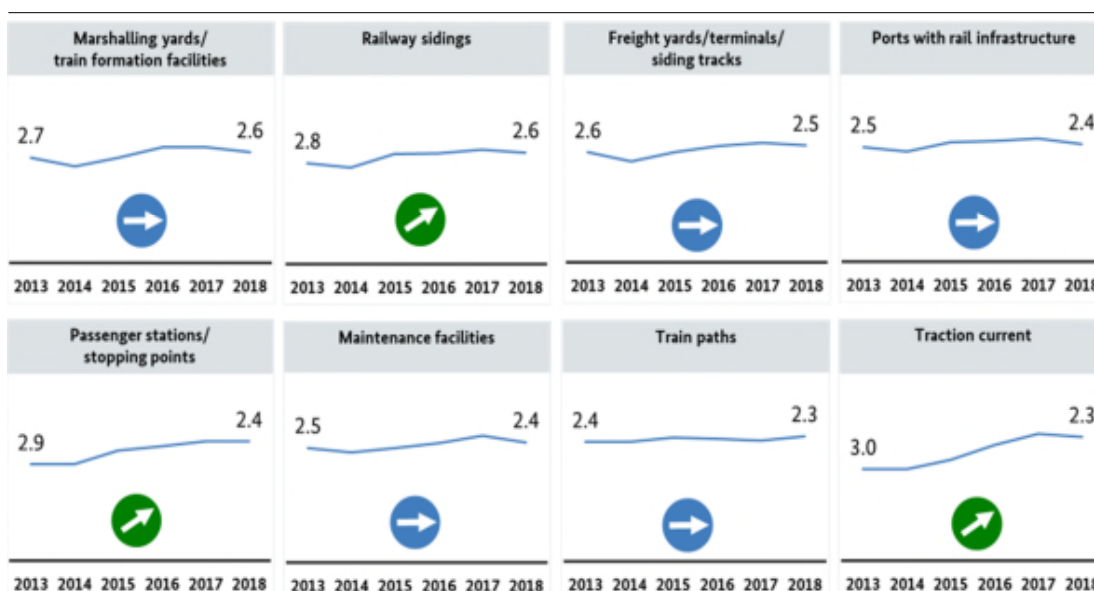


Figure 54: Development of the ratings for the level of non-discrimination in the infrastructure managers' pricing systems (2013-2018)

All the railway undertakings rated the infrastructure managers’ price-performance ratio as satisfactory. There were however improvements in some cases in the ratings assigned by the railway undertakings.

Railway undertakings see the greatest deficits in the prices charged relative to the services provided for passenger stations/stopping points, tracks, and storage sidings, with each receiving a 3.0.

Viewed over a longer period, the ratings for price performance have, in many cases, improved gradually only in the past few year years. In this area, parties with access entitlement continue to see the greatest potential for improvement with respect to points that are subject to regulation.

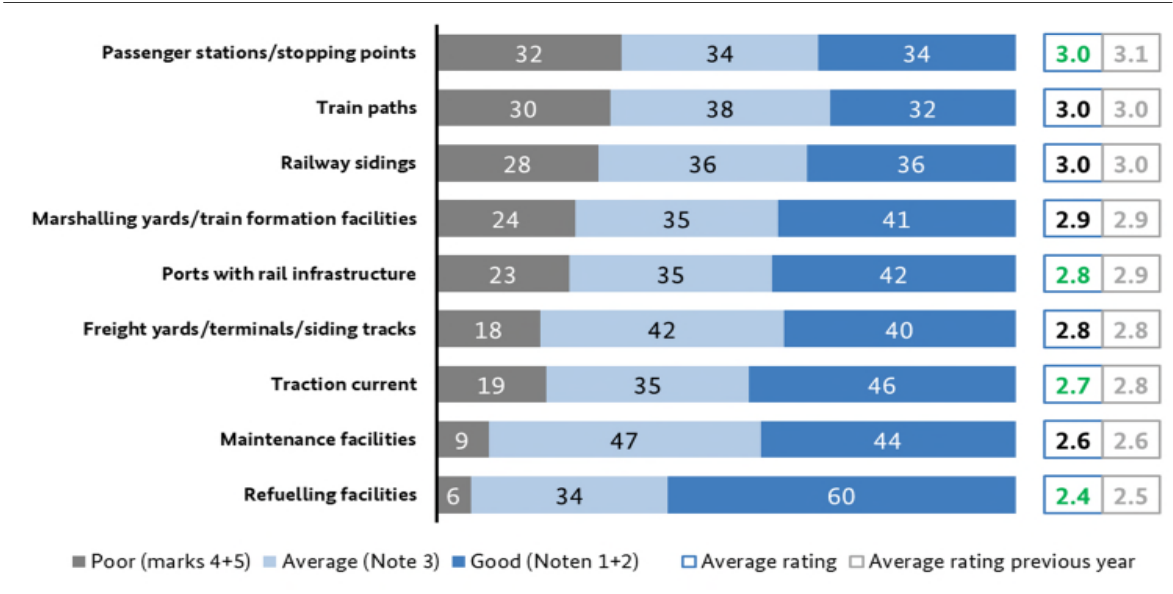


Figure 56: Infrastructure managers’ price-performance ratio(2018; rating shares in percent and average marks)

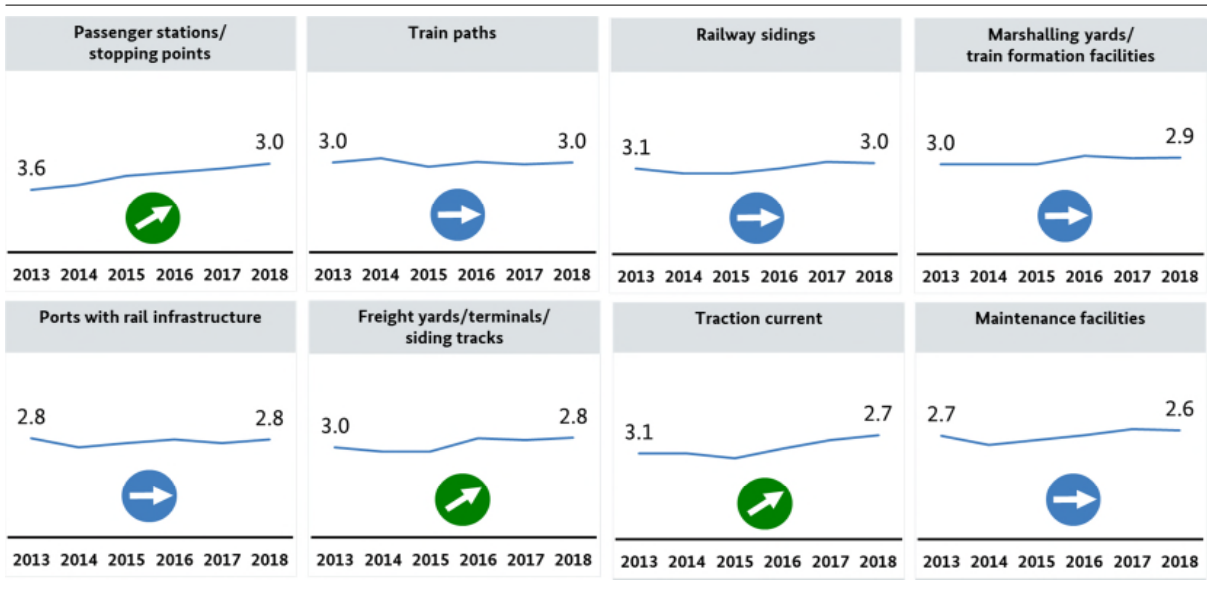


Figure 55: Development of the ratings of the infrastructure managers' price-performance ratio (2013-2018)

Cost development and economic situation of the railway undertakings

The Bundesnetzagentur monitors the economic situation of enterprises operating in the railway market. As part of these activities, it examines both company-specific developments and developments over specified periods of time.

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Economic situation of the undertakings operating in the railway market

The economic situation of the undertakings operating in the rail transport market improved in 2017.

The Bundesnetzagentur has asked railway undertakings and infrastructure managers every year since 2012 to provide its business information which it then compiles and presents for the previous three years. For these analyses, the Bundesnetzagentur only uses the responses it receives; it conducts a plausibility check on them. It must be borne in mind however that not all railway undertakings had completed their annual financial statements before the date on which the market survey was conducted. For the analyses of specific individual segments, only those undertakings that operate exclusively in the particular segment were included in the calculations.

Economic situation of railway undertakings

A total of 82 percent of the railway undertakings surveyed reported positive operating results for the year 2017. This is a positive development compared to the previous year's 77 percent. Nonetheless, one fourth of the railway undertakings did not generate enough revenue to cover their costs in their core business during the reporting year.

However, a closer look at the chart below reveals marked differences in the individual transport services. The situation for enterprises in the short-distance passenger rail transport segment is particularly striking. Approximately 71 percent of these undertakings reported positive operating results. This share has grown over the last several years and increased sharply between 2016 and 2017.

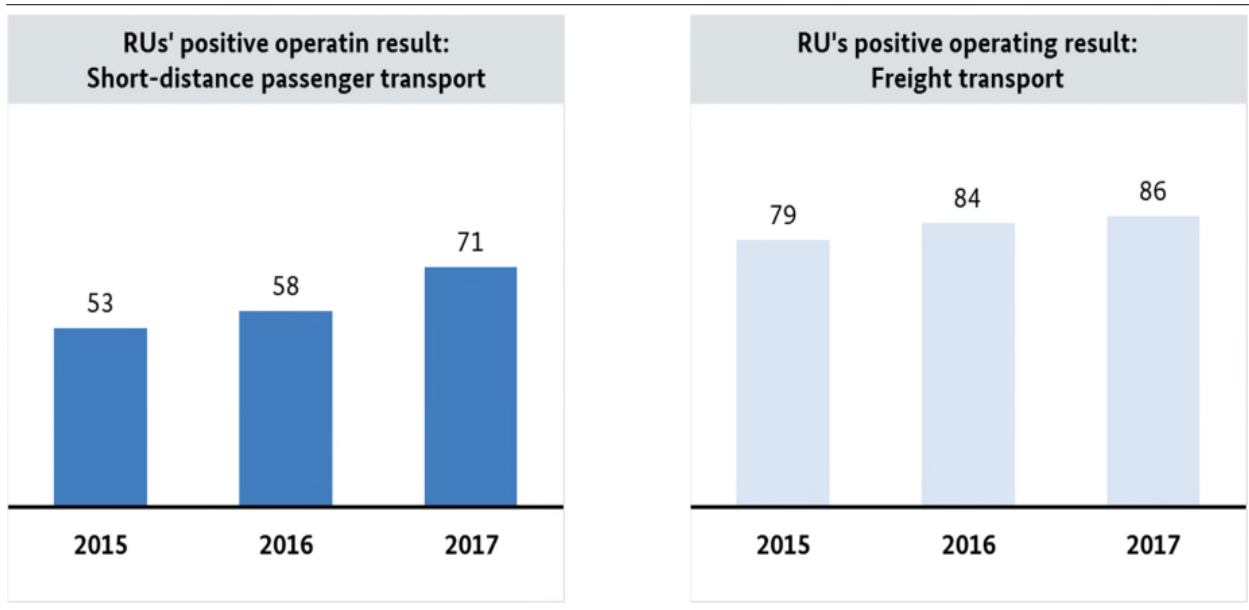


Figure 57: Markt overview of railway undertakings' operating results in short-distance passenger rail transport and rail freight transport (2015-2017; shares in percent)

Based on train-path kilometres travelled, these 71 percent of the undertakings account for 91 percent of the market. This also includes all federally owned enterprises. Unfortunately, a number of larger competitors were unable to generate a positive result in their core business segment.

The situation was different in the rail freight segment. Here, 86 percent of the enterprises generated positive results, a renewed increase over the previous year. However, enterprises that produced positive results accounted for only 35 percent of the train-path kilometres travelled. For this reason, when all railway undertakings are taken into account, the overall operating result for the rail freight segment is negative.

The stagnation seen in the overall market is reflected in the range of the individual operating results. The best positive operating result in 2015 was €393 million. The best operating result in the 2016 reporting year was slightly higher - €397 million. It fell again in 2017 to €381 million. The maximum loss was -€278 million. This figure had been -€223 million in the previous financial year. Despite the large range in the individual results, the average profit calculated on the basis of all enterprises - €7 million - and the average loss - -€9 million - changed only slightly over the previous year.

All in all, it can still be said that the enterprises' economic situation is acceptable. Looking at all the railway undertakings and types of transport services examined in this study, the overall operating result was positive. However, federally owned enterprises accounted for 87 percent of the positive operating results.

To provide a better basis for comparing the results situation in the individual transport segments, the operating results were calculated

based on a measure of performance. Train-path kilometres and passenger kilometres (short-distance passenger rail transport, long-distance passenger rail transport) or tonne-kilometres (rail freight transport) were used as the respective unit of measure.

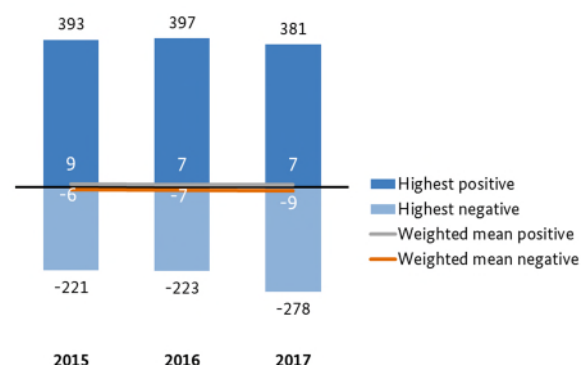


Figure 58: Range of railway undertakings' operating results (2015-2017; in millions of euros)

The result per passenger-kilometre in the short-distance passenger rail transport segment declined to 1.03 cents per passenger kilometre last year. By comparison, the result per passenger-kilometre was 1.04 cents per passenger kilometre in 2016.

Looking at train-path kilometres travelled, the long-distance passenger rail transport segment generated a result of €2.60 per train-path kilometre in 2017, once again more than the results in the short-distance passenger rail transport segment where this figure fell to €0.86.

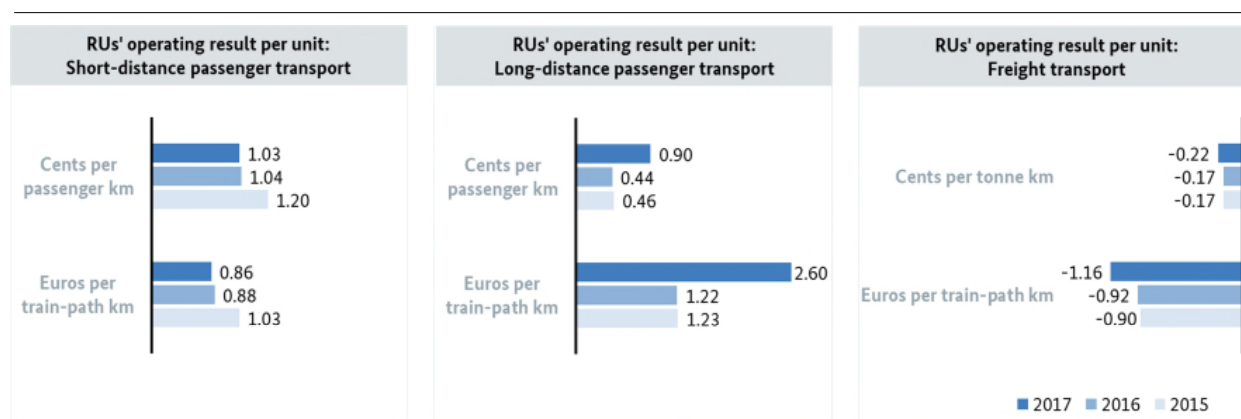


Figure 59: Operating results per passenger-kilometre and tonne-kilometre, broken down by type of transport service (2015-2017; in cents/euros)

In the rail freight transport segment, railway undertakings reported negative operating results - with a downward trend - in terms of both train-path kilometres and tonne-kilometres. By contrast, when non-federally owned undertakings are examined separately, this group of undertakings generated a positive operating result of 38 cents per train-path kilometre and 0.07 cents per tonne-kilometre.

At 0.23 cents per passenger-kilometre and €0.15 per train-path kilometre, non-federally owned railway undertakings in the short-distance passenger transport segment posted positive operating results. This represents a marked improvement over the past two years.

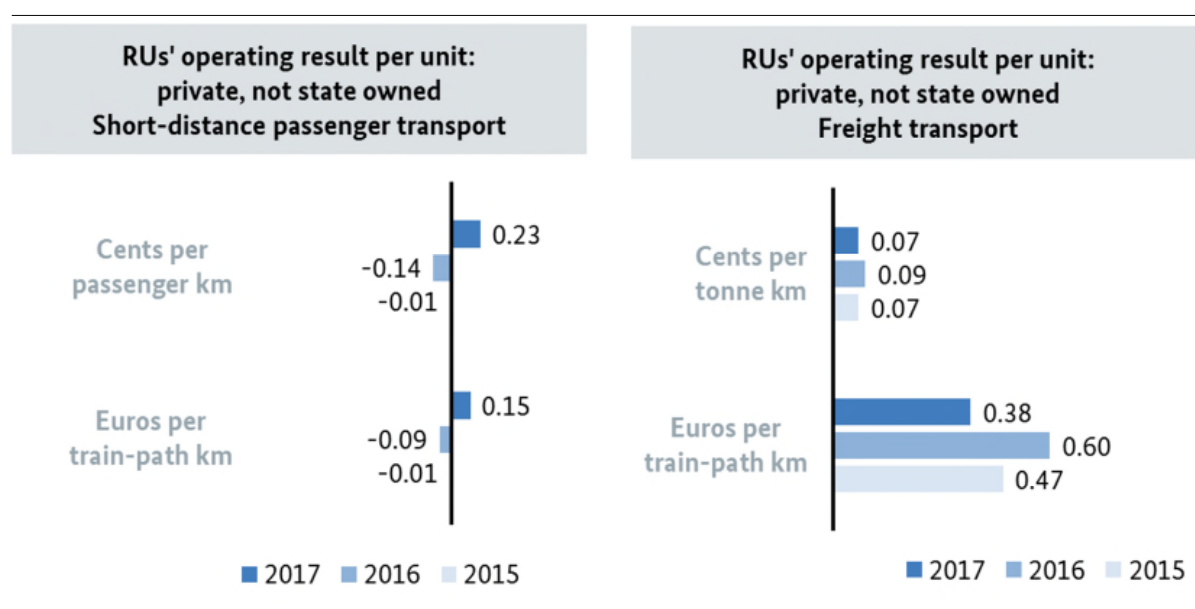


Figure 60: Operating results per passenger-kilometre and tonne-kilometre of non-federally owned railway undertakings in the short-distance passenger rail transport segment and the rail freight transport segment (2015-2017; in cents/euros)

Return on sales of the railway undertakings

The Bundesnetzagentur uses the railway undertakings' return on sales as the basis for calculating their economic efficiency. The return on sales is calculated using the ratio of profit to revenue. It shows how much an enterprise actually earns, measured in relation to its revenue.

The size of the railway undertakings' return on sales varied greatly between the individual transport segments.

Following a sharp decline between 2015 and 2016, the return on sales in the short-distance passenger rail transport segment declined once more - albeit only slightly - compared to the previous years. The profit margin in the long-distance passenger rail transport segment doubled. The return on sales in the rail freight transport segment continues to be firmly in negative territory. The railway undertakings in this segment reported a significant increase in their loss per euro of generated revenue compared to the previous year.

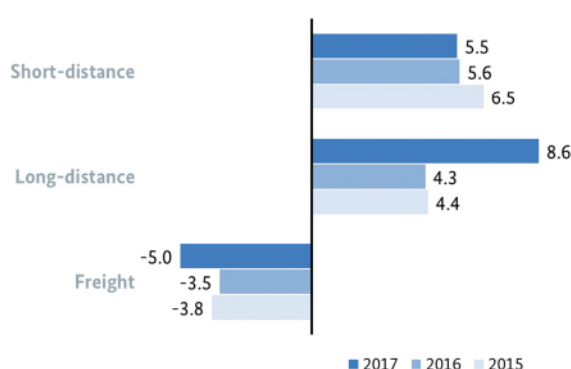


Figure 61: Railway undertakings' return on sales (2015-2017; in percent)

The profitability lead seen in the short-distance passenger rail transport segment was due primarily to federally owned enterprises. By contrast, non-federally owned enterprises generated on average a profit of 1.1 percent per euro revenue.

A more in-depth analysis of the rail freight transport segment reveals a contrast to the picture seen for rail passenger transport. Non-federally owned railway undertakings in the rail freight transport segment reported, as a whole, a positive return on sales of 2.3 percent in 2017. DB Cargo's lack of profitability however pulls the overall figure into negative territory. Its profitability was -5 percent.

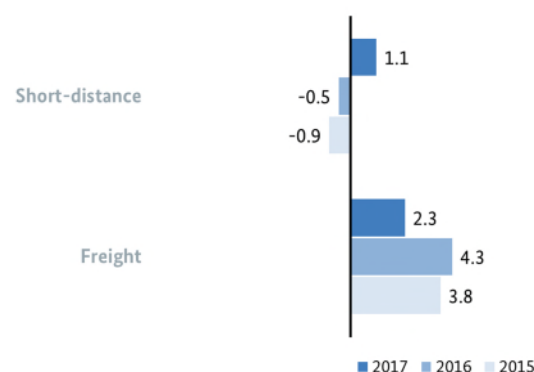


Figure 62: Return on sales of non-federally owned railway undertakings in the short-distance passenger rail transport segment and the rail freight transport segment (2015-2017; in percent)

Infrastructure costs as a percentage of railway undertakings' revenue

Examining infrastructure access charges in relation to total revenue reveals marked differences between the individual types of service.

Infrastructure access charges accounted for the largest share of revenue: 40 percent in the short-distance passenger rail transport segment. This share has increased steadily at a moderate pace over the years.

Very little change has been seen in the size of the share of infrastructure costs in the long-distance passenger rail transport segment in recent years. This figure has remained constant at 25 percent over the last three years.

The share of infrastructure costs in the rail freight transport segment is stagnating at 18 percent. A trend cannot be identified based on the figures from the last five years.

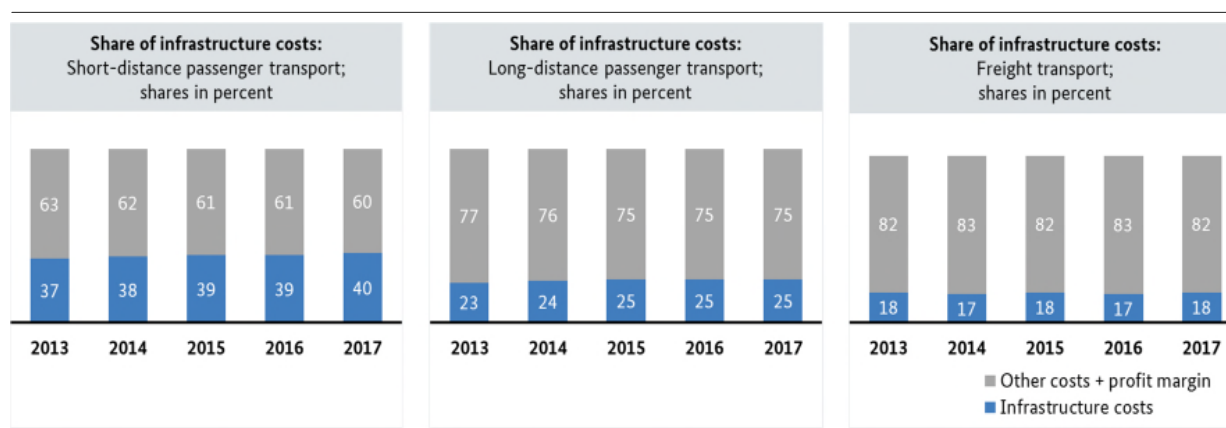


Figure 63: Share of infrastructure costs as a percentage of railway undertakings' revenue, broken down by type of transport (2013-2017; shares in percent)

A further breakdown of the infrastructure usage charges paid shows that track access charges constituted the largest share of the infrastructure costs. Station charges accounted for approximately one sixth of the infrastructure access charges paid by short-distance passenger rail transport services due to their greater use of stations. By contrast, this figure was only about 9 percent in the long-distance passenger rail transport segment.

Slightly less than one fourth of the infrastructure charges for service facilities are paid in the rail freight transport segment. This is due first and foremost to this segment's use of marshalling yards, storage sidings and similar infrastructure. The charges for other service facilities were of secondary importance in the passenger rail transport segment.

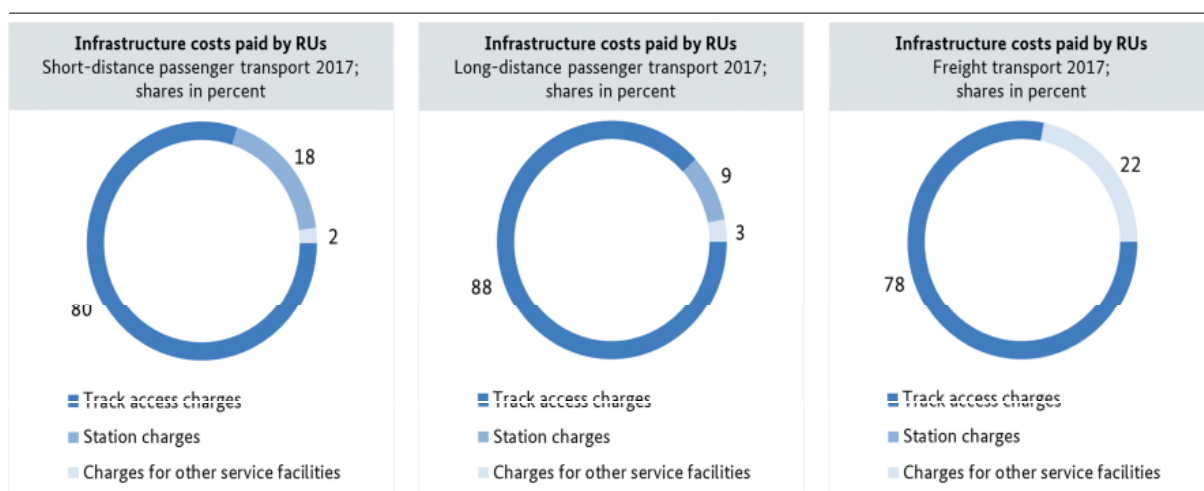


Figure 64: Breakdown of the railway undertakings' infrastructure costs (2017; shares in percent)

Economic situation of non-federally owned infrastructure managers

As in the previous year, the managers of non-federally owned railway infrastructure continued overall to expend more on infrastructure than they generated through track access charges.

Short-distance passenger rail transport is the source of most – 83 percent – of the revenues generated from track access charges. Rail freight transport accounts for one sixth.

At 32 percent, material expenditure constitutes the largest block of expenses, followed by depreciation (25 percent). Personnel costs account for 24 percent of total expenditure. At 19 percent, the “Other” expenditure category represents the smallest share of total expenditure.

Looking at financing, it was noted that at 33 percent, the average equity ratio of the non-federally owned infrastructure managers was less than the overall market average of approximately 41 percent.

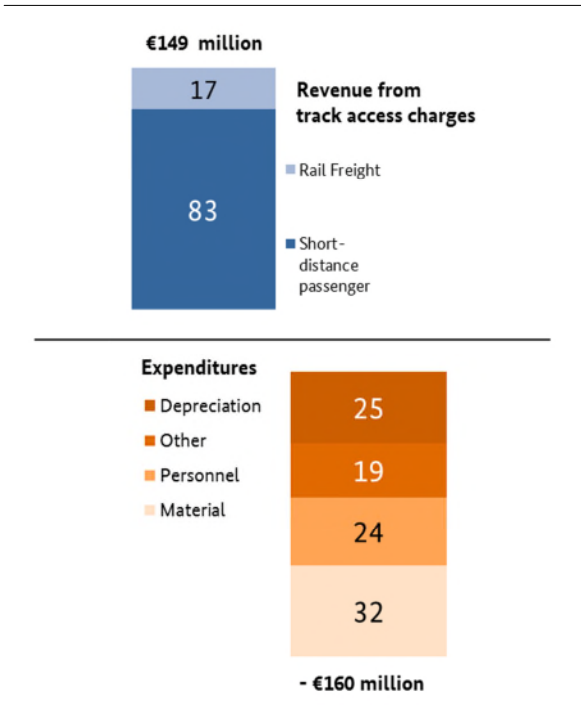


Figure 65: Revenues and expenditures of non-federally owned infrastructure managers (2017; shares in percent)

Economic situation of non-federally owned service facility operators

The results situation of non-federally owned service facility operators improved somewhat during the last financial year.

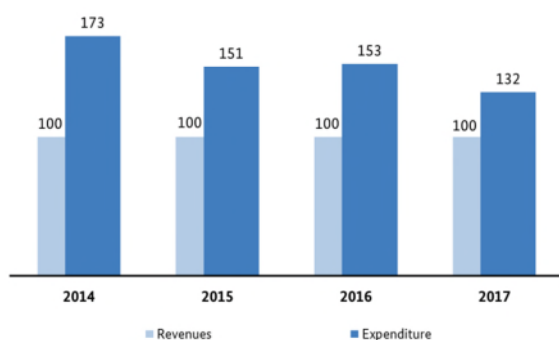


Figure 66: Development of revenues and expenditure of non-federally owned service facility operators (2014-2017; shares in percent)

Expenditure for maintenance, depreciation and the operation of service facilities continues to exceed the revenue generated from the charges for use of the infrastructure. At 32 percent, the shortfall in 2017 was smaller than during the previous year when it reached 53 percent.

It can generally be assumed that the function of many non-federally owned service facilities is simply to support the respective company's primary business purpose, similarly to non-federally owned infrastructure managers. Therefore, not every enterprise is geared to generating a profit. In many cases, railway operations do not constitute a core business activity for these enterprises. Therefore, any shortfalls are offset by other business units.

Financing of investments

In 2017, the infrastructure managers surveyed reported that they had received somewhat more than €3.3 billion in external funding to invest in the existing railway network. They also reported spending €146 billion of their own funds for this. All in all, somewhat more than €3.4 billion were invested in the existing railway network. The federally owned infrastructure managers are required under the Service Level and Funding Agreement to contribute funds of their own to investments in the existing railway network.

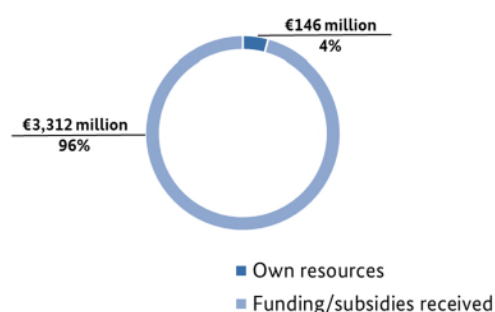


Figure 67: Investment in existing network infrastructure broken down by own funds and external funding (2017; in million euros; shares in percent)

They invested €8.7 billion in external funding and more than €1.2 billion of their own resources in the new construction, modernisation or expansion of infrastructure.

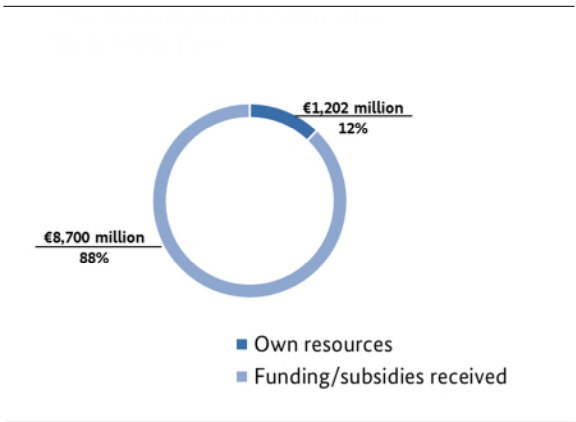


Figure 68: Modernisation and expansion of infrastructure, broken down by own funds and external funding (2017; in million euros; shares in percent)

At 88 percent, the public funding rate for the new construction, modernisation and expansion of the infrastructure was lower than the public funding rate of 96 percent for investment in the existing railway network.

The federal government provided more than €5 billion to subsidise investment measures in 2017. These funds represented 81 percent of the total investment. Germany’s federal states and local authorities provided a further 14 percent (a little more than €0.8 billion) while EU funding covered another four percent (approximately €0.29 billion).

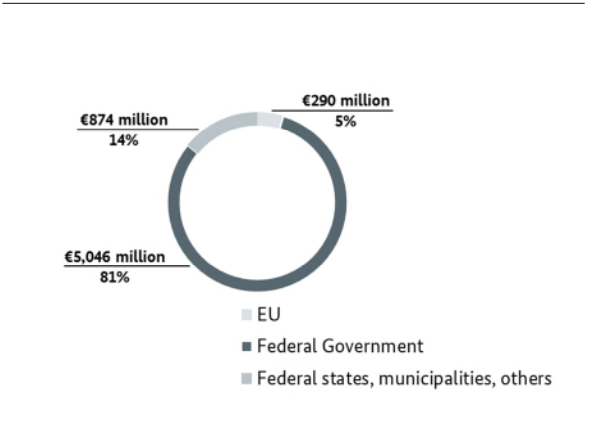


Figure 69: Funding sources of investment measures (2017; in million euros; shares in percent)

IRG-Rail and the Rail Market Monitoring Scheme

Participation in international market monitoring activities and conducting an international market analysis have become firmly established activities in the railway segment. Member States have been required to provide data for the European Commission's Rail Market Monitoring Scheme since 2015.

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International market monitoring

Competition in the European railway markets continued to develop positively in 2016. Competitors grew their market shares in both the passenger and freight transport segments.

IRG-Rail Market Monitoring

The Independent Regulators' Group Rail (IRG-Rail) was established by European regulatory authorities in 2011 with the aim of driving the harmonisation of the European railway market forward and using coordinated regulatory approaches.

The annual Market Monitoring Report offers analyses of market trends, the development of competition in participating countries and changes in infrastructure.

This working group is chaired on a rotating basis. In 2017 it was chaired by the French regulatory authority ARAFER. The Bundesnetzagentur is primarily responsible for obtaining data from all participating regulatory authorities and subsequently evaluating and processing it.

The Market Monitoring working group uses a transnational market monitoring system it has developed itself for its annual analysis of the European railway market.

Four more countries (Lithuania, Macedonia, Portugal, Romania) than in the previous year agreed to provide data for the year 2016. As a result, a total of 28 countries contributed to the report through their standardised provision of data.

The participating countries account for routes totalling more than 220,000 kilometres. Europe-wide, the electrified share of the network is 56 percent. This figure is 53 percent for Germany.

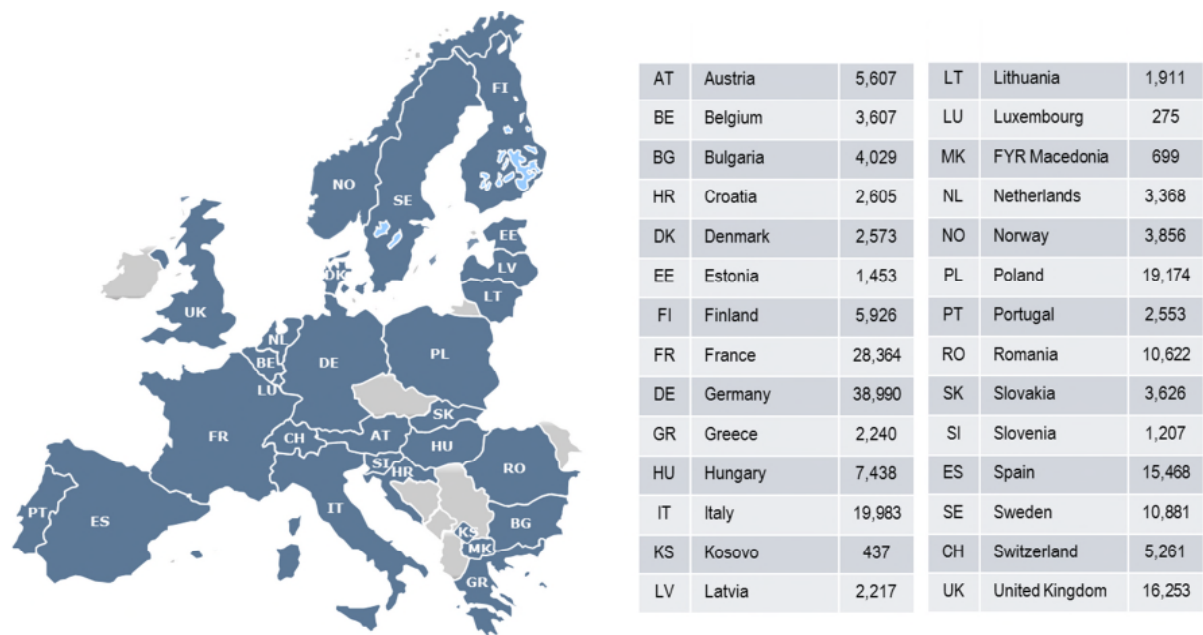


Figure 70: Overview of participating countries and route lengths (2016; route length in km)

Looking at Europe as a whole, an average of 93 percent of the rail network belongs to successor companies, the former state-owned railway undertakings. At 85 percent, the share of federally owned railway lines in Germany falls markedly short of the European average. More than 100 infrastructure managers operate routes totalling more than 5,600 kilometres in length in Germany.

A total of 4.3 billion train-path kilometres were travelled in the railway network in 2016; freight transport once again accounted for 18 percent of this amount and passenger transport for the remaining 82 percent. The rail freight segment provided 420 billion tonne-kilometres in transport services, while the passenger rail transport segment provided 450 billion passenger-kilometres. Both figures represent an increase over the previous year.

More than 800 railway undertakings³ operate in the 28 participating countries. This includes 340 in Germany and 82 in Poland alone.

Approximately three quarters of these undertakings operate in the rail freight transport segment. One third is active in the passenger rail transport segment, while around ten percent operate in both segments. This shows that at European level, competition is particularly well developed in the rail freight transport segment.

The track access charge per train-path kilometre for the minimum access package averaged €4.30 for passenger rail transport services and €2.90 for rail freight transport in the countries examined. Looking at the individual countries, prices range from €0.22 per train-path kilometre in Spain to more than €15 per train-path kilometre in the Baltic countries. Compared to the last five years, track access charges in the passenger rail transport segment are on the rise. In the rail freight transport segment, track access charges have steadily declined throughout Europe, in contrast to the trend seen in Germany where track access charges have increased up to now.

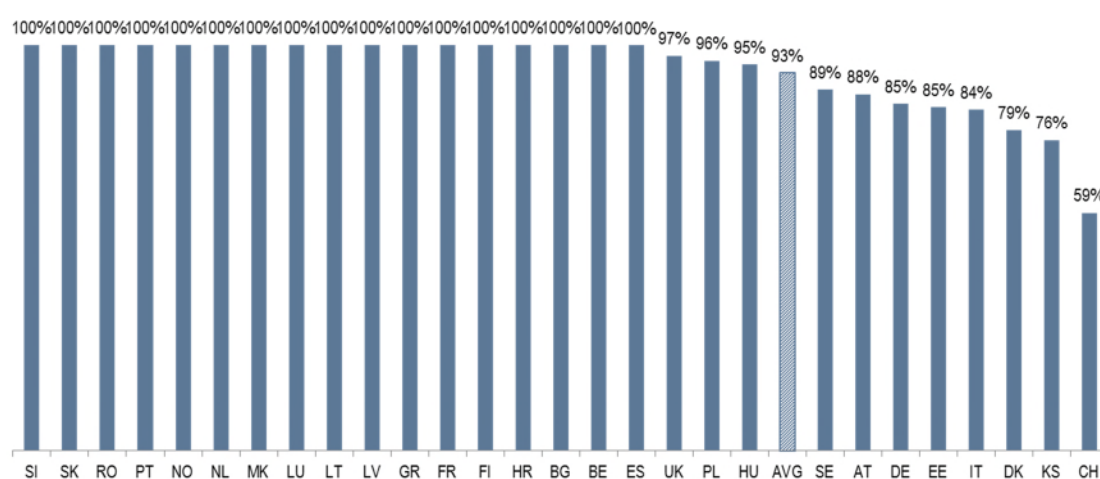


Figure 71: Share of the railway infrastructure held by former state-owned railway undertakings (2016; shares in percent)

³ Railway undertakings that operate in several countries were counted separately for each country.

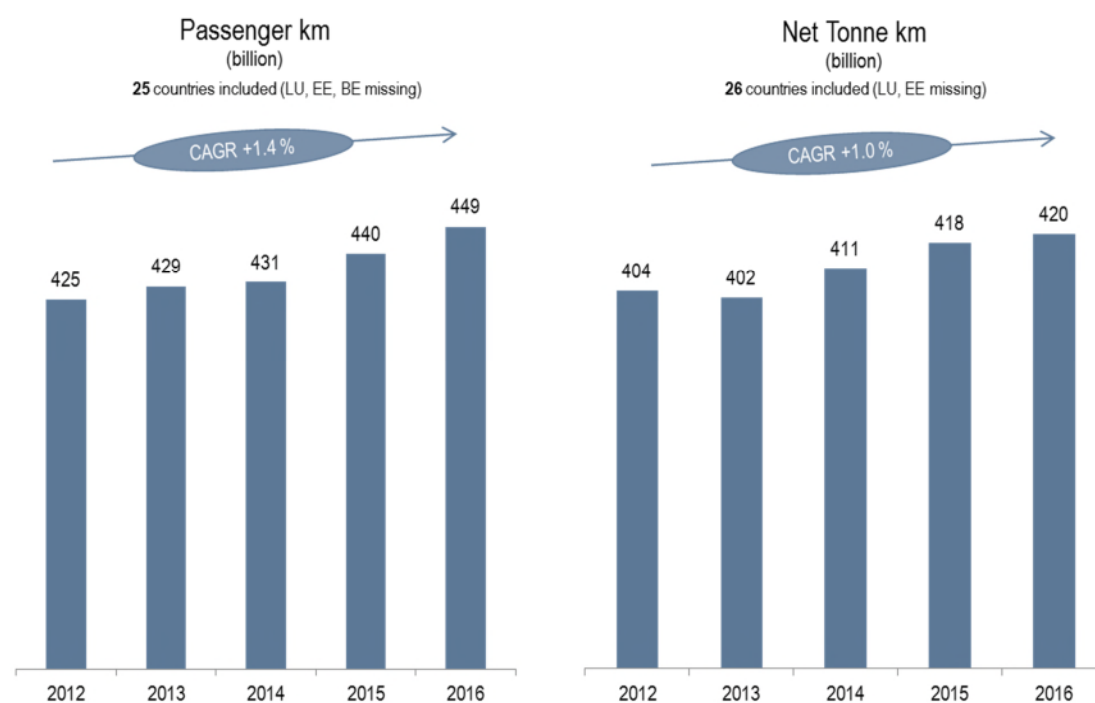


Figure 72: Development of rail transport services (2012-2016; in billions of passenger-kilometres and tonne-kilometres)

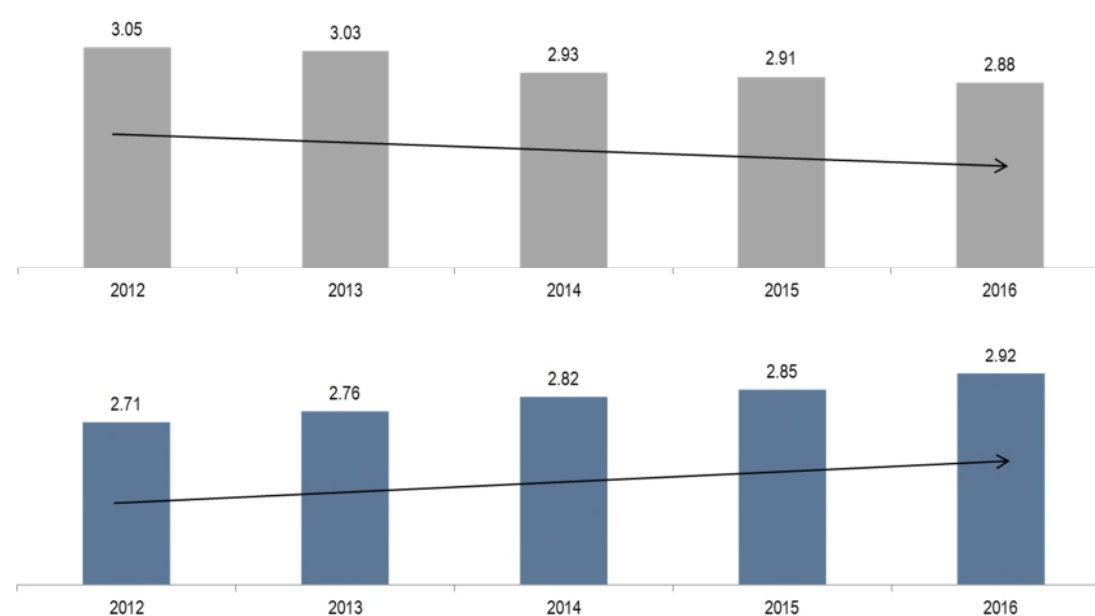


Figure 73: Development of track access charges in the rail freight transport segment (2012-2016, in billions of euros)

The share of the rail freight transport market held by dominant undertakings is declining steadily. A growing number of private undertakings as well as subsidiaries of foreign state-owned railways are entering the market. Based on the average calculated for the participating countries, competitors accounted for 22 percent in the passenger rail transport market and 40 percent in the rail freight transport market in 2016.

IRG Rail publishes its annual report on the internet. The 2017 report is available for download at the following address:

<https://www.irg-rail.eu/irg/documents/market-monitoring>

The IRG-Rail Market Monitoring report for 2017 is scheduled to be released on the above website in the second quarter of 2019.

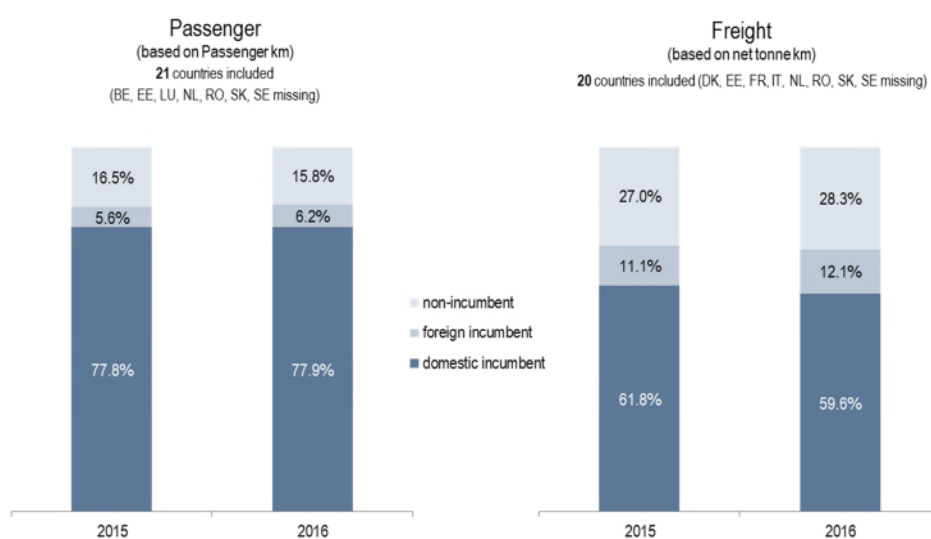


Figure 74: Market shares for passenger rail transport and rail freight transport (2015-2016; shares in percent)

Rail Market Monitoring Scheme of the European Commission

Pursuant to Article 15, paragraph 4 of Directive 2012/34/EU, the European Commission is required to report every two years to the European Parliament and the Council on the rail transport market in Europe.

These reports examine the state of the railway network in the European Union as per the above-mentioned Directive, as well as the evolution of the internal market for rail services and service quality. They also map out the evolution of framework conditions such as infrastructure charges, capacity allocation and infrastructure restrictions, infrastructure expenditure and financing, plus price development, the quality of passenger transport services, the evolution of employment and social conditions.

The European Commission issued Implementing Regulation (EU) 2015/1100 in July 2015. This Regulation requires Member States to provide the European Commission certain information regarding the development of their railway markets. This is done as part of the Rail Market Monitoring Scheme (RMMS).

Since 2016, the Member States have had the option of delivering data to the European Commission using a data portal. This data portal has meanwhile been optimised. As a result, it is now possible to conduct cross-country comparisons of individual data as well.

The European Commission's fifth report on monitoring development of the rail market was published in December 2016. This report also contains statistics from various sources and publications such as the Statistical Pocketbook “EU Transport in Figures” and reports issued by the European Union Agency for Railways (ERA) and Eurostat.

The total length of the railway network was approximately 220,000 kilometres in 2014. This represents an increase of two percent compared to 2009.

Demand in the passenger rail transport segment increased by 30 billion passenger-kilometres between 2009 and 2014. Cross-border routes accounted for approximately six percent of total passenger traffic in 2014.

Information on performance indicators regarding services provided for railway undertakings is also gathered for the Member States' reports to the European Commission. In 2014 there were approximately 30,000 passenger stations, 3,600 freight terminals, 1,700 marshalling yards, 28,500 side tracks and storage sidings, 1,300 maintenance facilities, 650 ocean and port facilities and 650 refuelling facilities.

Looking at charges for infrastructure usage, the picture varies from country to country. In most Member States, the charges for freight trains are higher than the charges for passenger trains. However, in Germany, Spain, Belgium, France, Luxembourg and Portugal the charges for passenger trains are higher than for freight trains.

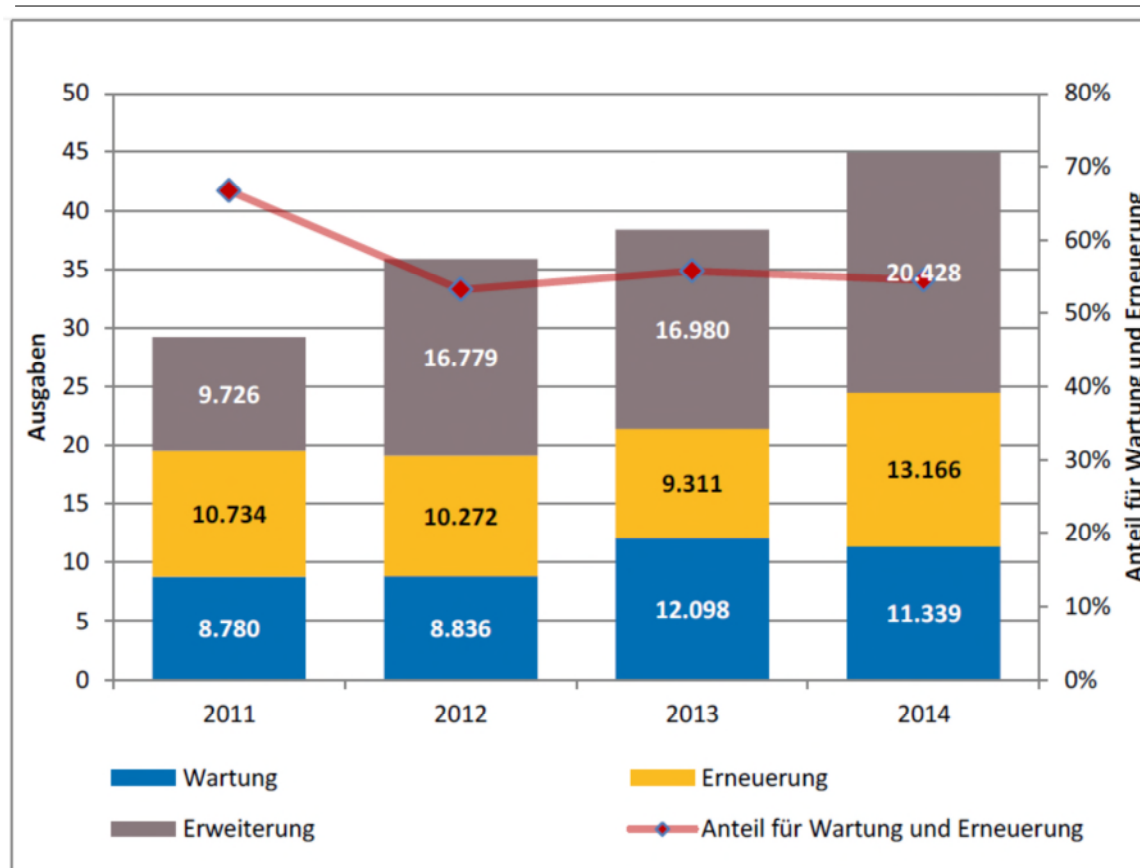


Figure 75: Development of infrastructure expenditure and share of expenditure for maintenance and replacement (2011-2014; shares in percent and expenditure in euros; source: RMMS)

The Netherlands report approximately 50,000 train-kilometres per route-kilometre each year, making its railway network the most heavily travelled network by far.

Expenditure on infrastructure increased from €29 billion in 2011 to €45 billion in 2014. A particularly large increase was seen in expenditure on investment in refurbishment and expansion. Approximately €7 billion were invested in high-speed routes. The European Union can provide funding for these projects through the Cohesion Fund, the European Fund for Regional Development, the Connecting Europe Facility, the European Investment Bank and the European Strategic Investments Fund. More than €33 billion from the current financial framework for the period 2014 to 2020 have been awarded as subsidies for investments in the rail transport segment.

More than two thirds of the passenger rail transport services provided 2014 were rendered under public-sector service contracts.

The number of active railway undertakings in 2014 ranged from 323 in Germany to one in Finland. The number of active railway undertakings rose in Poland, France, Germany and Hungary. By contrast, there was a slight decline in the number of active railway undertakings in the Netherlands and Bulgaria.

The fees for issuing a licence can range from €0 to €70,000, depending on the Member State and the substance of the application. The European Union's railway policy has set itself the goal of limiting the fees for issuing licences and for speeding up the process for issuing licences.

Looking at the employment situation and social conditions in the railway market, railway undertakings and infrastructure managers employed approximately 900,000 persons as of the end of 2014. These were primarily male workers. In many undertakings, more than half the workers are over the age of 40. The ageing workforce poses a problem primarily in Spain, Greece, Finland and Italy.

According to the European Commission, it cost a total of approximately €110 billion in 2012 to operate the railways and manage and operate the associated infrastructure. Sixty percent of these costs were covered by the infrastructure charges paid by passenger and freight rail transport undertakings. Public subsidies covered 30 percent of the costs and other sources of revenue covered the remaining 10 percent. Infrastructure costs accounted for about 30 percent of the railway undertakings' total costs.

This report is available in several languages free of charge at:

<http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2016:780:FIN>

It is planned to publish the next report in 2019.



Annex

Method used for rating influencing factors

The chapters “Ratings for access to railway infrastructure” and “Ratings for and development of pricing systems” outline the views of railway undertakings and regional transport authorities regarding key factors that influence the railway market.

The findings outlined in these chapters are based on the feedback that railway undertakings and regional transport authorities responsible for short-distance passenger rail transport service provided for the annual market survey. As part of this survey, market players are asked to rate issues relating to access and non-discrimination. The scale used for these ratings ranged from “1 - Excellent, no need for action” to “5 - Inadequate, urgent action necessary”. Even though this part of the questionnaire was optional for the respondents, many of the railway undertakings offered their assessment of the current market situation. The published results therefore reflect the market situation and can thus be regarded as representative. In particular, the order of similar indicators in the ratings reveals the areas where railway undertakings see the most problems.

Since 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 (2018).

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List of abbreviations

AEG	General Railway Act
AG	Stock company
ARAFER	Autorité de régulation des activités ferroviaires et routières/French regulatory authority
bn	Billion
DB AG	Deutsche Bahn AG
ERegG	Rail Regulation Act
EU	European Union
GDP	Gross domestic product
GmbH	Limited liability company
HKX	Hamburg-Köln-Express GmbH
IM	Infrastructure managers
IRG-Rail	Independent Regulator's Group-Rail (alliance of independent railway regulators in Europe)
km	Kilometre
m	Million
NFO-RU	Non-federally owned railway undertaking
pkm	Passenger-kilometre
RMMS	Rail Market Monitoring Scheme (market monitoring at European level)
RU	Railway undertaking
t	Tonne
tkm	Tonne-kilometre

trkm	Train-path kilometre
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