

MAKE WAY – FOR HEALTHY COMPETITION COMPETITOR REPORT RAILWAYS 2019/20

- **Infrastructure**

CAPACITY SHORTAGES AND
REGULATORY IMPOTENCE

- **Passenger transportation**

MORE OPTIONS –
FOCUS ON QUALITY

- **Freight traffic**

DIVERSE TRAINS DOMINATE

- **Human Resources • Innovation • Data Management**

PERSONNEL URGENTLY
NEEDED EVERYWHERE

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ABOUT US



DEAR READERS,

Politicians and a broad majority of the general public want more rail traffic. We need to significantly strengthen our railways in order to achieve our climate protection targets for transportation, increase transportation safety and reduce road traffic. This has already been verbally highlighted in party platforms, the coalition agreement of 2018 and the recent climate protection concept 2030. The stage is now set for the long-promised renaissance of the railway and we can begin to shift transportation away from roads and air travel.

And it's high time. Rail transportation has indeed grown since the publication of the fifth "Competitor Report Railways" shortly after the federal elections in the autumn of 2017. However, the modal split shares have not changed significantly in passenger or freight transportation; overall economic growth momentum is likely to have been the main driver of rail growth. Improved rail services, road congestion and the new wave of environmental awareness have all contributed to this development. The majority of the intermodal competitive disadvantages of the railway continue to persist.

25 years after the railway reform, competition in local freight and passenger transportation on the railways remains largely fair. Long-distance traffic, on the other hand, continues to be almost completely dominated by the DB Group, whose infrastructure companies often make life unnecessarily difficult for all railway companies.

Dialogue between DB and the competitor railways has intensified, but everyday problems have only really diminished in just a few areas. We therefore believe that policies need to be implemented to reorganise the railway in the near future.

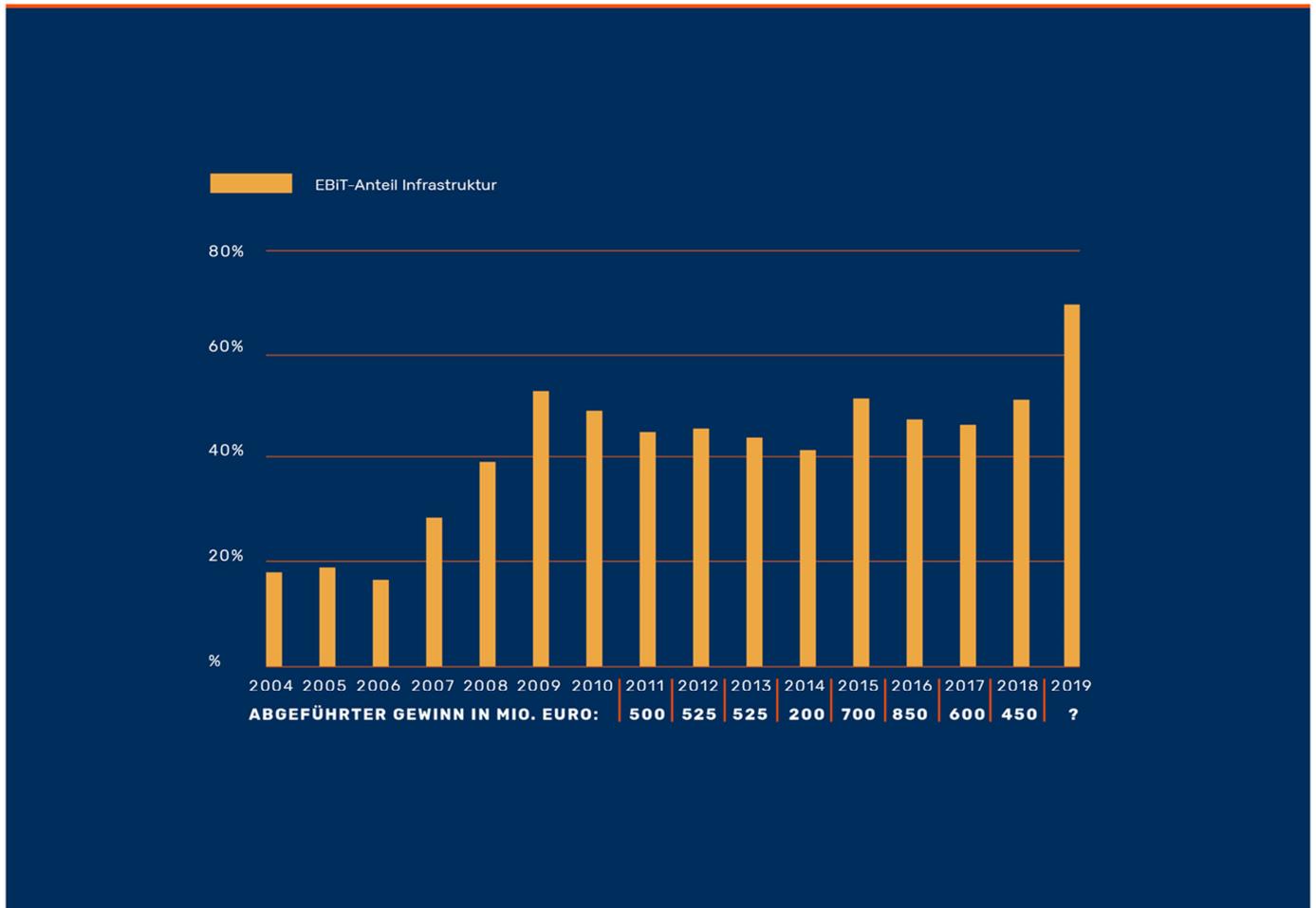
In the 6th "Competitor Report Railways 2019/20", we have once again highlighted the competitive situation and analysed measures which could really strengthen the railway. The long version has been published on our website.

We hope you find the report enjoyable and insightful!

Ludolf Kerkeiling
CEO NEE e.V.

Christian Schreyer
President mofair e. V.

Infrastructure generates an increasing contribution to the profits of Deutsche Bahn AG.



Der DB-Gewinn speist sich im Wesentlichen aus den Überschüssen der Infrastrukturgesellschaften. Deren Anteil lag 2018 erneut wie zuletzt im Jahr 2009 oberhalb einer 50-Prozent-Schwelle am DB-Konzern-EBIT.

Im Halbjahresbericht vom Juli 2019 wird ein Rekordwert von fast 70% (525 von 757 Mio. Euro) ausgewiesen.

Quelle: Jahresberichte der DB AG; 2019 Halbjahresbericht der DB AG.

The revenues of the DB as a whole come mostly from the infrastructure companies. In 2018, this highly regulated companies made up for more than 50 % of the total profit. In the first half 2019, it became a record 69 %.

CAPACITY SHORTAGES AND REGULATORY IMPOTENCE

In contrast to road traffic, by far the largest share of the network is in the hands of the federal government; approximately 90% of the German rail network is managed by the network subsidiary of Deutsche Bahn AG, based in Frankfurt, as a "natural monopoly". There is no competition between railway networks, but rather within the DB rail network between transport companies, which are simultaneously and above all in intermodal competition with private transport and road, air and sea transport companies for passengers and freight.

The previously ubiquitous systematic obstruction of access to the rail network with the aim of favouring DB's own transport companies has become much less commonplace in recent years. Nevertheless, the transport companies are dissatisfied with the service and performance of DB Netz AG in many respects. They criticise the business policy or call on the Federal Network Agency to intervene.

The regulatory authority has made good use of its very narrow scope as defined by the Railway Regulation Act (ERegG), which has been in force for three years. Under pressure from the DB Group, the federal government has guided the development of EU directives and their transposition into national law primarily in the interests of the federation, but with minimal consideration of user and growth-friendly aspects. The political evaluation of the law as agreed in the Coalition Agreement of 2018 has not yet been tackled by the Federal Ministry of Transport and, according to experts, is not likely to result in any significant proposals for changes if it is carried out by the Ministry of Transport itself. However, from the perspective of the competitor railways, initial experience with

the legislation has confirmed some dire predictions and has shown a need for action so that the law can make a contribution towards the modal shift to rail. Important fields of action include the system of train route pricing and approval, criteria for scheduling and handling timetable conflicts as well as information and application rights of the Federal Network Agency when dealing with the only truly dominant network operator. The legal protection of those with access authorisation when dealing with the infrastructure operator must also be improved.

Competing companies not within the DB Group continue to experience disadvantages compared to the DB transport companies due to the informal coordination of the Group Executive Board and at the working level, the continuous rotation of executives, the lack of competitor railway representatives in supervisory bodies as well as the sheer size of the group and the special attention that the federal government gives its "own" company.

Infrastructure as a service provider for rail transport?

In the summer of 2019, the

Federal Monopolies Commission recommended, in its biennial sector report, "the implementation of an ownership-related, vertical separation between the infrastructure and transport sectors of the DB Group and [...] the limitation of the federal government's ownership of the DB Group to the regulated parts of the company." In the coalition agreement in 2018, the government partners, particularly upon the instigation of the SPD, stipulated that the privatisation of the railways (meaning DB AG) was as out of the question as splitting the "integrated group". This categorical position has become the status quo. The previous argument of preventing redundancies due to business operations with an intra-group labour market is irrelevant in view of the current staff shortages. An independent and more network-oriented company management of infrastructure operators in fact makes more sense for the railway system. At the same time, transport service provider competition between DB companies and other companies would become fairer if there were no longer any systematic advantages for DB Group companies. Furthermore, there is simply no need for public transport companies. In a first step, the rail transport companies which are bundled within the DB

Group and which currently compete with each other could be opened up to further, sustainably oriented investors. Secure and environmentally sound capital investments are in high demand, particularly in the areas of fixed-income and pension funds.

There can be no going back to organisation within an authority for the competitive and growth-oriented operation of the rail infrastructure. However, the newly founded Bundesautobahngesellschaft GmbH gives a hint as to how this type of task can be organised – namely profit-free, as expected by citizens and the economy and in contrast to the approach taken by DB infrastructure companies. Other forms of organisation are conceivable, but due to categorical resistance from DB and some politicians, these have not even been assessed using a scientific systematic comparison under the current conditions. The federal government also benefits from the current situation in various ways. First of all, it draws contributions from the rail transport market with respect to the user charges of the railway network users, which are used to partially finance state infrastructure responsibility. The “railway financing loop”, which is unique in the transport sector and disadvantageous to the railway, especially when competing with road and water transportation, channels the DB Group’s corporate profits into the financing of replacement investments in the existing network. DB profits are mainly derived from the surpluses of the infrastructure companies, which are in turn stimulated by law and political supervision or intervention to achieve surpluses. In 2018, the share of infrastructure companies in the EBIT of the entire group once again exceeded the 50%

threshold (2009: 50.3%). The value was just 45.6% in 2017, 38% in 2008 and only 18% in 2004.

The resulting excessively high train route prices made it possible, for example, for DB Netz AG’s profits to increase from EUR 119 million in 2017 to EUR 509 million in 2018. DB Station&Service posted a profit of EUR 176 million in 2016, EUR 186 million in 2017, with a slight increase in 2018 at EUR 190 million. Following a EUR 35 million surplus in 2016, DB Energie closed the year 2017 with a profit of EUR 59 million before reporting a significant decline to EUR 12 million in income after tax in 2018.

Bottlenecks reflect many years of missed expansion opportunities

There has also been only a moderate increase in average capacity utilisation in the previous two years. According to DB Netz AG, total operating revenue increased by 0.6% in 2017 and by 1.1% in 2018, whereby freight traffic grew at the strongest rate at 3.4%, followed by long-distance transport at 2.8% and local passenger transport at 0.9%, calculated over both years.

The number and length of the – officially recognised – “overburdened railways” has increased significantly, conspicuously in precisely those areas where long-delayed expansion measures should have been implemented. This is now taking a toll. This is compounded by the many years in which infrastructure components have been dismantled, with the consequence of poor flexibility in the event of disruptions and necessary construction measures. Short-term infrastructural, scheduling and planning measures have been discussed since the end of 2016

at the “Construction Site Management Round Table”, in technical discussions and, since the summer of 2019, also at the newly established “Capacity Round Table”. However, substantial progress takes time. The concern is that railway operations which, according to the intentions of politicians, are expected to provide significantly increased transport services, will suffer for many years from the consequences of the improperly dimensioned infrastructure. It is therefore all the more important that the implementation of all capacity-increasing measures be tackled in parallel and that a simple financing and planning solution be found for smaller measures such as additional switches.

In the 25th year after the railway reform, there is a wide range of estimations: while DB AG and the federal government celebrated the modernisation, traffic growth and debt relief of the railways, the German Federal Court of Auditors insisted that almost all of the objectives associated with the railway reform had been missed – in particular shifting transport to rail. Trade unions and the associations of the competitor railways pointed out that the federal government had never made progress with its commitments to modernise the infrastructure with the investment funds allocated for this purpose. The regularly updated European country comparison of per capita investment in the rail network shows that Germany continues to rank in the lower midfield. The decelerating revitalisation of the infrastructure, including routes, switches, passing tracks and sidings, has continued in recent years, so that despite some commissioning the route network is still shrinking. For example, almost 350 switches were lost in 2017, thereby reducing flexibility

in terms of operating costs, in the event of breakdowns as well as during temporary removals from service.

No traffic transition without inventory network modernisation and expansion

Despite ambitious announcements in party manifestos, the coalition agreement and political contributions, the state's emaciation of the rail

infrastructure has continued over the past two years. During the term of the Performance and Financing Agreement (LuFV II), the average age of existing facilities as an indicator of the degree of modernisation has continued to increase despite increased investment from the LuFV II between the federal government and DB, partially due to increased construction costs and partly due to necessary corrections to the site directories. Many bridges appear to be much older than expected. The follow-

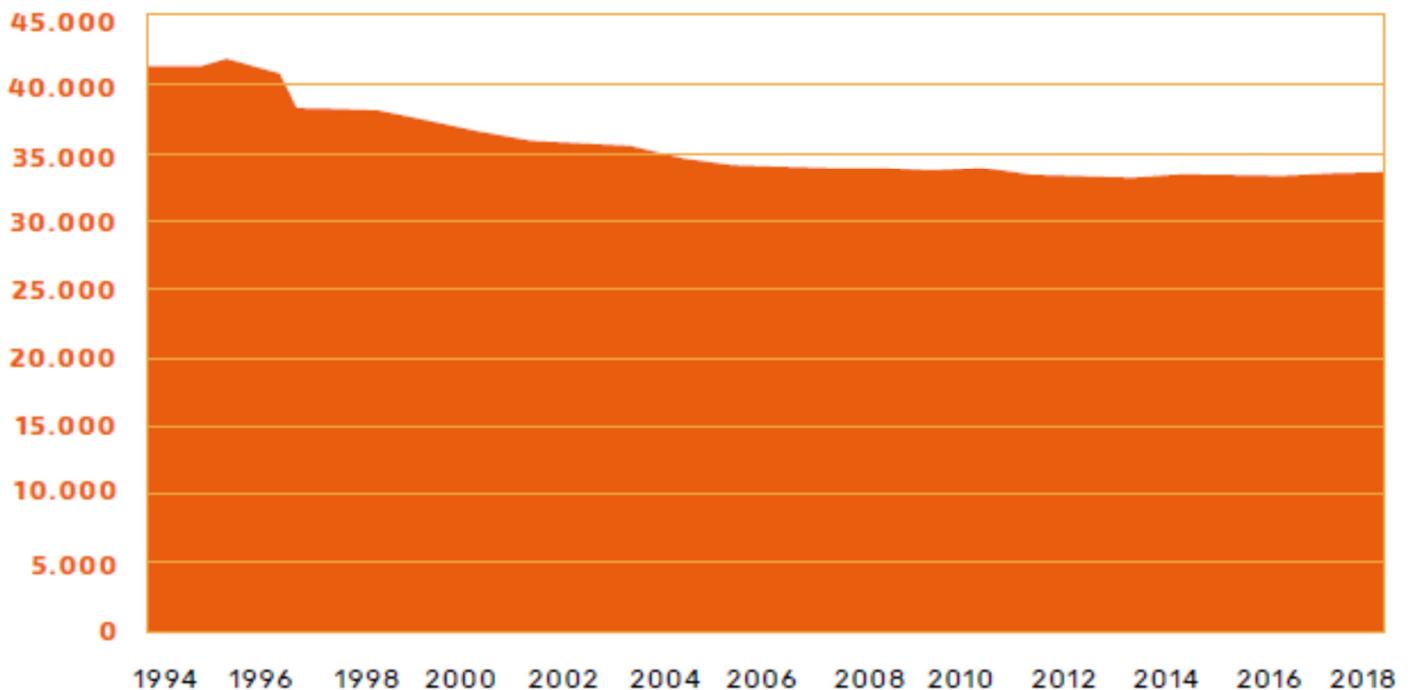
up agreement, which was negotiated in the spring of 2019, will be valid for a total of ten years, thus significantly increasing planning security and creating efficiency potential for the planning and implementation of construction activities. However, the astronomically high amount of around EUR 86.2 billion which has been announced is not only due to the fact that this is a long period: the provision of around EUR 23 billion for non-modernisation "maintenance costs" also distorts

OPERATION
LENGTH
IN KM

Despite some commissioning, the route network which has shrunk since 1994 has not been growing

BETRIEBS
LÄNGE
IN KM

Trotz einiger Inbetriebnahmen wächst das seit 1994 geschrumpfte Streckennetz nicht



funds for the regional networks, where competing railways are far more common than average, remain practically at the same level when adjusted for the increase in construction costs (EUR 2.8 billion over ten years instead of the previous EUR 1.1 billion over five years). As a result, routes important for the tourist industry, which would often also be considered as diverting routes, will be systematically underfunded.

Long-term nuisance of construction sites

The rail transport companies have directly criticised the network operator about the fact that, in view of the growing number of construction sites, the lack of coordination and efficiency have unnecessarily hindered continued operation. This often leads to annoyance and concerns about losing passengers and shipping agents.

Within the framework of the "Construction Site Management Round Table", which brought DB Netz, the railway companies, the German Federal Network Agency and the Federal Ministry of Transport together, it was calculated that in 2016 alone, construction sites would result in additional costs or reduced income for rail transport companies amounting to EUR 428 million per year. These costs are likely to have risen in the meantime. In its final report presented in June 2018, the Round Table essentially made four suggestions. Firstly, capacity-based construction should be made possible with additional funds through the LuFV III; for this purpose, it was initially postulated that EUR 200 million of additional federal funds per year would be required. The

LuFV III now provides for EUR 80 million in federal resources and EUR 20 million in DB's "own resources" per annum from 2022 onwards to this end. This will cover the additional costs of more complex construction methods, which mean fewer restrictions for travellers and freight.

There has also been a long struggle for a statutory financial incentive system for both transport and infrastructure companies to reduce disruption and increase capacity. While this was largely achieved by mutual agreement on 1 June 2019 in passenger transport, no agreement has yet been reached regarding freight transport. The particularly important increase in construction planning efficiency and improved coordination and communication with the railway companies will not be implemented until 2019 and is still being prepared by DB Netz AG. Furthermore, many public transport operators in regional rail transport have not implemented the redistribution of risks from construction sites between them and the rail transport companies in the transport contracts, as had been proposed at the Round Table.

The competitor railways continue to have serious doubts as to whether the most important causes of primary delays are actually being sufficiently tackled within DB. According to the latest published "Infrastructure Status and Development Report", infrastructure-related disruptions have risen in both volume and resolution time since a "low" in 2014; although case numbers have only risen by 4%, the "disruption periods" have increased significantly – by 31.2% from 2012 to 2017. Primary delays

inevitably lead to the following trains being late and sometimes cause further delays in a snowball effect, especially in busy network sections. In addition to the backlog in the maintenance of forest stands along the tracks which are at risk of storm damage and infrastructure-related disruptions such as switch and signal malfunctions, the high number of vehicle and maintenance-related delays of long-running long-distance trains, which also tend to be given priority in the network in the event of a disruption, play a significant role for the continuously poor punctuality situation. Staff shortages in maintenance is often the true cause of what eventually hampers train traffic as a technical failure.

In addition to the newly designed incentive systems, the liability of the infrastructure operators must be improved with regard to damages incurred by the railway transportation company and, where applicable, also its customers due to insufficient service. In its sector report submitted in 2019, the Monopolies Commission demanded liability based on the originator's liability for delays. Above all, it is important that railway companies are no longer allowed to bear the majority of the risk of failing infrastructure in such a heavily used network on the basis of the limited legal liability, which is only enforceable with high procedural risk. The heavy burdens resulting from passenger rights, penalties for operators and additional operating costs are weakening the railway companies, which are already operating with low margins, above all in the highly competitive markets for goods and passenger transport.

INFRASTRUCTURE

New construction and expansion are not progressing

The federal government only provides about EUR 1.6 billion per year for the construction and expansion of the rail network. The much smaller country of Austria issued EUR 1.3 billion for this purpose in 2018, which is a far higher amount in relative terms. However, DB Netz AG was also unable to fully implement the EUR 1.6 billion in construction projects in recent years. Infrastructure is still being dismantled rather than modernised in order to reduce operating costs, and the commitment to install the European Train Control System ETCS in stages starting in 2002 or 2006 has so far only reached tens of millions, despite total financing requirements of EUR 32 billion per annum.

In recent years, the expansion of the rail network has almost come to a standstill. The highlights include the central section of the connecting route between Munich and Berlin (VDE 8) from Erfurt to Ebensfeld near Bamberg, which was decided upon 28 years ago and was put into operation at the end of 2017, in addition to the development and electrification of the route between Horka and Knappenrode for German and Polish goods and passenger traffic in 2018. According to an analysis based on public data, the German road network has been extended by over 250,000 kilometres since 1994. More recently, about 10,000 kilometres of new roads have been completed each year – the equivalent of 192 kilometres per week.

average, however, only 1.3 kilometres of new railway lines – corresponding to one 150th of the constructed road kilometres – were put into operation each week during the same period. This is approximately the length of the cycle path network in Germany's second largest city Hamburg.

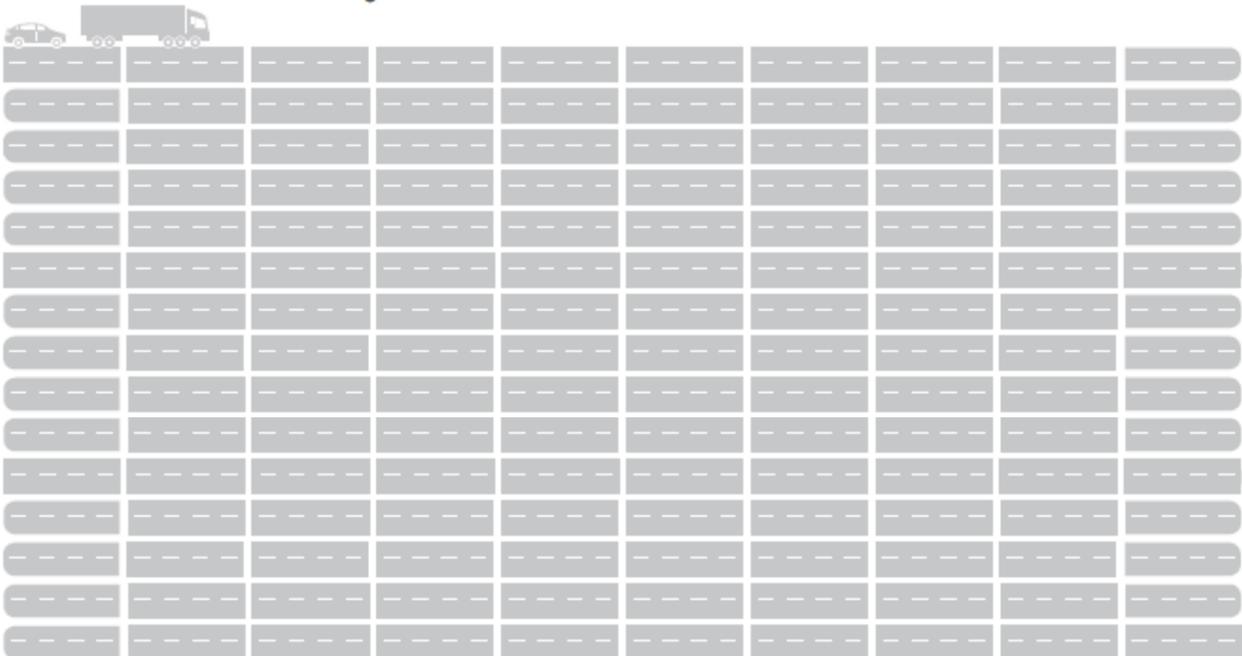
The main reasons were the fact that the long-term focus on a few expensive high-speed lines, especially in the wake of the financial crisis, stunted planning of the new construction and expansion anchored in the Federal Railroad Development Act and several planned new start-ups for expansion projects in the regions, which had been insufficiently discussed for decades – such as the four-track expansion of the Rhine Valley Railway or the seaport interior connection in north Germany.

On

Since the railway reform, an average of **150 times more road kilometres have been completed per week than new railway routes**



Seit der Bahnreform wurden pro Woche durchschnittlich **150 Mal mehr Straßenkilometer als neue Bahnstrecken** in Betrieb genommen



INFRASTRUCTURE

The economic assessment of a large number of projects in 2018, which had been allocated to “Potential Needs”, a new category, in the decision of the Federal Transport Infrastructure Plan and Federal Railways Construction Act in 2016, made the applicable Federal Transport Infrastructure Plan (FTIP) 2030 something that ought to be a thing of the past: a wish list that is financially unfeasible in terms of budgets. However, this is hardly noticeable at present, as the federal government and DB Netz AG have also cut back on the plans. For example, six years after the proposal of a programme for the moderately complex extension of passing tracks to the maximum length of the European freight train of 740 meters, only three of the 75 planned projects have now been initiated. Only a few grid-related commissioning operations are expected to have been started by the middle of the coming decade.

In the medium term, however, a significant increase in funding, in particular for new construction and expansion, is required at an initial level of EUR 3 billion in the first half of the 2020s and beyond. Unlike in previous years, the projects listed in the FTIP are undisputed within the industry. However, the federal government’s decision not to finance “pure” local transport-related infrastructure projects with funds from the Federal Railways Development Act is highly questionable in terms of transport policy. It ignores the fundamentally different organisation of rail infrastructure, in contrast to road traffic, where federal states and municipalities play almost no role. The federal government does not yet have any conclusive answer to the additional needs arising from the political objectives of doubling

passenger traffic and the significant increase in the market share of the railway in freight transport by 2030 in terms of infrastructure. According to the government’s draft budget, the amount of funds will be even lower than in previous years in 2020 and 2021.

Billing chaos caused by DB Energie

The integrated Deutsche Bahn Group and its subsidiary DB Energie GmbH have another infrastructure segment in addition to the rail network and the stations. They control the entire traction current network. But unlike any medium-sized utility company, DB Energie’s roles as an electricity supplier and network operator are not separated under corporate law. The purchase of electricity from another supplier only became politically possible in 2014 due to impending antitrust proceedings.

There is as yet no stable traction current accounting system in place which meets the needs of the complex conditions. There are regular failures to comply with the statutory obligation of the network operator to bill for network usage six weeks after the end of the delivery month. Issued invoices often contain mistakes. The system is faced with particular challenges when it comes to detecting border crossings – from that point, the railway operator of the other country is responsible – or when the operator of a vehicle changes. This is the case, for example, when a rail transport company lends a vehicle to a locomotive rental company or another rail transport company.

Incorrect or extremely delayed invoices lead to considerable audit work for the rail transport companies involved and require

them to set aside provisions. Competing electricity suppliers cannot provide reliable forecasts and therefore need to purchase more balancing energy at a higher cost.

However, the decisive factor is that DB transport companies are not charged using the new system and still rely on the old stable system. The group did not want to move its own group companies to the new, vulnerable system. As a result, all competitors – railway companies and energy suppliers – experience significant disadvantages. An abuse case opened in autumn 2017 by the Federal Network Agency ended in July 2019 with the threat of a penalty payment of EUR 1 million against DB Energie if it fails to comply with the statutory deadlines by November 2019. In the future, the Federal Network Agency wants to prescribe a binding new billing procedure.

20 September 2019
[Resolution of the Climate Cabinet](#)

THE FEDERAL GOVERNMENT PLANS TO ALLOCATE AN ADDITIONAL EUR 11 BILLION BY 2030 TO STRENGTHEN THE EQUITY BASIS OF DB AG.

Equity increase of DB AG

The consequences of a lack of distinction between the monopoly and competition sectors are particularly evident here. The “Climate Cabinet” of the federal government does intend to promote the robustness of the system, i.e. the infrastructure, with the additional equity investment. However, it raises the question of why it does not do so directly, for example by increasing the LuFV III or enhancing the funds for the expansion and new construction work.

The nature of a capital increase in a corporation is that these funds can be freely used by the corporate management. It cannot be ruled out that the total of EUR 11 billion will be used to finance projects affecting the area of competition. For instance, the purchase of new long-distance trains and freight locomotives has already been publicly mentioned. As other railway companies pay for their own vehicles and these are not provided by the federal government, this would represent a massive distortion of competition. It would be a different matter if the federal government procured the vehicles themselves and granted them to the winner of a "competition" for the vehicles or single wagonload traffic tendered in the future. In regional rail transport and freight traffic, there is the concern that DB will be able to calculate their bid prices significantly cheaper due to its equity injection. The government needs to rule out the use of the capital increase to cover cost overruns for Stuttgart 21 or to guarantee the payment of the dividends provided for in LuFV III, as surmised by various experts.

Deutschland Takt as a yardstick for infrastructure planning

The implementation of Deutschland Takt – a national timetable – is now widespread. The vision of interlinking long-distance and local traffic using a much smarter approach with better connections, providing freight traffic with additional capacity and using the target timetable as a basis for further infrastructure development, is expected to make an important contribution to the achievement of climate protection goals. A (provisional) final version of the "Timetable 2030plus" should be available by early 2020. Now is the time to clarify the difficult regulatory issues.

Firstly, it is not sufficient to merely identify the "system routes" in traffic planning. It must also be ensured that trains can then travel on these routes. It is highly likely that international traffic would be of higher priority under the current precedence rules stipulated by European law, which could displace intra-German connections.

Above all, however, it must be ensured that the system routes are actually all covered and that there is sufficient capacity for growing short-term freight traffic. In the order model for regional rail transport, this can be easily implemented by means of corresponding tenders. This has not been the case so far for long-distance rail transport. If it is not profitable to operate a low-passenger long-distance route without subsidies – the argument used by DB to cancel the Interregio connections by 2006 – other incentives are required. This could be achieved, for example, through a significant reduction of the train route price towards the direct costs of the train service.

However, if long-distance system routes are so attractive that several parties are interested in operating the route, there must also be clear rules on who is given the opportunity. This cannot always be DB Fernverkehr, as has been the case in the past. Competitive solutions are possible and necessary to ensure high quality and acceptable costs to the public sector – in this case the federal government – and attractive fares for passengers. In this context, access to rolling stock, especially high-speed trains, needs to be clarified. Only the state-owned company DB AG is currently able to procure such trains, mainly because of the favourable financing conditions that it receives with the creditworthiness of the federal

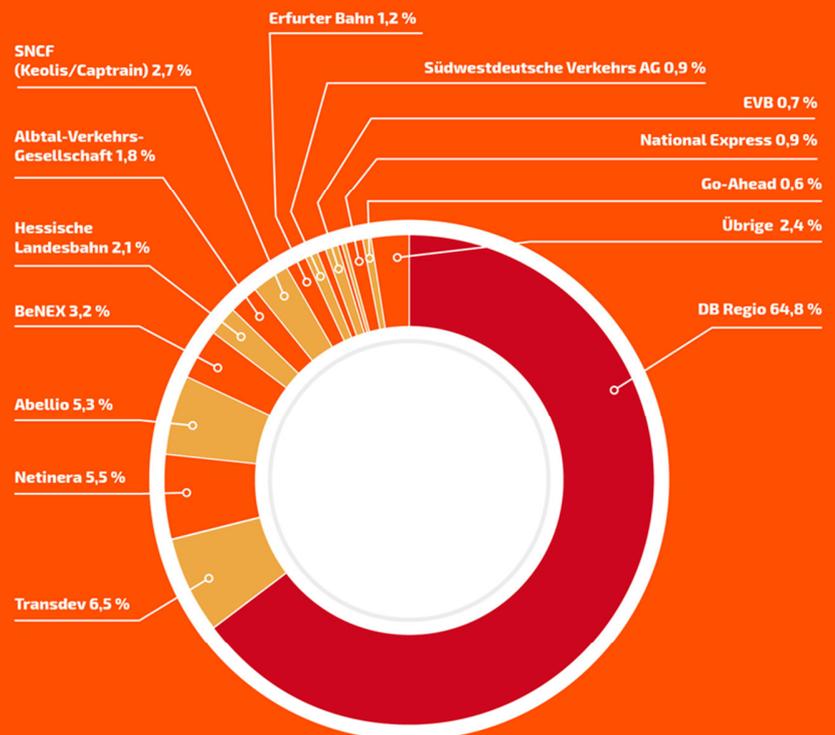
government. Vehicle pool models could be considered here to create a counterbalance, which could provide vehicles to new operators.

Transport requirements:

- **Increase of federal funds for expansion and new construction**
- **Establishment of a rail infrastructure fund instead of an equity increase for Deutsche Bahn AG**
- **Unbundling of DB Energie**
- **Reduction of unjustified intermodal benefits of other means of transport, such as low levels of inspections for regulatory compliance in road transport**
- **Expansion of the infrastructure based on a coordinated Deutschland Takt concept, new FTIP with different goals and different evaluation methodology**
- **Sufficient funding for the infrastructure tasks of inventory network modernisation, new construction and expansion, replacement of existing control and safety technology in the infrastructure and on traction units**
- **End financing loops – the principle of traffic finances traffic**
- **Profit-free operation of infrastructure**
- **Timely review of the Railway Regulation Act**
- **Alignment of train route prices to the marginal costs**
- **Representatives of the competitor railways on the supervisory boards of the (DB) infrastructure companies**
- **Separation of the infrastructure companies from the group and opening of the transport companies of the DB Group to further investors**

PASSENGER TRANSPORTATION

Passenger traffic: Market shares of rail transport companies in regional rail transport in 2019



MORE OPTIONS – FOCUS ON QUALITY

Since the railway reform of the 1990s shifted the responsibility for regional rail passenger transport to the individual states, their transport organisations and railway companies have worked together to significantly expand the available services.

During this process, the contracting authorities were able to redeem a substantial “competition dividend” through competitive awards and acquire more (and qualitatively better) regional rail transport services with fewer

financial resources. As a result of the dynamisation, regionalisation funds also recovered after the decline due to the Koch-Steinbrück paper in 2006/07. The adjustment of regionalisation funds provided a further boost in 2016, in particular for some

western states in Germany. At that time, the distribution key of funds to the 16 states was revised. At the same time, it was ensured that a decline in the eastern states would not take effect until the 2020s, so that the affected states had time to adjust.

Development of operating and transport service

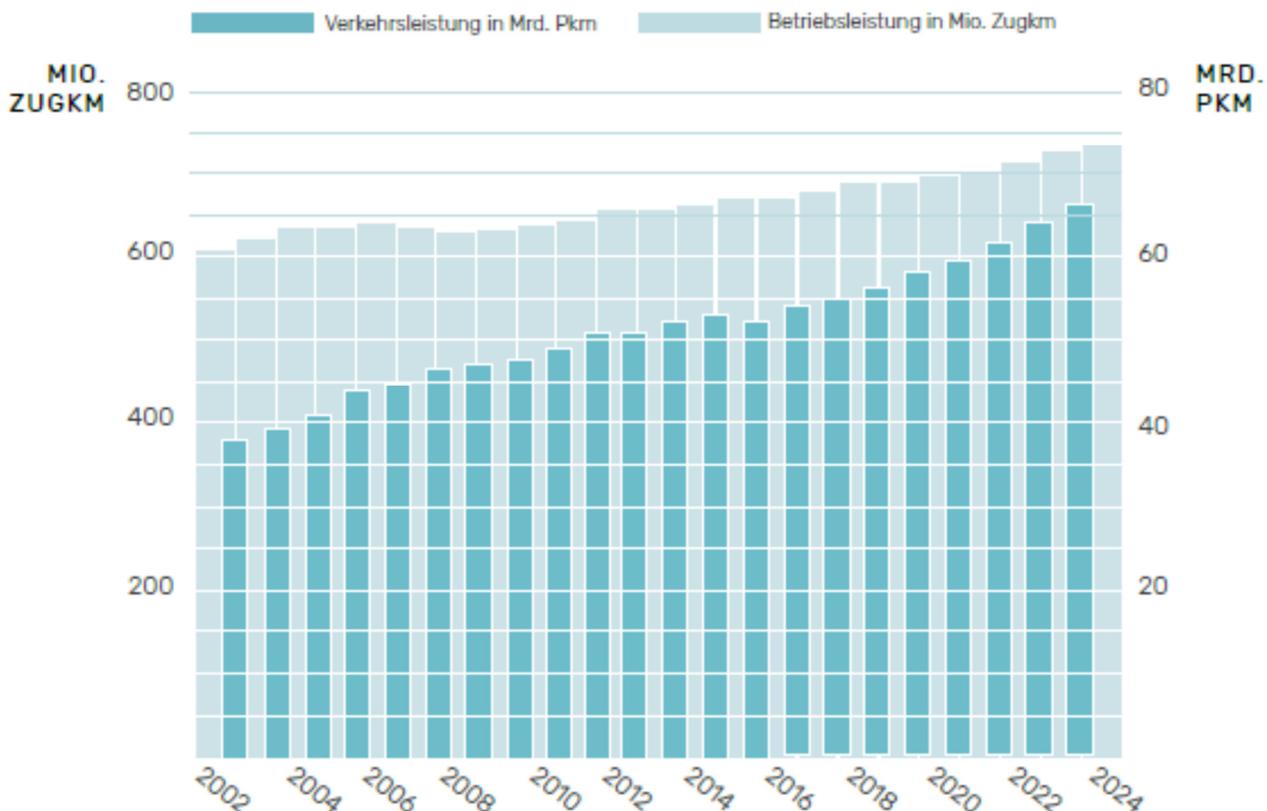
In regional rail transport since 2002 (forecast from 2019)

Transport service in billion p/km

operating service in million train/km

Entwicklung der Betriebs- und Verkehrsleistung

im SPNV seit 2002 (ab 2019 Prognose)



PASSENGER TRANSPORTATION

There were no dips in terms of demand or traffic volume, measured in passenger kilometres. It increased steadily. This shows that contractors and railway companies have effectively developed the supply. If the traffic (demand) increases significantly more than the operating capacity (supply), capacity utilisation will increase. However, this development cannot continue indefinitely. Trains are currently often more than full, especially in metropolitan areas. In the competition among the modes of transport, overcrowding is also an encumbrance. Nevertheless, the modal split of the railways has only risen from 6.5 to 8% since 1991, and for public transport as a whole, the figure has actually fallen from 15.8 to 14.8%.

One of the major challenges for the coming years is the growing

demand for capacity in rail passenger transport – not only because more people live and work in metropolitan areas, but also because rising property prices and rents in metropolitan areas force people to move further away and make their commute even longer. And finally, politicians and the sector have set themselves the goal of encouraging more people to switch to environmentally friendly railway services, as a result of which the modal split is finally changing significantly. From the perspective of passenger transport, many smaller aspects have to be considered in addition to the expansion measures. The capacity of the trains themselves can be increased: longer trains or double-decker trains, where the platforms allow, while passenger information can be improved for faster entry and exit of passengers at the stations. Last

but not least, the stations themselves must create more spacious, new entrances and clear obstacles out of the way.

Tendering competition increases quality and service

However, regional rail transport services since the railway reform have not only “grown in number”, but above all, are now “better”. The old, creaky “Silberlinge” of the sixties and seventies have given way to modern, air-conditioned trains with outstanding passenger information. The operators’ customer satisfaction surveys confirm this trend. Those transport companies in competition received good ratings in these surveys. The increased focus on providing good service is especially praised.

Infrastructure costs in passenger transport

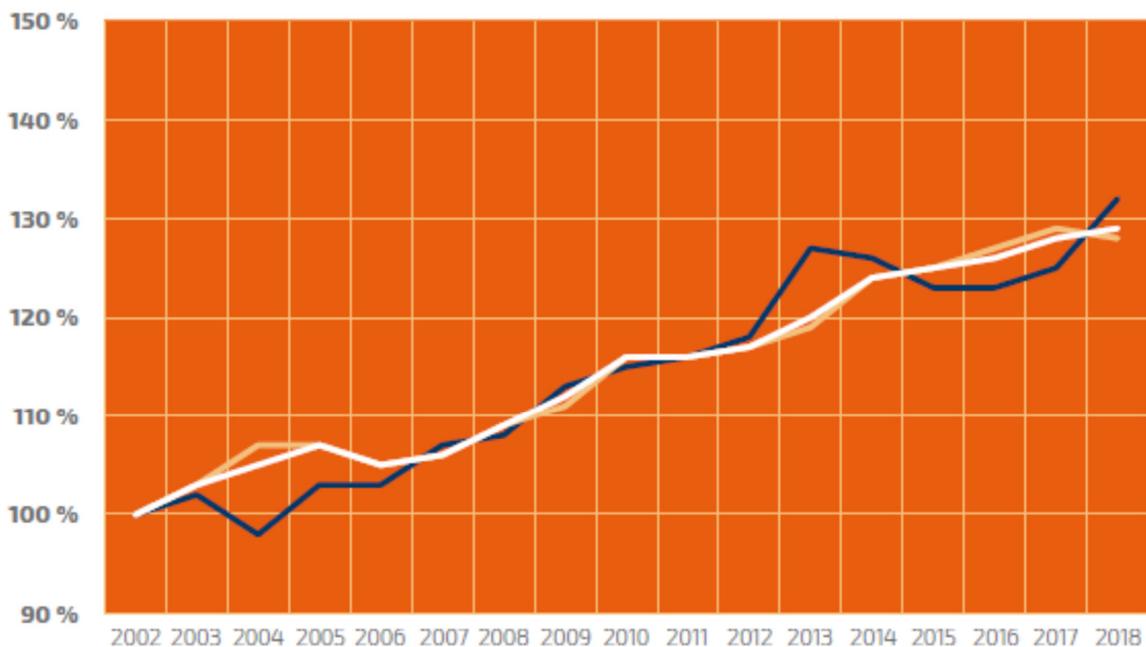
Station fees per train km
In relation to operating service, 2002 = 100

Infrastrukturkosten im Personenverkehr

in Relation zur Betriebsleistung, 2002 = 100

Route fees per train km
Total (weighted)

■ Stationsentgelte je Zugkm
■ Trassenentgelte je Zugkm
□ Summe (gewichtet)



Prior to the entry into force of the Railway Regulations Act (ERegG) in the summer of 2016, the “cap on train route price increases” in Section 37 (2) ERegG was subject to intense discussion. In the years before, the regionalisation funds gradually fell in value, as the infrastructure usage costs had risen far beyond the dynamisation. Operators have generally ordered fewer services, as an increasing proportion of service charges needed to be passed on as continuous items by the rail transport companies to DB Netz and DB Station&Service. The cap on train route price increases was introduced shortly before the legislative decision was made and has since linked the increase in the costs of train routes and station stops in regional rail transport to the dynamisation of the regionalisation funds, thus setting it at 1.8% pa. This does not include stations for which separate financing agreements have been concluded with states or municipalities. It is evident that the infrastructure costs have continued to rise briskly since 2016. Although the increase in train route prices has been contained during the past few years, station fees have increased even more rapidly.

Market share of the competitor railways continues to increase

Particularly since the turn of the millennium, the market share of non-federal railways, i.e. railway companies competing with Deutsche Bahn, has increased significantly in regional rail transport. Although the share of services operated by competitor railways was only 8.2% in 2002, it had increased to 21.1% by 2010. This year, in 2019, it will be around 36%, before exceeding the 40% mark for the first time in 2020 and growing to 45% by 2024. This development can be predicted relatively reliably due to the competition procedures which have already been decided.

In comparison, the development of traffic performance measured in passenger kilometres (p/km) is lagging behind. Here, the share of competitor railways was only 3.9% in 2002, rising to 13.6% in 2010 and is almost exactly 25% in 2019. The market share of competitor railways, measured in train/km and p/km, is expected to continue to converge in the coming years. Historically, the difference is due to the fact that the operators tended to make the

first competitive allocations on less frequently used secondary routes. The strong Regional Express routes were then gradually introduced into the competitive market. DB has done everything possible to prevent the particularly high-volume S-Bahn networks, above all Berlin, Hamburg, Munich, Cologne, Rhine-Main, Stuttgart and Nuremberg, from being awarded to other companies – and it is continuing to do so.

The term “competitor railways”, which refers to all railway companies that are not part of the DB Group, is a mixed bag: it includes municipal or public rail transport companies that have existed for a long time and have expanded from their home base after regionalisation and liberalisation. Examples of this include the Albtal traffic company or the Erfurt railway as a municipal

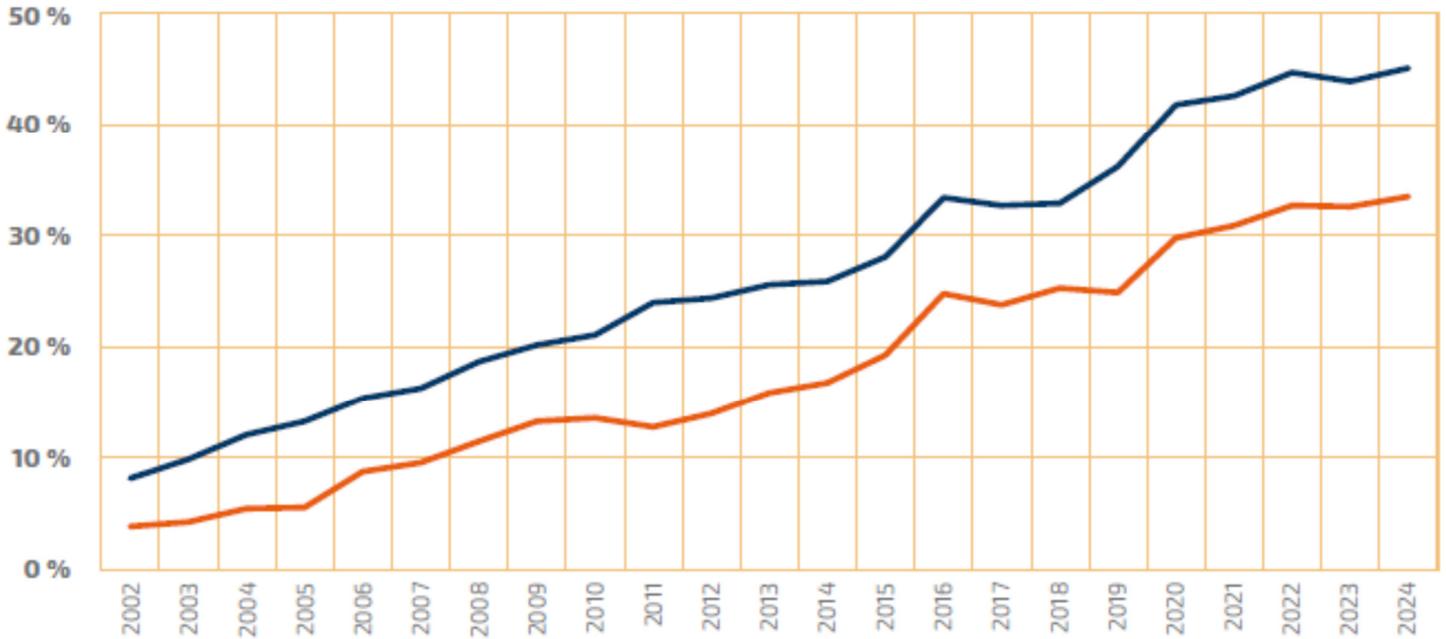
**THE MARKET SHARE OF THE
COMPETITOR RAILWAYS
IN OPERATING PERFORMANCE
WILL GROW TO 45% BY 2024.**

**Market share of competitor railways
on the basis of operating and transport performance**

Proportion of competitors in train/km
Proportion of competitors in p/km

**Marktanteile der Wettbewerbsbahnen
nach Betriebs- und Verkehrsleistung**

■ Anteil Wettbewerber in Zugkm
■ Anteil Wettbewerber in Pkm



company or SWEG and Hesse state railway as a state company. Then there are subsidiaries of foreign state-owned railways such as Abellio (Netherlands), Netinera (Italy), Keolis (France) or, somewhat smaller, VIAS (Denmark). Finally, there are companies owned by large institutional investors (Transdev) and purely private, listed companies (National Express, Go-Ahead).

DB Regio and its subsidiaries will continue to maintain their top position in the coming years. There will be some "climbers" in the following areas: Abellio will significantly increase its market share in Baden-Württemberg and North Rhine-Westphalia, the latter by taking over some lines of S-Bahn Rhein-Ruhr. As a result, Abellio will reach a market share of about 7.6% and thus the level of Transdev, which in turn can look forward to the acquisition of

S-Bahn Hannover. Two other "climbers" are National Express with further services on the RRX lines in North Rhine-Westphalia and Go-Ahead. The company has now won a total of five transport contracts in Baden-Württemberg and Bavaria, which will be operational in the coming years.

So all is well in regional rail transport? Not necessarily, as the high number of contracts awarded directly in the past two years is striking. Many of these were small allocations in secondary networks. But they also included the major "interim assignments" of the S-Bahn networks in Berlin and Munich.

Nevertheless, several very interesting networks are set to be re-awarded in the coming years, some of them for the first time in competition. Although the competition model in regional rail transport has been tried and

tested in principle, it still needs to be further developed. In the first few competitive contracts, the contractors were able to consistently achieve better quality and more performance at lower costs. They generated a remarkable competitive dividend for the public sector and for passengers. Meanwhile, many of the transport contracts have been awarded for the second time. In some cases, there have been further cost reductions – but these are often accompanied by a loss of quality. The reasons are manifold; the inadequate quality of the infrastructure, the density of traffic and frequent problems, especially with new vehicles, are the most important factors. Staff shortages are an additional problem that has already resulted in shortfalls in some regions.

The tendering practice of the past few years has caused some

issues, with the operators making more and more detailed specifications. The award decision ultimately falls almost exclusively in favour of the offer with the cheapest price per train kilometre. In the future, however, the expertise of the transport companies must once again be utilised to a greater extent and quality criteria and the innovative year 2017 must counter the principle of competitive tendering through massive political interference. Berlin's S-Bahn alone accounts for over 5% of the total German regional rail transport market. Contract extensions have also been agreed with the S-Bahn railways in Stuttgart and Nuremberg and new assignments have been issued to DB Regio, without this having been necessary. The intention of expanding the approach of directly awarding rail systems for urban and surrounding areas (such as Karlsruhe) on the basis of the construct of a "group of authorities" consisting of the

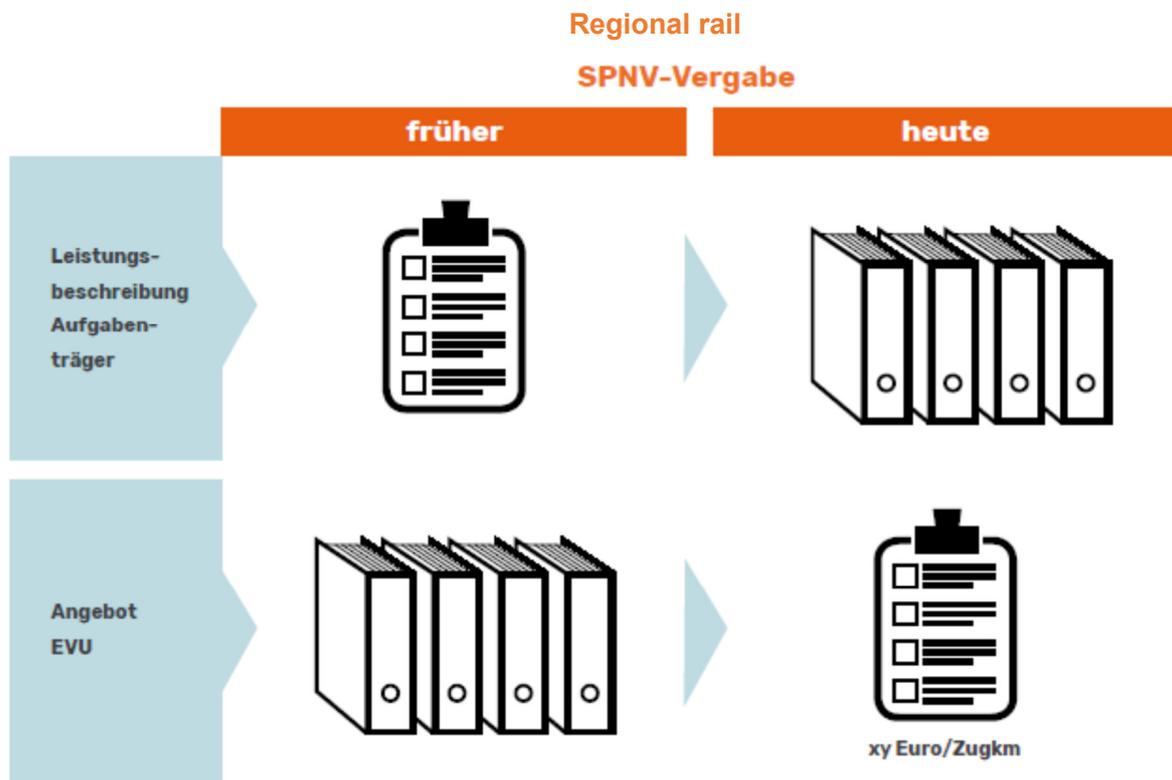
federal state and local authorities, i.e. the municipal award model (usually directly awarded to the municipal company), so that it also includes the inseparably connected regional rail transport, is also highly problematic. This would also noticeably reduce the competitive market.

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Although the competition model in regional rail transport has been tried and tested in principle, it still needs to be further developed. In the first few competitive contracts, the contractors were able to consistently achieve better quality and more performance at lower costs. They generated a notable competitive dividend to the public sector and passengers. Meanwhile, many of the transport contracts have been awarded for the second

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Still almost no competition: long-distance transport

The situation in long-distance passenger transport is quite different: There is still no noteworthy competition, as DB Fernverkehr still accounts for more than 99% of the traffic. However, night traffic has been established by Austrian Federal Railways (ÖBB) and is growing slightly. Flixbus, the train subsidiary of Flixbus, has also established itself as a new company on the market in the past two years, which clearly sets itself apart from the previous market entry attempts in the long-distance transport market. The company is trying to build a combined network for long-distance bus and long-distance train services. It does not have any trains of its own and leases locomotives and wagons from other rail transport companies, therefore acting as something of a "purchaser" itself. **It essentially occupies marketing and traffic planning as parts of the value chain and leaves the other parts to service providers in a similar way to the bus sector.** The

company has further plans for expansion beyond the existing routes (Hamburg-Cologne, Berlin-Cologne, Berlin-Stuttgart).

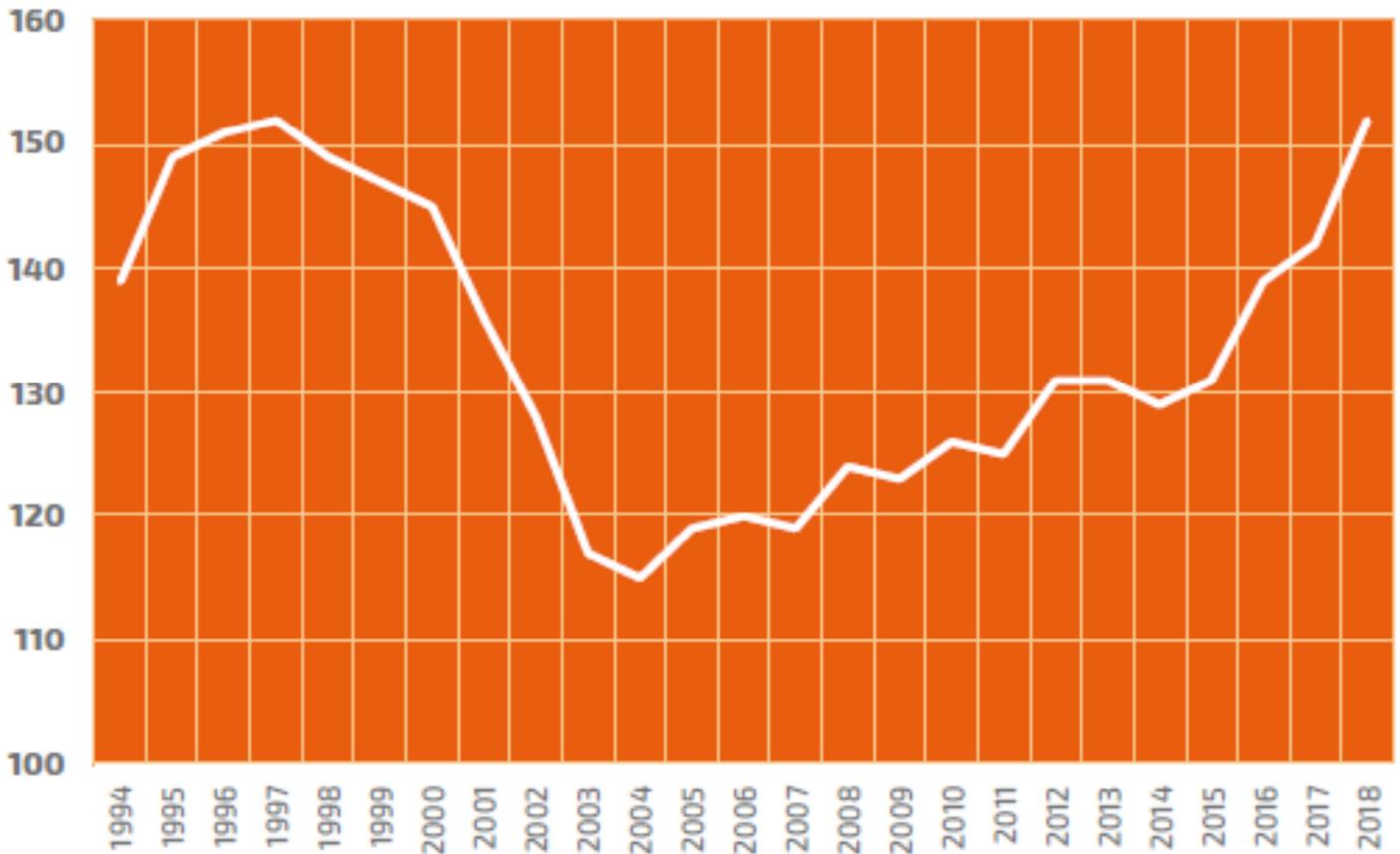
Although demand in regional traffic is steadily rising, the situation in long-distance transport, which is characterised by the monopoly supplier DB Fernverkehr, is different. There has been no correction in this market by a purchaser nor (so far) by any substantial competition. Contrary to what the "passenger records" have suggested in recent months and years, long-distance traffic has experienced ups and downs. A boom market in the 1990s, marked mainly by the new high-speed routes and the introduction of the ICE, was followed by years of massive failures at the turn of the millennium. The austerity programmes of the 2000s resulted in an unsteady fare policy and the elimination of the (supposedly) economically unproductive IR traffic led to a drastic fall in passenger numbers using long-distance transport. The level of 1997 was not reached

again until last year 2018! Nevertheless, the increase in passenger numbers in long-distance transport during recent years is very notable when compared to developments in the long-distance bus sector. Although long-distance buses were previously only permissible on cross-border routes and to and from Berlin during the time of German separation, the market was liberalised on 1 January 2013. However, the concern that cheap long-distance buses would leave trains empty has not materialised. There was a small drop in numbers, but this had disappeared by 2016 at the latest. At the same time, the number of long-distance bus passengers has stabilised at a level of around 23 million per year. The long-distance bus market has consolidated strongly after just a few years: Flixbus has a market share of well over 90%. "Predatory pricing" has fallen significantly. At the same time, however, DB long-distance traffic has taken up the fight and significantly increased the number of saver and super-saver tickets.

Long-distance passengers per year in millions

SPFV-Fahrgäste pro Jahr

in Mio.



This is not good news for the regional rail transport companies in the pre-carriage and post-carriage of these long-distance transport connections as well as the relevant authorities responsible for gross traffic contracts. They are required to

recognise the tickets with the reduced fare, but also receive a significantly lower share of the proceeds as there is less to distribute. In some cases, the savings on long-distance travel are lower than the regional tariffs (C price of rail tariffs or network

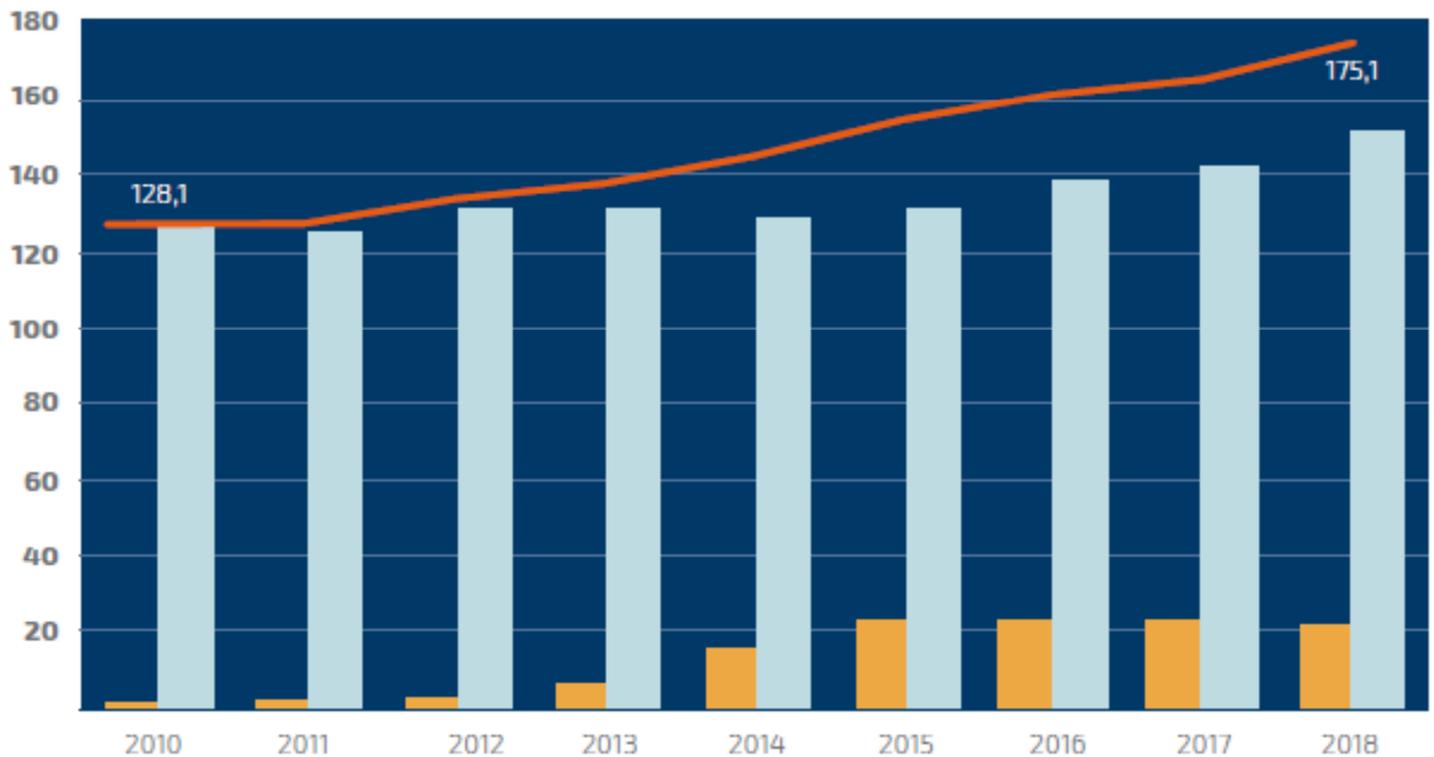
tariffs). Overall, the current structure in which the DB tariff is merely "applied" as the "rail tariff" by the other rail transport companies, is no longer up to date and needs to be replaced by a standardised cross-company rail tariff.

Passengers in long-distance traffic in millions

Long-distance bus passengers
Long-distance rail transport passengers
Total long-distance traffic

Reisende im Fernlinienverkehr in Mio.

Fernbusreisende
SPFV-Reisende
Summe Linienfernverkehr



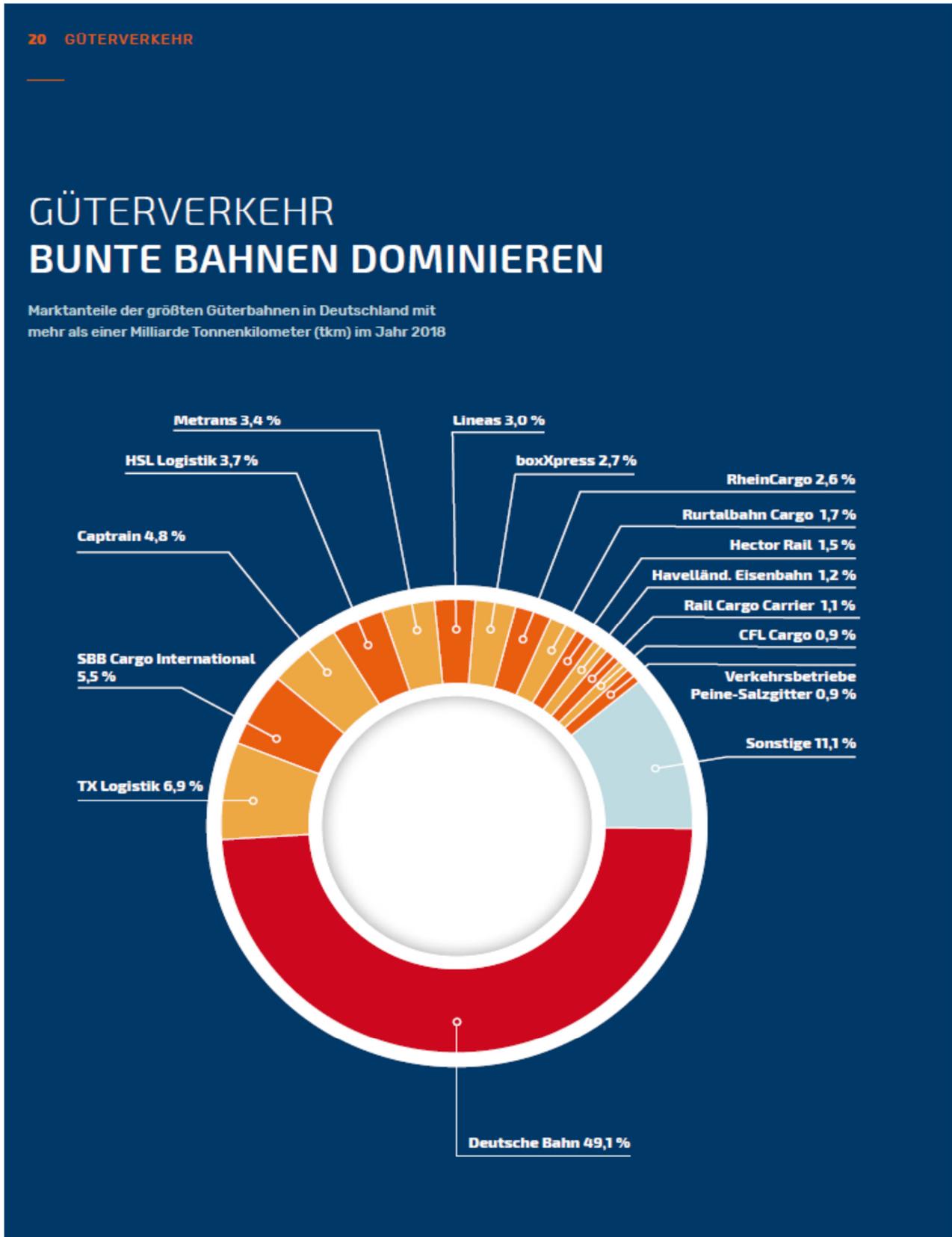
Transport requirements:

- Allocating regional rail transport consistently in competition
- Aligning the competition model in regional rail transport back towards quality goals
- In particular, achieving appropriate risk distribution between the responsible authorities and the rail transport companies, especially for personnel and infrastructure
- Gradually introducing the competition model to long-distance rail transport within the context of Deutschland Takt

FREIGHT TRAFFIC

DIVERSE TRAINS DOMINATE

Market shares of the largest rail freight companies in Germany with more than a billion tonne kilometres (t/km) in 2018



FREIGHT TRAFFIC

Rail freight performs strongly in the area of building materials, although the transport of power station coal is in decline. At any rate, it is not possible to identify an energy or transport transition from the extensive rail transport of road and air transport fuels. Rail freight traffic experienced a minor boom in 2018 as a result of the continued low water level in the high-revenue Rhine catchment area. On the whole, experts commissioned by the Federal Ministry of Transport estimate the growth of rail freight transport to be modest in 2018 and estimate that transport performance will only be 1.1% higher than in 2017. A decline is even expected in 2019, which the experts primarily attribute to declining steel production and traffic shifting back to inland waterways. This argument is not completely convincing when looking at the developments in the steel industry and the renewed low-water situation, which is slightly less severe, as well as in light of the feedback from the competing railways. Not

According to the Federal Network Agency and the Federal Ministry of Transport, rail freight traffic rose to a good 129 billion tonne kilometres in 2017. This is despite the fact that the seven-week closure of the Rhine Valley Railway caused significant delays following the accident on the Rastatt Tunnel under construction on 12 August 2017. According to the survey, the increasing average transport distance continues to be the driver, rather than the transport volume which is already declining slightly. The trend away from bulk goods, specifically heavy goods, towards lighter transports in combined transport, in addition to motor vehicles and parts, is particularly evident here. The key metric "tonne kilometres" is

increasingly being questioned as it does not effectively represent the change in the transported goods. Discussed alternatives such as turnover, train kilometres and the value of goods, however, also have conceptual weaknesses or are not even collected at present. Moreover, the trend is not consistent in the transport of heavy goods. The continuing construction boom is also bringing

Rail freight transport continued to grow in the reporting period. This seems indisputable, although the information about the scale of growth has been inconsistent for a long time, even with the two authorities conducting primary surveys among railway companies, and uncertainties remain as to whether the information is complete.

Market shares of the largest rail freight companies in Germany with more than one billion tonne kilometres (t/km) in 2018

LIMITED MOVEMENT IN INTERMODAL COMPETITION

The appraisers mentioned the considerable difficulties experienced by DB Cargo AG in fulfilling their allocated contracts. Staff shortages, a lack of resources and IT issues seem to be the main reasons for this and, despite improved framework conditions, may have resulted in the railway being unable to fully exploit its potential in the transport market. Traffic was likely to have been higher than expected.

No movement in the road/rail ratio

There has been hardly any intermodal changes to the situation, with rail growing at the same average rate as the freight

transport market as a whole; but above all, roads are handling more and more traffic and increasing their share. According to federal government experts, the growth of road traffic was 3.3% in 2018. The percentage growth itself was therefore three times as high as that of rail freight transport. Based on a road market share of around 72%, absolute road traffic has therefore increased by ten times the volume of growth in rail. According to the experts, rail's market share in freight transport remained at 18.5% in 2018.

Contrary to long-term policy objectives, a modal shift from road to rail has only occurred in individual cases. The losers in the market tend to be inland waterway vessels. The slight economic slowdown in Germany is not reflected to the same extent in freight transport by rail in 2019. Federal government experts expect growth in the total market for freight transport of 1.2% in 2020. They forecast a further increase in the market share of road transport and a decline of the rail share by 0.4%.

The freight transport market is still a long way from a traffic transition, even if the experts are right and rail freight only grows at the same approximate pace as the rest of the market in the future. Road traffic continues to grow intermodally towards "three quarters" of transport performance – with all the negative side effects such as the heavy use of infrastructure, further increasing CO₂ emissions, high accident rates, comparatively low compliance and, especially in the case of foreign companies, low social standards and negative aspects such as shut-off emission control systems and brake assistance systems.

Share of DB freight railways falls below 50%

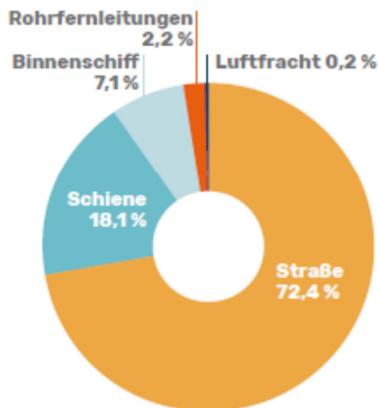
According to the latest available survey by the Federal Network

Agency, the "intramodal" market share of competitor railways was 47% in 2017. Competitor railways grew intermodally in 2018 and also appear to continue this growth

during the year of crisis. Their market share exceeded the 50% mark in 2018 and is expected to rise in subsequent years.

Forecast of intermodal market shares in 2019 (Intraplan on behalf of the BMVI)

Prognose der intermodalen Marktanteile 2019 (Intraplan im Auftrag des BMVI)



Return on sales of all railway companies in rail freight traffic (2014 – 2016, in %)

Umsatzrentabilität aller Bahnunternehmen im Schienengüterverkehr (2014 – 2016, in Prozent)



Return on sales The competitor railways in rail freight traffic (2014 – 2016, in %)

Umsatzrentabilität der Wettbewerbsbahnen im Schienengüterverkehr (2014 – 2016, in Prozent)



The Federal Network Agency has stated that turnover in rail freight transport for 2017 in Germany amounted to EUR 5.7 billion, i.e. only a slight increase compared to EUR 5.6 billion in the previous year. This is also likely to be the case in 2018, not least because of the federal government's funding of train route price payments in the second half of the year. The specific revenues of the

competitor railways rose slightly in 2017, as did the consumer prices (by 0.4%). While DB Cargo AG slid deeper and deeper into the red despite or because of some aggressive pricing policies, competitor railways appear to have continued to achieve a low but stable return. However, figures from the full survey of the Federal Network Agency are only

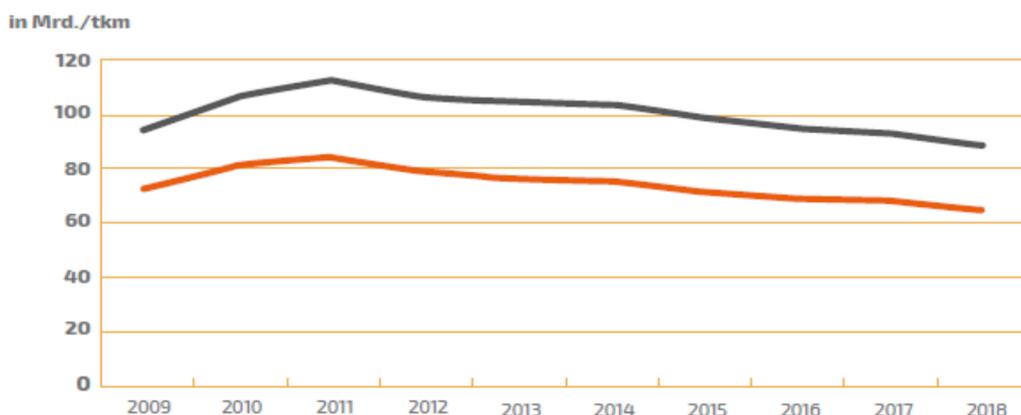
available up to 2016. The economic momentum at DB Cargo is becoming increasingly dramatic; in 2018 the EBIT was – EUR 190 million, and many observers are expecting even worse figures for 2019. While DB Cargo's operations in other European countries was the main driver of the deficit in previous years, the fall in earnings is increasingly also affected by traffic in Germany, which has been declining since 2011.

Transport performance of DB Cargo

Transport performance [billion t/km] of which in Germany [billion t/km]

Verkehrsleistung der DB Cargo

Verkehrsleistung [Mrd. tkm] davon in Deutschland [Mrd. tkm]



The poor economic performance of DB Cargo AG has affected politics and society in such a way that all rail freight traffic is incorrectly assessed as irreparable or treated as a phase-out model. The federal government and DB have worked closely together in recent years in various areas where public support programmes appeared to be of special benefit to the struggling DB Cargo business, particularly with the aim of boosting route and plant prices, implementing new incentives to increase energy efficiency, promoting innovation and also using hybrid drives. Most recently, DB introduced the idea of the permanent subsidisation of this production system into the political discussion by providing a report on the future of wagonload traffic, which was assessed as a deficit driver. Exclusive direct funding of wagonload traffic, which is operated to a considerable extent by DB Cargo AG alone, is practically inconceivable without discrimination. The alternative of tendering for partial services, particularly for the chemical and metalworking industry and also for the desired growth, was presented during the debate from the ranks of the competitor railways. In a similar way to regional rail passenger transport, efficiency and innovation could be better supported by competitive railways than by subsidisation, which would require both tough cuts and technological stagnation.

Diversified train market

The number of companies in the German market has stabilised at a high level. Capable railway companies from neighbouring countries, such as the Belgian Lineas or companies from Poland and Austria, have particularly intensified their activities. The

rank order of the largest rail freight companies in Germany once again changed slightly in the reporting period. But above all, it remains to be noted that half a dozen companies behind the three front runners TX Logistik, Cap-train and SBB Cargo International provided a relatively homogeneous group in terms of their traffic performance. Company takeovers are still rare; most competitive railways are growing organically. The significance of the shortage of skilled workers, especially train drivers and technical staff in vehicle servicing, increased considerably during the reporting period and the shortage of skilled workers is the most important obstacle to growth. The wave of additional free time, which was in particular triggered by collective bargaining agreements with Deutsche Bahn AG, has further aggravated the staffing requirements. Furthermore, the shortage of staff, with and without the inclusion of attractive collective bargaining agreements, has also led to a significant increase in personnel costs.

The training of internal staff has increased noticeably and the question of how to avoid, or at least financially compensate for, the costly mutual poaching of long-term skilled workers and newly trained employees has often been discussed as a result. Agreements to reimburse training costs are being prepared.

Barely any drive towards modernisation

With regard to the other factors relevant to success, the persistently weak performance of the infrastructure is striking. Furthermore, the few truly fundamental modernisation measures stand out, as well as the closing cost gap of some infrastructure usage charges

between road and rail, the persistent great scepticism of many shippers and political decision makers towards the railways and, in contrast to the intensive discussions at a political level, how rail can be strengthened in the transport market in order to relieve the burden on the roads and achieve climate protection goals. Behind this, the federal government as owner and the DB company management are very keen for DB Cargo and DB as a whole to make a profit, which is hardly surprising. The "Rail Freight Traffic Masterplan", presented in June 2017 by the former Federal Minister of Transport, Alexander Dobrindt, and has been widely praised, although only the train route price support has been implemented as a short-term effective measure. Other projects, such as accelerated track electrification, have made no progress during the reporting period and are likely to fail due to a lack of federal funds in the following years. An example of this is the Cabinet's decision to lower the budget for the construction and expansion of the route network from EUR 1.64 to 1.52 billion in the federal budget for 2020.

The federal government laid the foundations for a Rail Future Alliance and a Rail Masterplan in the coalition agreement agreed in 2018. An essential change consisted of the Parliamentary State Secretary in the BMVI, Enak Ferlemann, who was also entrusted with the function of "Rail Commissioner" as a result of the coalition agreement, making it clear that rail's market share in freight transport would increase to 25% by 2030 as a result of the policy of the federal government. The adaptation of political instruments to achieve this goal – the Federal Transport Infrastructure Plan only predicted

a market share of rail of an almost unchanged 18.3% – continued for the whole year in 2019. It is unclear whether it will prove to be a success.

Energy cost increase for the most climate-friendly means of transport

The largest cost block on average for rail freight transport, along with the significant increase in personnel costs, is mainly energy costs. Although it was possible to compensate for the rising costs of levies and network usage charges with the dampening effects of the comparatively low price of procurement until 2017 and the largely constant cost burden for the almost exclusively electric rail freight transport network, trucks benefited from a historically low level of diesel prices

until the beginning of 2017. This was combined with stable low mineral oil taxes and exemption from levies associated with climate protection and the energy transition, which in turn make up the bulk of the charges in rail freight transport.

In 2018, the EEG surcharge fell slightly for the first time, and the strain of rail network charges, which had risen significantly in previous years, was noticeably relieved as a result of the Network Fees Modernisation Act (NeMoG). While the EEG surcharge fell again in 2019 and is unlikely to change much in the next two years, the network charges relating to traction current have again climbed above the inflation rate in 2019. The tightening of European

emissions trading due to a reduction of emission allowances has also had an impact on the costs of the fossil element of traction power generation, as the costs have recently risen from under EUR 6 in some cases to around EUR 25. Since the spring of 2016, electricity procurement costs have risen on the electricity exchange, so that rail has also had to cope with rising energy costs. The development of diesel prices, however, also showed a steady upward trend during the same period, so that the relative burden on the two most competitive modes of transport is likely to have changed only slightly. In the future, this trend is likely to continue without strong state intervention, with rail as a whole enjoying a relative advantage due to its significantly lower specific energy consumption.

Greenhouse gas emissions in freight transport

Figures in grams per tonne kilometre, 2017

Treibhausgasemissionen im Güterverkehr

Angaben in Gramm pro Tonnenkilometer, 2017



CO₂, CH₄ und N₂O angegeben in CO₂-Äquivalenten. Umweltbundesamt 2018

In September 2019, the Climate Cabinet announced key points for CO₂ pricing, the entry level of which would mean a diesel price that is about three (3) cents higher, which could rise to ten (10) cents by 2025. This measure is not expected to include a relevant incentive to change logistics concepts and the official objective of strengthening rail, even in combination with further projects of the Climate Cabinet.

Important step for infrastructure costs

Another important cost factor – and the most varied among the modes of transport – is charges for the use of infrastructure. After many years of falling truck tolls, they increased by approximately 50% on 1 July 2018 to approximately 18–19 cents per kilometre due to the inclusion of all federal highways. The average increase announced by the

Federal Association of Forwarding and Logistics was, for example, almost 53% higher in 2019 compared to 2018 for general cargo traffic. However, due to the much smaller share of tolls in terms of total costs compared to rail (4.4% after the toll increase), this very high one-off value only made itself felt with an overall cost increase of 1.6% in this market segment. The cost effects per shipment are on average less than one percent.

The fact remains that, unlike in rail freight transport, only a small part of the road network – now 5.7% instead of previously 1.9% – is tolled at all. Not only is 100% of the rail network subject to a toll, but the less frequently used connection routes are particularly expensive. Other systematic

differences, for example the removal of vehicles from service overnight (rail: always, trucks: sometimes), tend to be more expensive in rail freight transport compared to transport by truck. In rail freight transport, track charges were close to 20% of the total costs for a long time. Toll

exemptions for green trucks, which have been in place since 2018 and have been provided for in the 2019 climate protection package, are once again distorting fair competition, even though they have had little impact in practice so far.

Development of freight traffic

Transport performance within Germany in billion t/km

Source: Intraplan on behalf of the BMVI, 2019

Entwicklung des Güterverkehrs

Verkehrsleistung innerhalb Deutschlands in Mrd. tkm

Quelle: Intraplan im Auftrag des BMVI, 2019



Unclear train route price signals put a strain the market

The grand coalition has initiated a significant reduction in train route charges on the federal network with the coalition agreement. In 2017, the Federal Network Agency only rejected DB Netz AG's train route price increases on one

occasion for the majority of freight traffic and ordered a 5% lower price for standard freight trains. The development of the approved train route prices, however, followed DB Netz AG's objective to demand an average annual increase of 2.4%

from its customers. In contrast to the announcement of former Federal Transport Minister Alexander Dobrindt, the Railroad Regulation Act has therefore not helped to reduce train route access charges.

Deutsche Bahn has filed an action with the Administrative Court against the decision of the Federal Network Agency of 2017. Just over two years later, there has still been no trial at first instance, which means that each year, freight railways need to create higher provisions and postpone the financing of investments. Meanwhile, more than EUR 100 million of potential additional claims also need to be taken into account. Just like a pressure cooker, it is

clear that moving away from the tried-and-tested civil law legal action of the Railway Regulation Act was a mistake.

Relief was granted only for rail freight traffic after several attempts in the form of a train route price subsidy offset by DB Netz against the respective train route price. A federal subsidy amounting to EUR 350 million per year for journeys on the federal

railway network was adopted for this purpose with effect from 1 July 2018. This sum reduces the cost burden related to train route prices for railway companies by around 50%, which has since improved competitiveness compared to road transportation. However, funding is initially limited to five years. The effects in the transport market are currently difficult to assess due to many impact factors and statistical uncertainties.

Route charge for standard freight trains

in euros per train kilometre and average increase

Trassenentgelt für den Standard-Güterzug

in Euro je Zugkilometer und durchschnittlicher Anstieg

Fahrplanperiode	Antrag DB Netz	Genehmigung BNetzA
2017/18	2,98	2,83
2018/19	3,06	2,91
2019/20	3,13	2,98
2020/21	3,21	?
Preisanstieg 2017/18 <> 2020/21 p. a.	2,448 %	2,549 %*

*bis 2019/20

Freight railways and their customers also expect a greater service focus from DB Netz's own company DUSS GmbH and other container terminal operators. The most important solutions for the rapid improvement of combined transport have been identified in a collection of 14 suggestions for improvement under the auspices of the Federal Ministry of Transport. There is a strong focus

on the state funding of available space, technical upgrades (automation and control technology, extension of the tracks, etc.), expenditures for the acquisition of crane-able trailers and replacement investments, including investments for the repair of tracks. The digitisation of terminals was also identified with the introduction of a data standard for all process

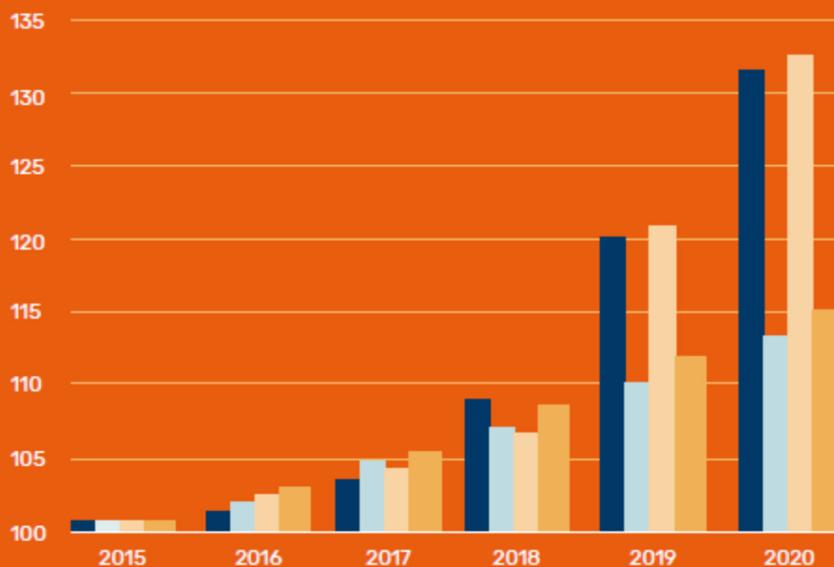
participants and a subsequent optimised slot management system. Continuous 24/7 operation is also recommended to make combined transport more economical. The federal government should also promote positive marketing for combined transport and the transfer of knowledge in educational and research institutions.

Transport requirements:

- Grid expansion based on the goal of doubling the train kilometres in rail freight transport by 2035
- Additional capacity and reduction of maintenance outages due to implementation of Deutschland Takt
- Permanent lowering of train route prices and expansion to non-federal routes and facilities
- Tendering open to companies for individual service elements of wagonload traffic
- Extension of the truck toll and avoidance of any new benefits for trucks relating to infrastructure usage charges
- Massive innovation drive for the technological modernisation of rail freight transport
- Orientation of the level of monitoring for road transport towards the efficiency of railway controls
- Coordination of the development and standardisation of transport vessels including below the standard container
- Rail as a backbone for modern city and other logistics concepts for small-volume goods
- Reactivation and upgrading of track connections, terminals and charging points to acquire more cargo for rail
- Comparable conditions for the construction and operation of rest areas (trucks) and parking facilities (rail)
- Strengthening of the role of short-term freight traffic in timetable creation

LABOUR COST DEVELOPMENT
INDICES OF THE FEDERAL STATISTICAL OFFICE
VS. SPECIFIC RAIL TRANSPORT COMPANY VALUES

ARBEITSKOSTENENTWICKLUNG INDIZES DES STATISTISCHEN BUNDESAMTES VS. KONKRETE EVU-WERTE



RAILWAY COMPANIES ARE FOCUSING ON FUTURE FACTORS

Personnel is urgently needed everywhere. Train drivers have been classified by the Federal Employment Agency as a bottleneck occupation for a number of years. In the past two years, however, the search for good staff has once again intensified. Train drivers are now the most difficult job to fill in the market with 23 applicants for 100 positions. Deutsche Bahn AG expects around half of its train drivers to retire in the next ten years. The situation is not much different for the competitor companies. In regional rail transport, some regular routes have been cancelled due to an acute lack of staff.

All transport companies have intensified their efforts to attract young talent and are investing in training – including for career changers – at levels far above any previous estimations. Many rail transport companies have begun to extend their feelers abroad, increasingly outside the EU. Some workers have even been recruited from Vietnam.

In order to avoid a situation where companies train individuals who are then recruited by other rail transport companies as soon as they have passed their exams offering “joining bonuses”, training alliances have already been established in several federal states, which ensure that if staff switch from one rail transport company to another, their training costs will be reimbursed proportionally. This recognises that training is an industry responsibility that individual companies cannot avoid. The earning potential has increased significantly by approximately 50% in the past 10 years. Faced with staff shortages, the unions have a strong negotiating

position and have been able to negotiate significantly improved conditions for their employees. This has led to certain problems, especially in regional rail transport. Price adjustment clauses for labour costs are included in the long-term transport contracts (up to 15 years). However, these are based on official indices that do not reflect the regional rail transport market. In particular, the indices “only” contain the monetary components of the collective agreements, i.e. increases in the scale wages and structural changes to remuneration (higher-level groupings, for example). However, they do not cover working time reductions, holiday leave extensions or changes in what counts as working time (e.g. set-up times). In particular, elective models between money and free time are not considered. But these agreements, which increase demand at a time when there is already a lack of available staff, are particularly problematic.

The dramatic situation is illustrated in the chart, which compares the development of the Federal Statistical Office’s index with the actual wage cost development based on an example rail transport company. For rail transport companies with long-term obligations, there is a risk that the existing low contract margins may turn negative, as it has not been possible to calculate the increased labour costs and there is consequently no compensation mechanism. Finding this balance is therefore essential for the stability of regional rail transport.

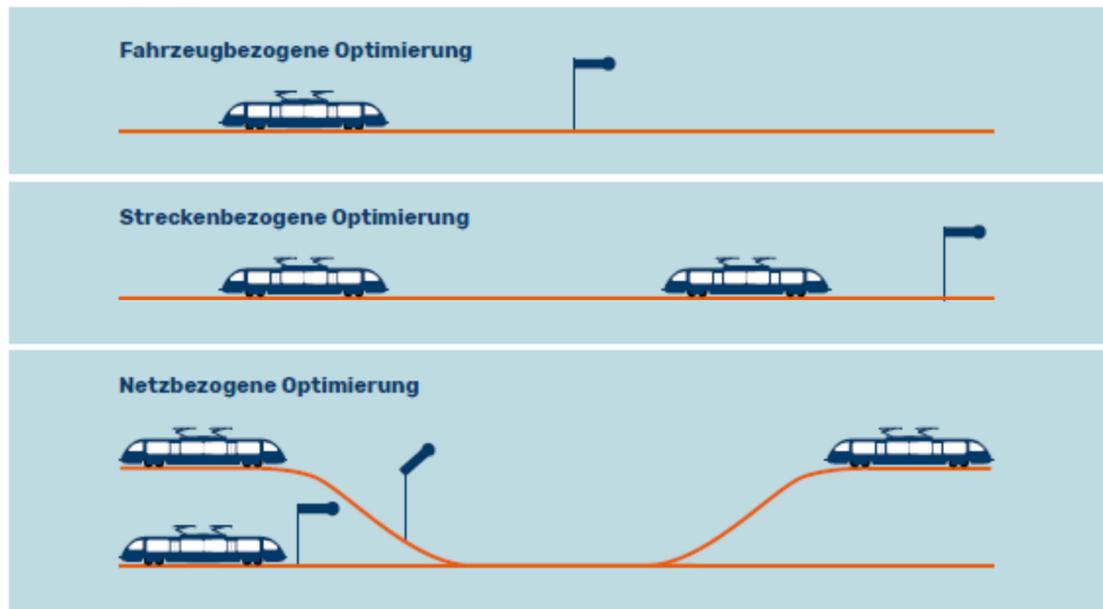
Big Data on track: saving energy, tickets from door to door and much more

In the railway sector, digitalisation has not yet made much headway. In order to keep pace in the modern mobility and logistics market, the sector needs to begin harnessing the enormous potential inherent in digitalisation. There are essentially two levels of possible application: relationships between the various technical components, i.e. “machine-to-machine communication” on the one hand, and communication between the system and passengers or freight forwarders on the other. There are special challenges posed by the integrated Deutsche Bahn Group at both levels. The generation and analysis of data by the infrastructure monopolist or existing monopolist in ticket sales can create new distortions in competition which did not previously exist.

The European Train Control System (ETCS) can further increase the capacity of the route network at crucial points and improve traffic safety, particularly in combination with electronic interlocking systems and, in future, with 5G networks. But not only that, the new safety technology can help with modern driver assistance systems to make railway operations even more energy-efficient: from the optimisation of each individual train using the existing “green function of route controls” to route-based optimisation (several trains on one route in a row) and a network-related analysis. Every train should run at optimal speed at all times to keep to schedule. Energy is thereby not lost unnecessarily, as trains do not run too fast or slow. The network capacity should also be optimally used.

Use of digital communication on the network

Nutzung digitaler Kommunikation auf dem Netz



However, this optimum only becomes possible if network users are given direct and non-discriminatory access to the data collected by the infrastructure operator at all times. There are still no adequate regulations in the current railway regulatory law.

The federal government is responsible for financing vehicle conversions, i.e. for the installation of ETCS on-board units during the network switchover to ETCS and digital actuators. The fact that signals travel from the track to the vehicles does not change the fact that they are infrastructure. If the federal government indirectly passed this responsibility on to the rail transport companies or, in the case of regional rail transport, to the operators, this would reduce competitiveness in the railway sector compared to road transport and reduce services in regional rail transport rather than increase it, as regionalisation funds would need to be diverted for the conversion of vehicles.

Reorganising tariffs and sales

The integrated group also has an advantage over its competitors when dealing with passengers. The current rail tariff with A, B and C prices and package deals are technically a "proprietary tariff model" of Deutsche Bahn AG, which the competitor railways only "apply", but are unable to develop on an equal footing. Attempts have been made to introduce a German tariff association for a long time, but have not yet been successful.

This is one reason why the competitor railways are still not allowed to sell tickets at all rates for rail travel. For example, competitors are only permitted to distribute long-distance tickets using machines, and only if the machine has been approved by the transport authority. Online/mobile, which is an increasingly important digital distribution channel, especially the use of apps, is still only available to DB itself. While DB

Vertrieb GmbH also acts as the "sales subsidiary" for providing services for other companies, it is not based in the "neutral" infrastructure within the integrated group, but rather within the competing passenger transport division. Among other things, this set-up makes it difficult to establish the comprehensive "door to door" ticket sales requested by passengers and policymakers. In order to significantly reduce the barriers hindering access to the public transport system, the commercial framework conditions for reciprocal and equal sales must in principle be agreed upon by all transport companies within the scope of discussions between the various DB companies, competitor railways, transport associations and the public authorities.

Strengthening the innovative power of rail

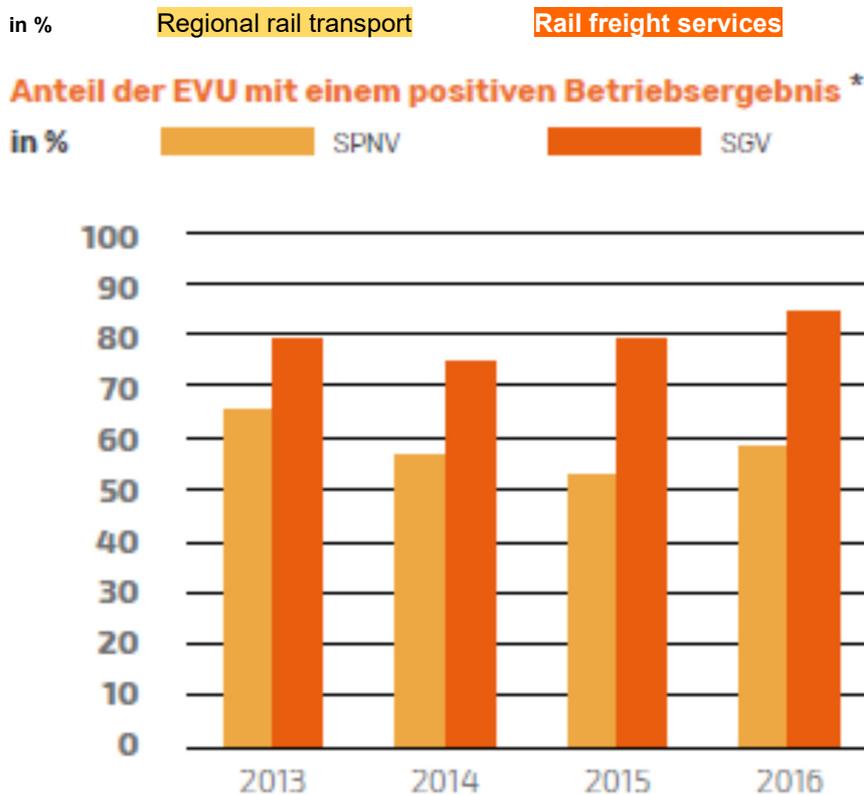
The plan announced in 2017 to put together a total of EUR 1

billion for investments in existing, but not yet economic, modernisation projects with the sector within the scope of a "Federal Railways Future Rail Freight Programme", which has a timeframe of five years, has been postponed several times and is scheduled to be launched by the federal government in 2020 – albeit with only EUR 20 million per year, so that no relevant

effects are to be expected. For many years, all modes of transport in Germany have had a research institution that promotes and evaluates traffic-related innovations and supports "their" modes of transport with scientific work. Rail is the only mode of transport without such an institution. The innovation cycles for rail are also particularly long. Rail vehicles can reach the

age of 30 without any problems arising, while freight wagons can run for 60 years. At the same time, the railway industry does not generate profits very quickly. In the past few years, many rail transport companies have not made any profits at all. It is therefore impossible to finance innovation or even basic research.

Share of rail transport companies with a positive operating result



In May 2019, the "German Centre for Railway Research" was founded, headquartered in Dresden, although it is not yet fully functional. Increasing scientific rail research at universities and colleges is equally important. At the moment, there are only six professorships in Germany dedicated to railways. This is not enough.

In addition to basic research, there are a number of funded

public-sector projects which aim to promote the expansion of ready-to-use technology in the market. Freight wagons which were previously too loud have been successfully converted so that they meet the strict requirements of the Rail Noise Act. The funding guidelines for "energy efficiency", which aimed to promote the switch to energy-saving power units and the adoption of energy-efficient driving, were not successful. Finding evidence of the actual

savings is very difficult; consequently, only one company has actually applied for funding.

A directive for the promotion of alternative propulsion systems, which aims to promote, for example, the "hybridisation" of diesel railcars and the purchase of two-system locomotives in freight transport, is not yet in place, but previous drafts have been adapted to DB's structures. Above all, funding also needs to be significantly overhauled. It is

currently too bureaucratic and is barely able to keep up with market developments.

Innovations in long-term transport contracts in regional rail transport are particularly challenging. In view of the

fixation on the rail kilometre price when awarding contracts, independent further development at a later stage does not appear to be an option. In addition to a return to more qualitative criteria in the awarding process, future "innovation budgets" could be planned for the duration of the

contracts. They would be defined by the authority before the conclusion of the contract. The specific application would then be coordinated between the authorities and transport companies during the contractual period. The transport company would contribute its own ideas.

Transport policy demands

- Securing non-discriminatory access for all rail transport companies to all relevant data collected and processed by the infrastructure companies
- Financing of European Train Control System vehicle conversion during the roll-out of ETCS and digital signal boxes by the federal government
- Establishment of a company-neutral German tariff for local and long-distance traffic
- Unlimited right to the sale of all rail tickets for all rail transport companies on fair and reasonable terms
- Massive expansion of railway research by the federal government

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