



REGIONAL ANALYSIS OF CHALLENGES AND NEEDS

for the Free State of Saxony

D.T1.2.2

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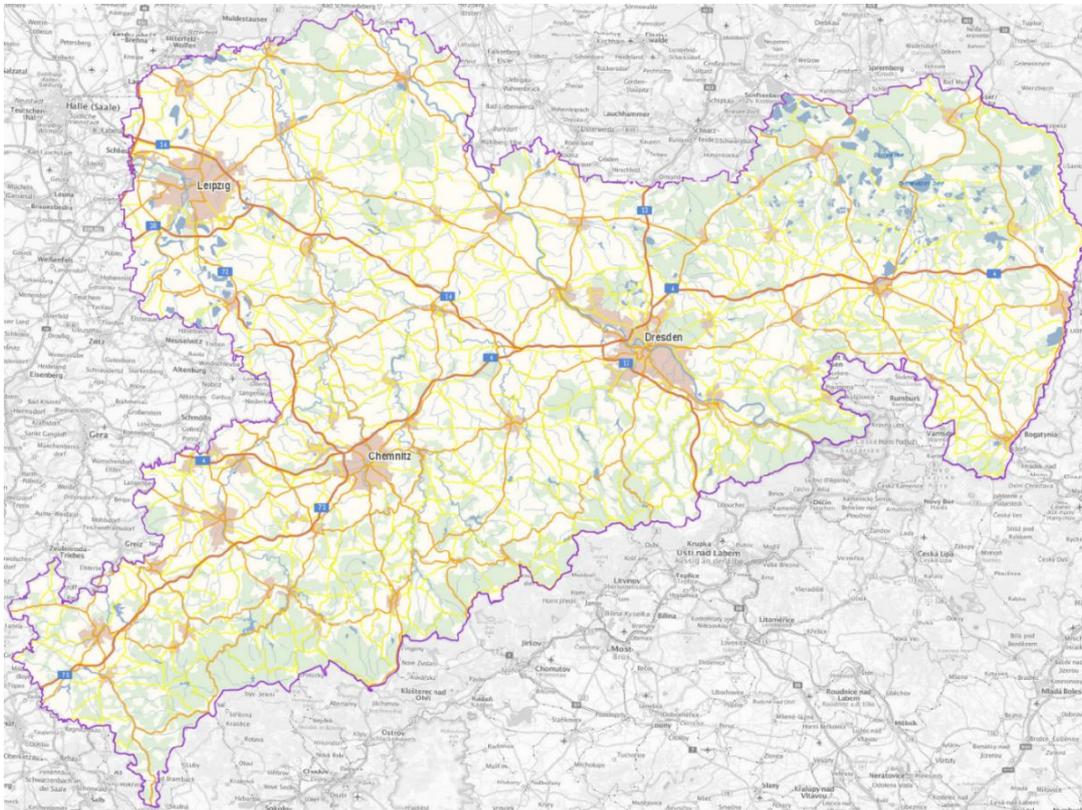
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1. CURRENT SITUATION ANALYSIS

1.1. Geographical and socio-economic description of the area, delimitation and definition of its catchment area

1.1.1. Geographical data, relief, natural and administrative boundaries

The Free State of Saxony is a federal state in the eastern part of the Federal Republic of Germany with borders to the Republic of Poland (123 km), the Czech Republic (454 km) and the federal states of Bavaria (40 km), Thuringia (274 km), Saxony-Anhalt (206 km) and Brandenburg (242 km). Saxony is the sixth largest federal state in Germany. It has 4 077 937 inhabitants (2019) and its territory covers 18 449.96 km², which corresponds to an average of 221 inhabitants per km² and 5.16% of the total area of the Federal Republic of Germany. Saxony consists of 10 counties and the 3 county-free cities of Dresden, Leipzig and Chemnitz. The federal state capital is Dresden.¹



Map 1: Free State of Saxony²

The Free State of Saxony has many rivers and lakes within its borders. Especially in the former lignite mining areas of Lusatia and in Central Germany, some of the largest lakes in Germany have been created in recent years. The largest and only navigable inland waterway (IWW) in Saxony is the Elbe River. It runs from southeast to northwest.

¹ Vgl. SMI (Hrsg.): IRBIS. Ausgewählte Statistiken, Freistaat Sachsen im Überblick, Dresden 2018

² Map based on Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Geoportal Sachsenatlas, <https://geoportal.sachsen.de/cps/karte.html?showmap=true> [accessed on 6 February 2020]



Other important rivers are White Elster, Black Elster, Mulde and Spree, as part of the Elbe-River-System as well as the Lusatian Neiße, which feeds into the Oder River.

The Free State of Saxony is divided into lowlands, highlands and low mountain ranges.

Northern Saxony is part of the glacially shaped lowlands of the North German Plain, which extends from Upper Lusatia far to the south in the Leipzig Bay. The area is characterized by younger deposits from the Ice Age Pleistocene, river valleys and tertiary lignite deposits in the underground. The highlands further south include extensive loess deposits and high soil quality due to the formation of terminal moraines.

In the south of Saxony is the low mountain range threshold, which crosses the border with the Czech Republic. It includes the Elster Mountains in the southwest, the Ore Mountains and the Elbe Sandstone Mountains. The Fichtelberg in the Ore Mountains is the highest elevation in Saxony with 1 214 m.³

The Elbe Sandstone Mountains are located on both sides of the Elbe River. They include the Saxon Switzerland National Park, a popular touristic destination. The Central Saxon hill country around Chemnitz is situated in front of the low mountain range. The eastern part of Saxony around the upper Spree River is formed by Upper Lusatia and a small part by Lower Lusatia.

28% of the Saxon territory is covered by forests, which is slightly below the national average (31%). 80% are coniferous forests.⁴

³ Vgl. SMI (Hrsg.): IRBIS. Ausgewählte Statistiken, Freistaat Sachsen im Überblick, Dresden 2018

⁴ Vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Flächennutzung, <https://www.statistik.sachsen.de/html/506.htm> [accessed on 5 February 2020]



1.1.2. Identifying the corridor and determining its catchment area



Map 2: Orient/East-Med-Corridor⁵

⁵ SMWA (Hrsg.): Der Orient/East-Med Korridor, https://www.nbs.sachsen.de/img/neubaustrecke/tafel_NS_6_0_de_rdx_413x495.jpg [accessed on 6 February 2020]



The Orient / East-Med (OEM) corridor connects large parts of Central Europe with ports of the North Sea, Baltic Sea, Black Sea and Mediterranean Sea. It comprises over 5 900 km of rail, 5 600 km of road network and 1 600 km of inland waterways, 10 inland ports, 12 seaports, 9 core network airports, 25 road/rail terminals and 15 urban core network nodes. The Free State of Saxony is part of the core network corridor OEM via the connecting axis Magdeburg/Berlin - Dresden - Prague.⁶

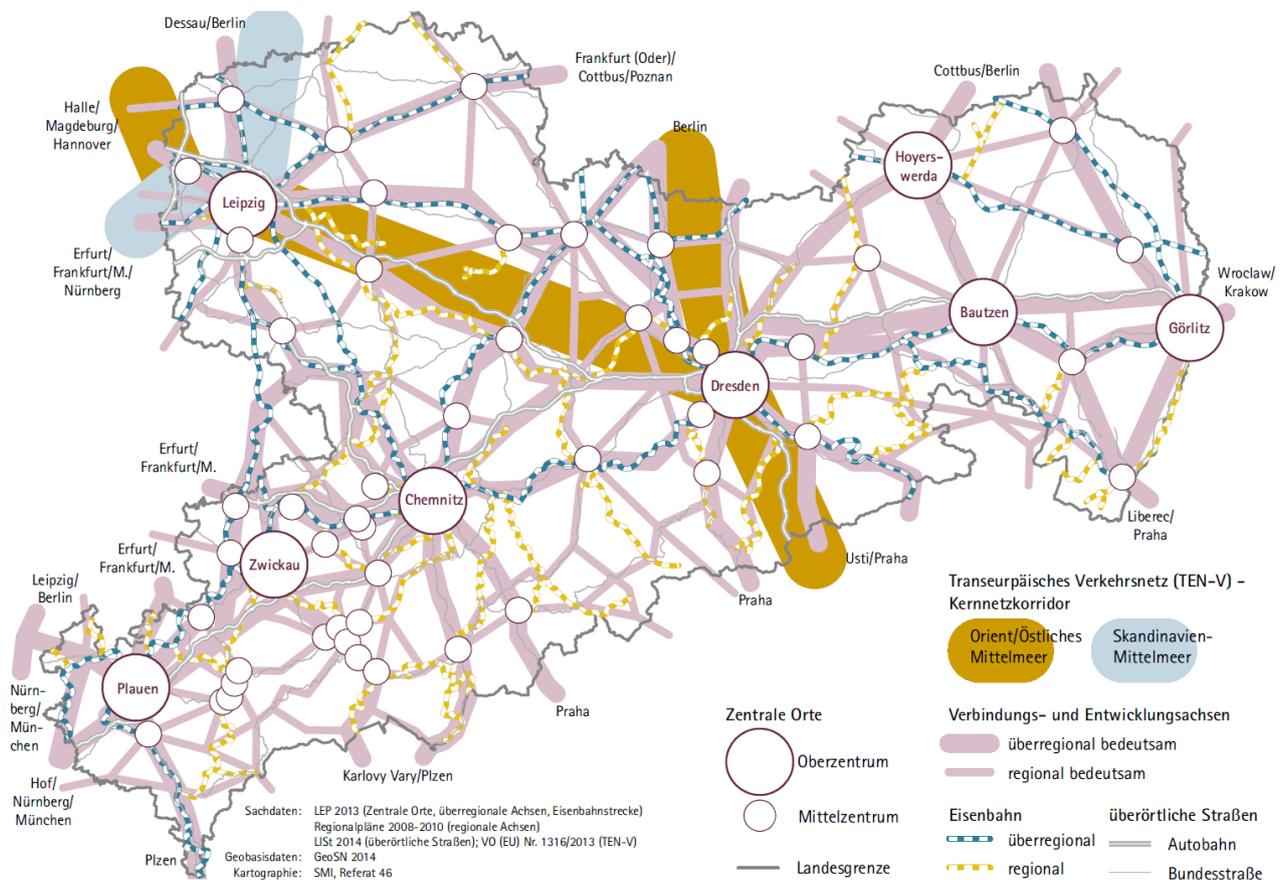
Besides the core network corridor, the following routes and nodes are included in the TEN-T network (core and comprehensive network) of the Free State of Saxony:

	COMPREHENSIVE NETWORK	CORE NETWORK
Road	A 4 Dresden-Jena	A 4 Dresden-Görlitz
	A 72 Chemnitz-Hof	A 14 Dresden-Leipzig
	B 178	A 13 Dresden-Berlin
		A 17 Dresden-CZ
Rail (passengers)	Leipzig-Elsterwerda-Niesky-PL	Dresden-Görlitz
	Dresden-Zwickau-Hof	Berlin-Dresden-CZ
	Zwickau-Leipzig	Dresden-Leipzig
	Görlitz-Horka-Spremberg	Leipzig/Halle-Berlin
Rail (freight)	Zwickau-Dresden-Görlitz	Falkenberg-Elsterwerda-Niesky-PL
	Dresden-Leipzig	Berlin-Dresden-CZ
	Görlitz-Horka-Spremberg	Görlitz-Horka-Spremberg
	Leipzig-Falkenberg	Leipzig-Berlin
Airports	Dresden	Leipzig-Halle
Rail-Road-Terminal	Dresden	
Urban nodes		Leipzig
IWW	Elbe River (no distinction of network node)	

Table 1: TEN-T network components in the Free State of Saxony⁷

⁶ Vgl. European Commission - Directorate General for Mobility and Transport (Hrsg.): Orient East Med. Work Plan of the European Coordinator Mathieu Grosch, Brussels 2015, https://ec.europa.eu/transport/sites/transport/files/1st_workplan_oem_0.pdf, page 3f [accessed on 5 February 2020]

⁷ SMWA (Hrsg.): Transeuropäisches Verkehrsnetz (TEN-V), <https://www.verkehr.sachsen.de/955.html> [accessed on 5 February 2020]



Map 3: Catchment areas of the TEN-T corridors Orient/East-Med and Scandinavian - Mediterranean in the Free State of Saxony⁸

The OEM corridor extends from northwest to southeast along the supra-regional axis Hannover-Magdeburg-Halle-Leipzig-Dresden and from north to southeast along the supra-regional axis Berlin-Dresden. Important catchment areas in the Free State of Saxony are the major urban centres of Leipzig and Dresden and the medium-sized centres of Schkeuditz, Grimma, Döbeln, Cosswig, Radebeul and Prina.

⁸ Sächsische Staatskanzlei (Hrsg.): Überregionale und Regionale Achsen und Einbindung in das TEN-V, https://www.landesentwicklung.sachsen.de/download/Landesentwicklung/31_KB_Achsen.pdf, figure 3.4 [accessed on 11 February 2020]. Please notice: The freight route Leipzig - Plauen - Hof is part of the Scandinavian - Mediterranean TEN-T corridor, too



1.1.3. Connections with relevant TEN-T and RFC corridors within the area

The route of the TEN-T corridor OEM corresponds mainly to that of the Rail Freight Corridor 7 (except the Leipzig branch). The line section parameters are represented in the figure below.

Saxony is also connected to the TEN-T corridor Scandinavian - Mediterranean, which runs from north to south along the axis Berlin - Dessau - Leipzig - Erfurt - Frankfurt (a. M.) and Nuremberg. The main catchment area of this corridor in Saxony includes the urban centers of Leipzig, Zwickau and Plauen.⁹

Line Section From - To	Length of line (km)	Number of Tracks	Electric Traction (kV/Hz)	Maximum speed (km/h)	Loading gauge		ERTMS equipment (ETCS, GSM- R)	Capacity utilization percentage	Services	
					Intermodal freight code (P/C)	Interoperati- onal gauge			Intermodal terminal	Marshalling yard
Falkenberg - Zeithain Bogendr.	30,5	2	15 kV AC/16,7 Hz	100	80/410	GB	GSM-R	50-90		
Zeithain Bogendreieck - Coswig	32,4	2	15 kV AC/16,7 Hz	120	80/410	GB	GSM-R	50-90		
Coswig - Dresden Freib. Str	16,3	2	14 kV AC/16,7 Hz	100	80/410	GB	GSM-R	50-90	<u>GvZ</u> <u>Alberthafen</u> <u>Dresden</u>	<u>Dresden-</u> <u>Friedrichstadt</u>
R Seehafen Süd - Kavelstorf	11,8	1	15 kV AC/16,7 Hz	100	80/410	GA	GSM-R	<50	<u>RTM</u> <u>Railport Rostock</u>	
Kavelstorf - Neustrelitz Hbf	103,9	2	15 kV AC/16,7 Hz	160	80/410	GA	GSM-R	<50		
Neustrelitz Hbf - Sachsenh.	69,1	2	15 kV AC/16,7 Hz	160	80/410	GA	GSM-R	<50		
Sachsenhausen - Birkenwerder	9,8	2	15 kV AC/16,7 Hz	120	80/410	GA	GSM-R	<50		
Birkenwerder - Schönfließ	4,4	1	15 kV AC/16,7 Hz	100	80/410	GA	GSM-R	<50		
Birkenwerder - H Neuend. Strw	2,5	2	15 kV AC/16,7 Hz	120	80/410	GA	GSM-R	<50	<u>BEHALA</u>	
H Neuend. Strw - Schönfließ	4,8	1	15 kV AC/16,7 Hz	100	80/410	GA	GSM-R	<50		
Schönfließ - Karow Ost	11,6	2	15 kV AC/16,7 Hz	120	80/410	GA	GSM-R	<50		
Karow Ost - Biesdorfer K Süd	12,6	2	15 kV AC/16,7 Hz	120	80/410	GA	GSM-R	<50		
Biesdorfer K Süd - Eichgestell	5	2	15 kV AC/16,7 Hz	100	80/410	GA	GSM-R	<50		
Eichgestell - Glasover D. Süd	18,3	2	15 kV AC/16,7 Hz	100	80/410	GA	GSM-R	<50		<u>Seddin</u>
Glasover D. Süd - Elsterwerda	103,7	2	15 kV AC/16,7 Hz	160	80/410	GA	GSM-R	50-90	<u>LDZ</u>	
Elsterwerda - Radebeul Naund.	41,2	2	15 kV AC/16,7 Hz	160	80/410	GA	GSM-R	50-90		
Naundorf - Dresden Freib. Str	11,6	2	15 kV AC/16,7 Hz	100	80/410	GA	GSM-R	50-90	<u>GvZ</u>	<u>Dresden-</u> <u>Friedrichstadt</u>
Dr Freib. Str - Bad Schandau	41,1	2	15 kV AC/16,7 Hz	160	80/410	GC	GSM-R	>90	<u>Alberthafen</u> <u>Dresden</u>	
Bad Schandau - Děčín		2	15 kV AC/16,7 Hz	120	80/410	GC	GSM-R	>90		

Table 2: RFC7 sections in the Free State of Saxony¹⁰

⁹ Vgl. BMVI (Hrsg.): Korridormanagement, <https://www.bmvi.de/SharedDocs/DE/Artikel/G/transeuropaeische-verkehrsnetze-korridormanagement.html> [accessed on 5 February 2020]

¹⁰ Rail Freight Corridor 7 Management Board (Hrsg.): RFC 7 Interactive tool, http://www.rfc7.eu/interactive_map [accessed on 11 February 2020]



1.1.4. Examination of technical parameters of the area

Since German reunification in 1990, numerous infrastructure measures have been implemented in the Free State of Saxony. Today it has a modern and efficient infrastructure across all modes of transport. The transport and logistics centres of the Free State of Saxony are efficiently interconnected and networked. The standards achieved so far satisfy modern European parameters.

	TEN-T NETWORK ELEMENTS	PARAMETERS
Road	A4 Görlitz-Dresden to Jena	four-lane with partial overload
	A72 Chemnitz to Hof	four-lane
	A17 Dresden-CZ	four-lane
	A14 Dresden-Leipzig	four-lane
	A13 Dresden-Berlin	four-lane
Rail	Leipzig-Elsterwerda-Niesky-PL	electrified and double-track
	Dresden-Zwickau-Hof	electrified and double-track
	Zwickau-Leipzig	electrified and double-track
	Görlitz-Horka-Spremberg	partly non-electrified and single-track
	Dresden-Görlitz	non-electrified and double-track
	Dresden-Leipzig	electrified and double-track
	Leipzig-Falkenberg	electrified and double-track
Rail-Road-Terminal	Dresden	Two terminals with crane handling and reach stacker
	Glauchau	Terminal with reach stacker handling
	Riesa	Terminal with reach stacker handling
	Leipzig	Two terminals with crane handling and reach stacker
IWW	Dresden	Tri-modal port
	Riesa	Tri-modal port



	TEN-T NETWORK ELEMENTS	PARAMETERS
IWW	Torgau	Tri-modal port
Airports	Leipzig	Air hub with all types of freights
	Dresden	Low freight handling

Table 3: Technical parameters of Saxon transport infrastructure¹¹

1.1.5. Examination of intermodality and terminals in the area

In the logistics hotspots of the Free State of Saxony, numerous modern terminals are available to industry for handling goods. The ports on the Elbe River play a key role in this, having developed into a major player in intermodal transport in the Free State of Saxony.

LOCATION	OPERATOR	MODE
Port Alberthafen Dresden-Friedrichstadt	Sächsische Binnenhäfen Oberelbe GmbH	trimodal
GVZ Dresden	Emons Rail Cargo	rail/road
Railport Chemnitz	Bauer Spedition GmbH	rail/road
Contargo Glauchau	Contargo Network Logistics GmbH	rail/road
Port of Riesa	Sächsische Binnenhäfen Oberelbe GmbH	trimodal
DUSS-Terminal Leipzig-Wahren	DUSS mbH	rail/road
Emons Terminal Leipzig-Schkeuditz	Emons Terminal Service	rail/road
Port of Torgau	Sächsische Binnenhäfen Oberelbe GmbH	trimodal

Table 4: Intermodal freight terminals in Saxony¹²

¹¹ SMWA (Hrsg.): Transeuropäisches Verkehrsnetz (TEN-V), <https://www.verkehr.sachsen.de/955.html> [accessed on 5 February 2020]

¹² Studiengesellschaft für den Kombinierten Verkehr e.V. (SGKV): <http://www.intermodal-map.com/impressum.html> [accessed on 5 February 2020]



1.1.6. Bottlenecks, barriers

The 2nd phase study on the OEM TEN-T corridor identifies several potential bottlenecks in different mode sections in the Free State of Saxony:

MODE	SECTION	BOTTLENECK / NETWORK GAP
Rail	Dresden - Prague (DE, CZ)	Capacity bottleneck (new high-speed railway line not be operable before 2035)
	Various sections	Delayed ERTMS deployment
	Urban Nodes	Capacity bottleneck
IWW	Elbe River (DE, CZ)	Non-compliant draught (< 2,5m)
Seaports	-	-
Airports	Halle/Leipzig, Dresden	Non-availability of alternative clean fuels
Road	Various sections	Capacity bottleneck, lack of safe parking areas

Table 5: Bottlenecks and barriers of the OEM corridor in the Free State of Saxony¹³

Current projects related to the OEM corridor in Saxony are primarily aimed at eliminating existing bottlenecks and improving its overall functionality. Major EU funded projects include, among others, the new line Dresden-Prague (including pre-study) and the Overall Concept Elbe.

¹³ European Commission - Directorate General for Mobility and Transport (Hrsg.): Study on Orient / East-Med TEN-T Core Network Corridor. 2nd Phase. Executive Summary, https://ec.europa.eu/transport/sites/transport/files/oemstudy2017_execsummary_en.pdf, page 7f [accessed on 5 February 2020]

1.2. Presentation of the transport infrastructure system

1.2.1. Transport infrastructure characteristics (road, railways, waterways, airports)



Map 4: Transport infrastructure in the Free State of Saxony¹⁴

Roads

The Free State of Saxony has a dense, extensive road network of 13 894 km for inter-urban traffic. The density of the road network is above the German average both in terms of area and population. The Saxon state road network has a length of about 4 829 km; the network of federal roads has a length of about 2 448 km. The county road network comprises a total of 5 756 km.¹⁵

Motorways

The Saxon motorway network has a total length of 567 km. The following federal highways cross Saxony: A4, A9, A13, A14, A17, A38 and A72. Two of the most important trans-european roads - the E40 (France - Kazakhstan) and the E55 (Sweden - Greece) - are crossing near Dresden.¹⁶

¹⁴ Wirtschaftsförderung Sachsen GmbH (Hrsg.): Sachsens Infrastruktur, <https://standort-sachsen.de/de/investoren/standort-sachsen/lage-und-infrastruktur/verkehrsinfrastruktur> [accessed on 6 February 2020]

¹⁵ Vgl. ebd.: <https://standort-sachsen.de/de/standort/lage-infrastruktur/verkehrsinfrastruktur> [accessed on 5 February 2020]

¹⁶ Vgl. ebd.



Railways

The Saxon railway network originates from the 19th century. In 1839, the first German long-distance railway ran from Dresden to Leipzig. Today, Saxony has a railway network of about 2 600 km in length. It is the highest rail network density of all federal states and one of the highest in all of Europe. The long-distance and conurbation network connects the centres of Saxony with each other and provides a link to the centres of the neighbouring federal states. The long-distance network also creates international connections to Poland, the Czech Republic and other countries.¹⁷

Airports

The Free State of Saxony has two efficient commercial airports in Dresden and Leipzig/Halle, which have been organised under the umbrella of the holding company Mitteldeutsche Flughafen AG since 2001.

DHL has been operating the European hub for air freight express at Leipzig/Halle Airport since 2008. Two 3 600 m long intercontinental runways and the possibility of 24/7 operation enable the handling of the constantly increasing air freight volume. At present, more than 300 cargo flights to more than 50 destinations in over 30 countries take off every week. With a cargo volume of more than 1.2 million tonnes (2018), Leipzig/Halle Airport is the 2nd largest cargo airport in Germany and the 5th largest cargo airport in Europe.

The runway at Dresden International Airport was also renovated and extended. Both airports have new, spacious terminals and excellent road and rail links. This means that all residents of the Free State of Saxony can reach a commercial airport within 90 minutes. General aviation with smaller aircraft has 22 airfields and special landing strips as well as a glider airfield in Saxony.¹⁸

Ports/Harbours

The Free State of Saxony is connected to the North German seaports and thus to international trade via the Elbe federal waterway. The Elbe flows through the state over a length of 180 km. Besides the Rhine, it is the busiest waterway in Germany.

In Dresden, Riesa and Torgau, the Free State of Saxony has efficient trimodal inland ports in which numerous port-related companies with 600 jobs have settled. Together with Děčín and Lovosice (Czech Republic) and Dessau-Rosslau (Saxony-Anhalt), the Saxon ports belong to Sächsische Binnenhäfen Oberelbe GmbH (SBO), a 100% subsidiary of the Free State of Saxony. With its six ports, SBO offers competitive transport services along the Upper Elbe from a single source.

The Alberthafen Dresden-Friedrichstadt is a universal port. The port's central location and direct connection to the B6 federal highway, the A4 federal motorway and the DB AG core network provide optimal location conditions for trimodal transport. At Alberthafen Dresden, high-performance facilities are available for handling general, bulk and heavy cargo as well as containers with a crane capacity of up to 600 tonnes. In addition, modern quay facilities enable the trouble-free use of mobile crane technology. There is also a RoRo facility for the loading of goods up to 370 tonnes. In addition to open-air and covered storage areas, a modern assembly hall is also available for the assembly of plant and machinery.

With its central location and direct connection to the federal roads B6 and B69 as well as to the core network of the DB AG, the universal port of Riesa offers optimal site conditions for trimodal traffic.¹⁹

¹⁷ Vgl. ebd.

¹⁸ Vgl. ebd.

¹⁹ Vgl. ebd.



The Port of Riesa has high-performance facilities for handling containers as well as general, bulk and heavy cargo with a crane lifting capacity of up to 50 tonnes (tandem operation). Modern quay facilities also allow problem-free handling of heavy cargo with mobile crane technology.

In addition to open-air storage areas, a modern, temperature-controlled container service hall is also available.

The Port of Torgau is a universal port with a favourable location to the Leipzig / Halle economic area. The central location of the port and direct connection to the federal roads B87, B182 and B183 as well as to the DB AG core network provide excellent location conditions for trimodal traffic.

The Port of Torgau has efficient facilities for handling general, bulk and heavy cargo as well as containers with a crane lifting capacity of up to 35 tonnes. In addition to open-air storage areas, the Port of Torgau also provides areas for the settlement of companies. Since 2007, the port of Torgau has been directly linked to the North German seaports by the inland waterway Elbe. Further routes can be served via Magdeburg.²⁰

1.2.2. Multimodal interfaces

The three Saxon freight villages (FV) in Dresden, Leipzig, Glauchau and the Port of Riesa each have efficient terminals for multimodal transport in which containers, swap bodies or semi-trailers can be handled. They serve to bundle and unbundle freight traffic flows and to separate long-distance and short-distance freight traffic. The FV Dresden has a capacity of 90 000 TEU. The freight transshipment center (FTC) Glauchau is able to handle up to 70 000 TEU. The FTC Leipzig has a capacity of 220 000 TEU.²¹

The FV and transshipment center terminals in Saxony are connected to the supra-regional freight traffic as well as to the seaports on the North and Baltic Seas. This applies in particular to the Port of Riesa as the main Saxon container transshipment center in the rail-road-waterway multimodal transport system. Freight train traffic and the Elbe container line connect the port of Riesa with the seaport of Hamburg.

In the Free State of Saxony, the infrastructure for environmentally friendly freight transport by multimodal transport terminal has been expanded and further developed. In 2012, work began on increasing the capacity of FTC Glauchau from 30 000 TEU to 70 000 TEU with investments of almost 10 million €.

FTC Leipzig has handled around 150 000 TEU in each of the past years. The capacity limit was thus exceeded. In order to be able to cope with the volume growth forecast for the coming years, about 30 million € were invested in an additional module for the facility. In September 2017, the second terminal module was put into operation, thus significantly increasing the capacity at the site.

The FV Dresden handles about 40 000 TEU annually. Through investments here, it has been possible to develop the area into a modern logistics location close to the city center and to establish it on the market.²²

²⁰ Vgl. SMWA (Hrsg.): Mobilität für Sachsen. Landesverkehrsplan 2030, Dresden 2019, p. 28

²¹ Vgl. ebd.

²² Vgl. ebd.



Map 5: Rail freight loading point and terminals in Saxony²³

The terminal in the Port of Riesa, whose current capacity limit of 40 000 TEU has been reached, also fulfils the FV function.

A new rail port was built in Chemnitz in 2016. Companies whose dispatch and receipt volumes are below those of block trains, groups of wagons and wagonloads and who do not have their own rail siding are thus offered the opportunity to obtain logistics services using rail from a single source. The aim of the Rail port Chemnitz-South is to transfer palletized general cargo, special goods, paper etc. to rail. This also gives the project great ecological significance.²⁴

Another important multimodal hub in the Free State of Saxony is the Leipzig/Halle Airport. It is the 5th largest freight hub in Europe, the second largest air freight hub of Germany and a major transshipment centre for air freight of all kinds. It forms a central element of the air traffic infrastructure of the Federal Republic of Germany and is of importance for the logistics and economic region of Central Germany. More than 8 600 employees work at the airport in more than 100 local companies and authorities. As a multimodal hub for the flow of goods to and from Europe, the location, which is directly connected to the trans-European road and rail network in a north-south and east-west direction, offers good conditions for airfreight and logistics companies.

²³ ...

²⁴ Vgl. SMWA (Hrsg.): Mobilität für Sachsen. Landesverkehrsplan 2030, Dresden 2019, p. 28



The airport has a 24-hour operating permit for cargo flights and a cargo handling station, which is connected to sea ports by daily freight trains. Furthermore, it is possible to reach 15 European countries from Leipzig/Halle in just eight hours by truck. More than 50 cargo airlines use the airport regularly each year and fly to over 270 destinations worldwide.²⁵

The main driving force behind growth in the cargo sector at the airport is DHL. The company has been operating its European hub at Leipzig/Halle Airport since 2008. Two 3 600 metre long intercontinental runways have made it possible for the company to settle here. The airport is also home to AeroLogic, a joint venture between DHL Express and Lufthansa Cargo. To date, DHL has invested a total of 655 million € in the site and employs around 6 400 people. This makes the DHL Hub Leipzig the largest of the three international air freight hubs within the worldwide DHL Express network.²⁶

Leipzig/Halle Airport is also an important location for the Russian Volga-Dnepr Group.

²⁵ Vgl. IMG Investitions- und Marketinggesellschaft Sachsen-Anhalt mbH (Hrsg.): Leipzig/Halle Airport: Multimodales Drehkreuz für Warenströme zwischen Asien und Europa, <https://www.investieren-in-sachsen-anhalt.de/Multimodales-Drehkreuz-fuer-Warenstroem> [accessed on 5 February 2020]

²⁶ Vgl. Flughafen Leipzig/Halle GmbH (Hrsg.): Neue Ausbauprojekte, <https://www.leipzig-halle-airport.de/unternehmen/ueber-uns/zahlen-und-fakten/neue-ausbauvorhaben-3194.html> [accessed on 5 February 2020]



1.2.3. Cross-border links

Cross-border connections have become increasingly important for the Free State of Saxony. In recent years, considerable efforts have been made to improve cross-border connections and to contribute to the competitiveness of Saxony's industry. At the same time, Saxony's importance as a transit country for the exchange of goods on a European and international level has increased.

The Free State of Saxony with its geographical location in the border triangle of Germany, Poland, and the Czech Republic is of particular importance. Large shares of the Czech and Polish foreign trade are carried out via Saxony's rail, road and waterways. This has led to a significant increase in traffic. Due to geological peculiarities, the borders of the Free State to the neighbouring countries are shaped differently. The border with the Czech Republic is formed by the Ore Mountains, the Elbe Sandstone Mountains and the Zittau Mountains. The border with Poland is formed by the Neisse River. For centuries, these natural barriers also formed an economic border. Especially the possibilities for cross-border freight traffic are very limited on a European scale.

Saxony is connected with the neighbouring Czech region of Ústí nad Labem by five railway border crossings and a number of road border crossings. For the OEM corridor, the cross-border connections between the Free State of Saxony and Ústecký kraj are of great importance. For cross-border rail traffic, only one electrified crossing is currently available. All rail freight transports between Saxony and the Czech Republic are handled via this border crossing in Bad Schandau / Děčín. Only the A17 Dresden-Usti nad Labem-Prague motorway is available as an efficient connection in road traffic, especially in road freight traffic.

LOCATION	NO. OF ROUTES	MODE	
		passenger	freight
Vejprty / Bärenstein	137	+	
Děčín / Bad Schandau	090, 083	+	+
Dolní Poustevna / Sebnitz (Sachs)	083	+	
Varnsdorf / Großschönau	089	+	
Varnsdorf / Seifhennersdorf	089	+	

Table 6: Railway border crossing points between DE and CZ in the OEM corridor



LOCATION	ROADS		MODE		
	CZ	DE	passenger cars	buses	trucks
Vejprty / Bärenstein	II/219	S 262 / (B95)	+		
Hora Sv. Šebestiána - Reitzenhain	I/7	B 174	+	+	+
Brandov / Olbernhau	III/25220	G	+		
Hora Sv. Kateřiny / Deutschkatharinenberg	MK	G	+		
Nová Ves v Horách / Deutschneudorf	MK	G	+		
Mníšek / Deutscheinsiedel	II/271	S 207	+		
Jičetín / Deutschgeorgenthal	III/2545	G	+		
Moldava / Neurehefeld	II/382	S 184	+		
Cínovec / Altenberg	I/8	B170	+	+	+
Cínovec / Zinnwald	MK	K 9033	+		
Krásný Les / Breitenau	D8	A 17 (E55)	+	+	+
Petrovice / Bahratal	II/248	S 173	+	+	
Hřensko / Schmilka	I/62	B 172	+	+	
Dolní Poustevna / Sebnitz	II/267	S 154a	+		
Šluknov-Rožany / Sohland	III/2666	S 116	+	+	
Jiříkov / Ebersbach	II/263	G	+	+	
Jiříkov / Neugersdorf	III/26328	K 8668	+	+	
Jiříkov / Neugersdorf	III/26329	G	+		
Rumburk / Neugersdorf	I/9	S 148	+	+	+
Rumburk / Seifhennersdorf	III/26330	S 139	+	+	
Varnsdorf / Seifhennersdorf	II/265	S 141	+	+	
Varnsdorf (Žitavská) / Großschönau	II/264	S 137	+	+	

Table 7: Road border crossing points between DE and CZ in the OEM corridor



1.3. Presentation of major economic activities and the settlement system

1.3.1. Description of the settlement system

The Free State of Saxony consists of ten administrative districts and three county-free cities. In the course of the district reform in 2008 the total number of districts has reduced by 12 and the number of county-free cities has reduced by four. As of now there are a total of 419 municipalities in the Free State of Saxony, including 416 county municipalities and the three county-free cities of Chemnitz, Dresden and Leipzig. Of a total of 169 cities, 50 bear the title Große Kreisstadt (Great County Town). The Ore Mountain county has the most municipalities (59) and within the administrative districts the highest number of inhabitants (335 342). The district of Meissen has the fewest municipalities (28), whereas the district of Northern Saxony has the lowest number of inhabitants (197 786).²⁷

There are 152 Municipalities with less than 3 000 inhabitants. The smallest municipality is Rathen with 382 inhabitants (2019). 94 municipalities have more than 3 000 inhabitants but less than 5 000 inhabitants. Thus, 58.7% of the municipalities have less than 5 000 inhabitants. 102 municipalities have more than 5 000 but less than 10 000 inhabitants. Another 43 municipalities have more than 10 000 and less than 20 000 inhabitants. 25 municipalities have more than 20.000 and less than 100 000 inhabitants. The three county-free cities of Dresden, Leipzig and Chemnitz account in total for 34% of the total Saxon population. Leipzig is the most populous city with 593 009 inhabitants followed by Dresden (557 199 inhabitants) and Chemnitz (246 541 inhabitants).²⁸

Many cities in Saxony have historically grown city centres with markets and churchyards. Numerous city foundations date back to the 14th and 18th century. Particularly in the western part of Saxony, many cities have functional Wilhelminian-style quarters and railway suburbs with closed block edge developments. Due to the settlement policy of the GDR there is little tendency for urban sprawl. However, suburbanization has become more and more apparent in the last 25 years.²⁹

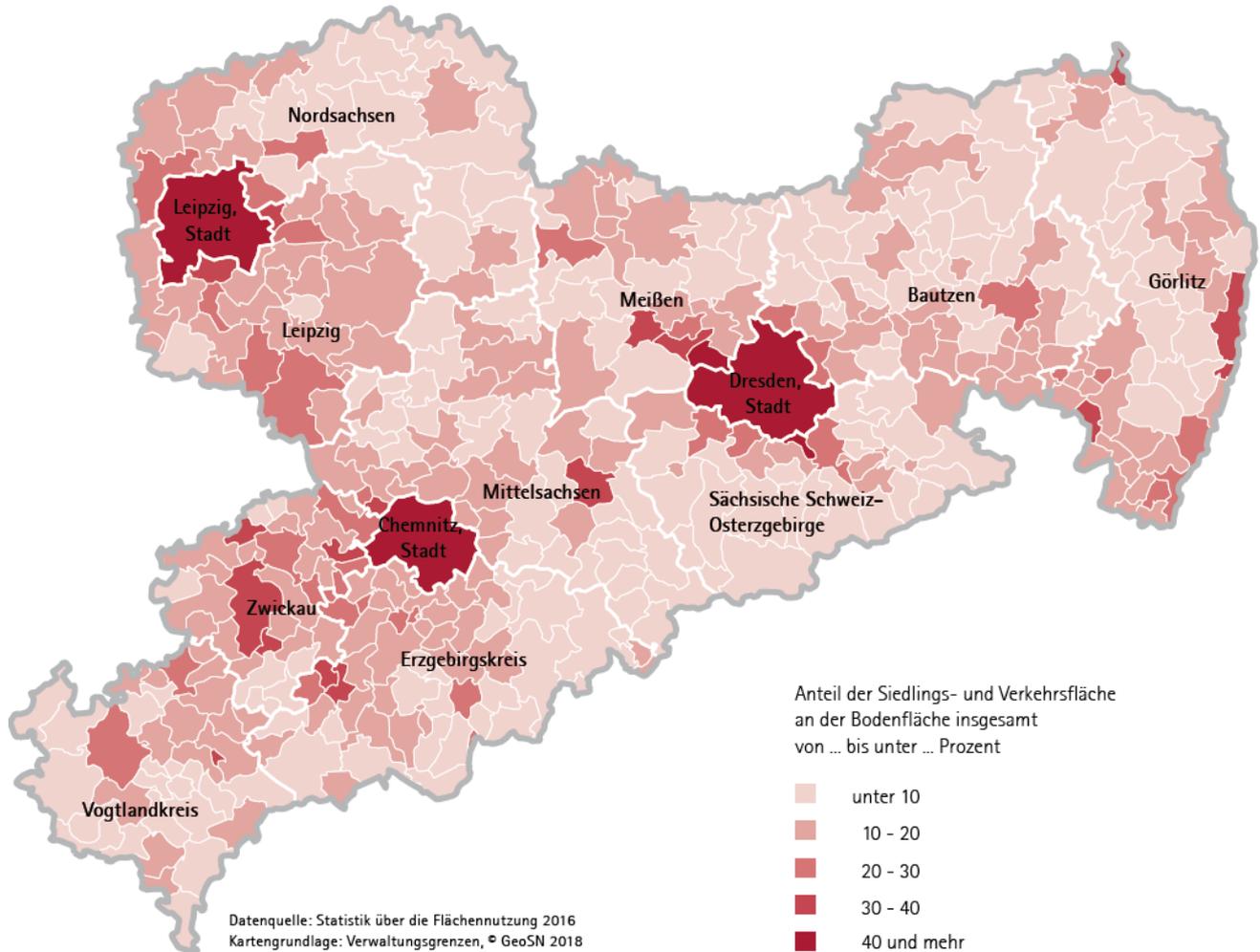
²⁷ vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Aktuelle Einwohnerzahlen nach Gemeinden. Stand 31. Oktober 2019, https://www.statistik.sachsen.de/download/010_GB-Bev/Bev_Z_Gemeinde_akt.pdf [accessed on 5 February 2020]

²⁸ vgl. ebd.

²⁹ vgl. TU Dresden (Hrsg.): Klein- & Mittelstädte in Sachsen, <https://tu-dresden.de/bu/architektur/istb/stbe/ressourcen/dateien/forschung/publikationen/160420-Klein-Mittelstaedte.pdf?lang=de>, p. 6 [accessed on 5 February 2020]



Siedlungs- und Verkehrsfläche im Freistaat Sachsen 2016
 Gebietsstand: 1. Januar 2018



Map 6: Settlement and transport areas in the Free State of Saxony (2016)³⁰

³⁰ Vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Sachsen in Karten. Ausgabe 2018, Dresden 2018, page 24, https://www.statistik.sachsen.de/download/300_Voe-Sonderpublikation/SN_in_Karten_2018.pdf [accessed on 5 February 2020]

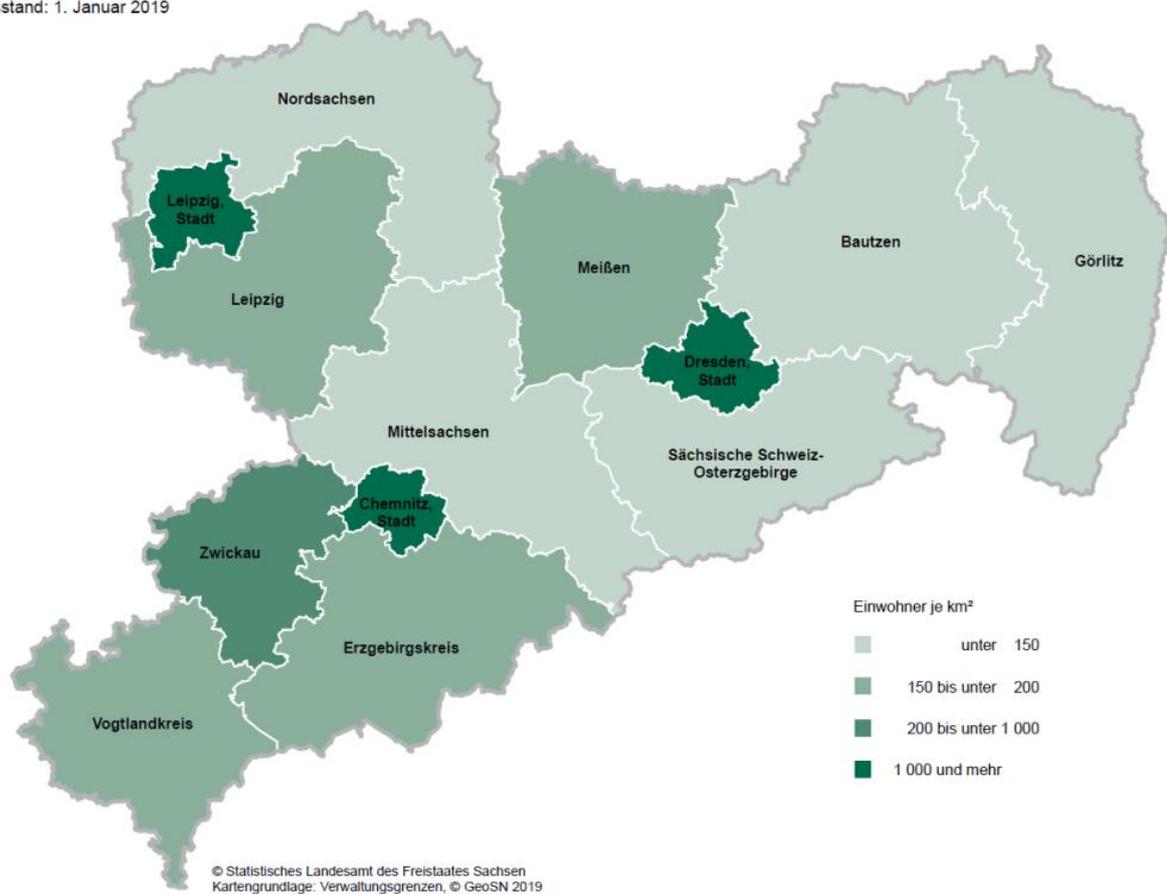
1.3.2. Demographical and socio-economic situation

Population

4 074 953 people are currently living in Saxony (2019).³¹ That is about 4.9% of the total population of Germany. With 221 inhabitants per km², Saxony is the most populous and densely populated of the new federal states. 49.3% of the population is male. 50.7% is female. The average age of the population in Saxony is currently 46.8 years and has thus increased by 1.6 years over the last 10 years.³²

Population numbers have been declining in the Free State of Saxony for over 50 years. This development has been accelerated by the German reunification. Since 1990, the Free State of Saxony has lost almost 15% (439 523 people) of its inhabitants, due to birth deficits and a negative migration balance.

Bevölkerungsdichte am 31. Dezember 2018 nach Kreisfreien Städten und Landkreisen
 Gebietsstand: 1. Januar 2019



Map 7: Population density on 31 December 2018 according to independent towns and districts³³

³¹ vgl. ebd.: Aktuelle Einwohnerzahlen nach Gemeinden, https://www.statistik.sachsen.de/download/010_GB-Bev/Bev_Z_Gemeinde_akt.pdf [accessed on 5 February 2020]

³² vgl. ebd.: Bevölkerung, <https://www.statistik.sachsen.de/html/369.htm> [accessed on 5 February 2020]

³³ Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Bevölkerungsdichte am 31. Dezember 2018 nach Kreisen Städten und Landkreisen, https://www.statistik.sachsen.de/download/010_GB-Bev/Karte_Bevölkerungsdichte_2018.pdf [accessed on 6 February 2020]

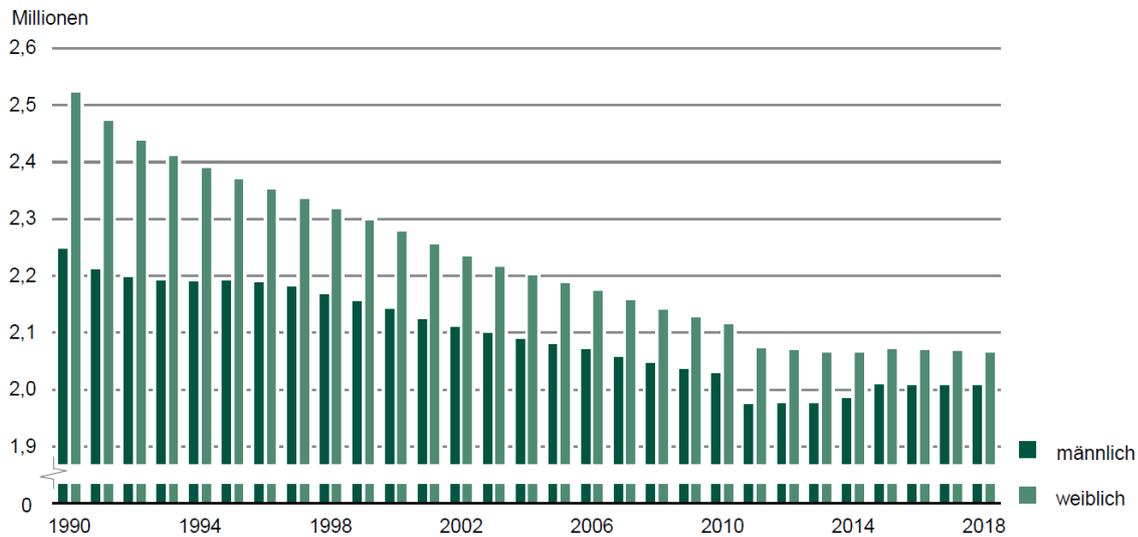


Figure 1: Population development in the Free State of Saxony³⁴

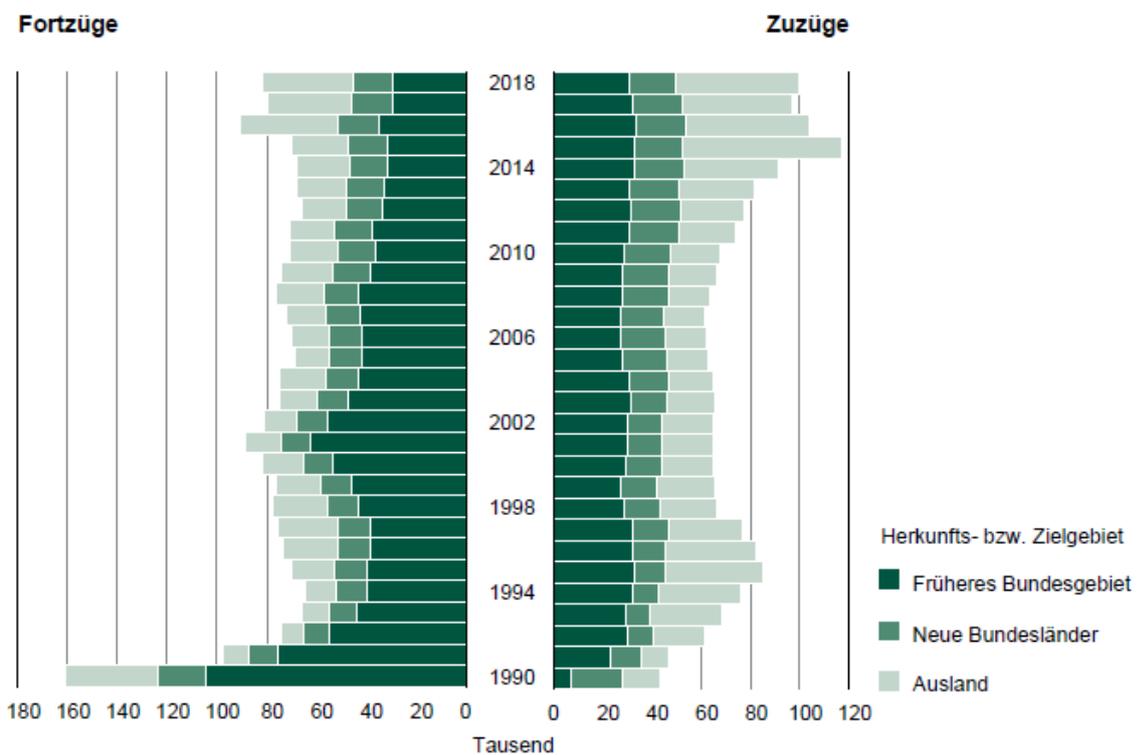


Figure 2: Population development in the Free State of Saxony³⁵

³⁴ Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Zu- und Fortzüge im Freistaat Sachsen 1990 bis 2018 nach Herkunfts- bzw. Zielgebiet, https://www.statistik.sachsen.de/download/010_GB-Bev/02_03_05_nZ.pdf [accessed on 5 February 2020]

³⁵ Ebd.



However, a slight population increase can be observed in recent years. While emigration remains on a high level, there has been a significant increase in immigration from 67 439 people in 2011 to 99 476 people in 2018. As a result, a positive annual migration balance can be observed since 2011.

The number of immigrations from abroad increased significantly due to asylum and protection seekers from international crisis regions, but also due to the changed framework conditions for labor migrants from the new EU member states. Beyond that, there were also positive changes in national migration patterns after 2011 with a significant increase of German immigrants from other federal German states.

Population development in Saxony varies greatly from region to region. Overall, it can be stated that the surrounding areas of the county-free cities show significantly lower population losses than the peripheral or sparsely populated areas. Dresden and Leipzig have shown a positive population development since 2000 and 2002. Leipzig in particular has experienced a considerable population growth in recent years (+19.2% since 2002).³⁶

Healthcare

In Saxony there is a comprehensive network of medical facilities that guarantee medical care for all citizens at all times. The healthcare system rests on three pillars: Inpatient care, outpatient care, public health service. There are currently 77 hospitals (25 870 beds / occupancy rate: 78.5% / average stay: 7.4 days) as well as 53 rehabilitation facilities (881 beds / occupancy rate: 85% / average stay: 26.4 days). In Saxony there are 17.866 doctors (6 896 in branches), 3 919 dentists (3 680 in branches) and 993 pharmacies (2 194 pharmacists).

Although the number of doctors is constantly increasing overall, the number of general practitioners has been declining since the turn of the millennium. In 1999, a family doctor treated an average of 1 760 inhabitants; by 2017 this number had increased to 2 199 inhabitants per doctor.

The number of hospital treatment cases in the Free State of Saxony has also increased in recent years; by 3% to over 1 million between 2010 and 2016. The largest increase of almost 15% was recorded for the county of Leipzig. The strongest decrease in hospital treatment cases was recorded in the county of Görlitz (7%). More than 40% of patients are treated in the cities of Dresden, Leipzig and Chemnitz.

Due to the current demographic development hospitals must prepare for an increasing number of very elderly patients who have several illnesses, so that a tendency towards a declining population in Saxony will not necessarily lead to falling patient case numbers.³⁷

Education

In the Free State of Saxony, a total of 48 955 children aged between 1 and less than 3 years were being looked after in day care facilities as of 2017. This results in a total attendance rate in this age group of 65.5% for the Free State of Saxony. The attendance rates vary widely in the municipalities due to the different availability of day care facilities. The number of pupils at general schools has declined by 42% since 1993/1994. At present, 367 000 pupils are studying at the 1 506 general-education schools. The decline was particularly sharp at the secondary and grammar schools. Here the number of pupils has reduced by half since 1993/1994. 11% of the municipalities have no general-education schools. Primary schools are present in 89% of the municipalities.

The decline in the number of pupils is somewhat more moderate in the three county-free cities Dresden, Leipzig and Chemnitz; 33% of all pupils in Saxony are located here. A total of 102 242 students attend vocational schools in the Free State of Saxony. Almost 50% of them are learning a profession in the dual

³⁶ Vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Sachsen in Karten, page 10f.

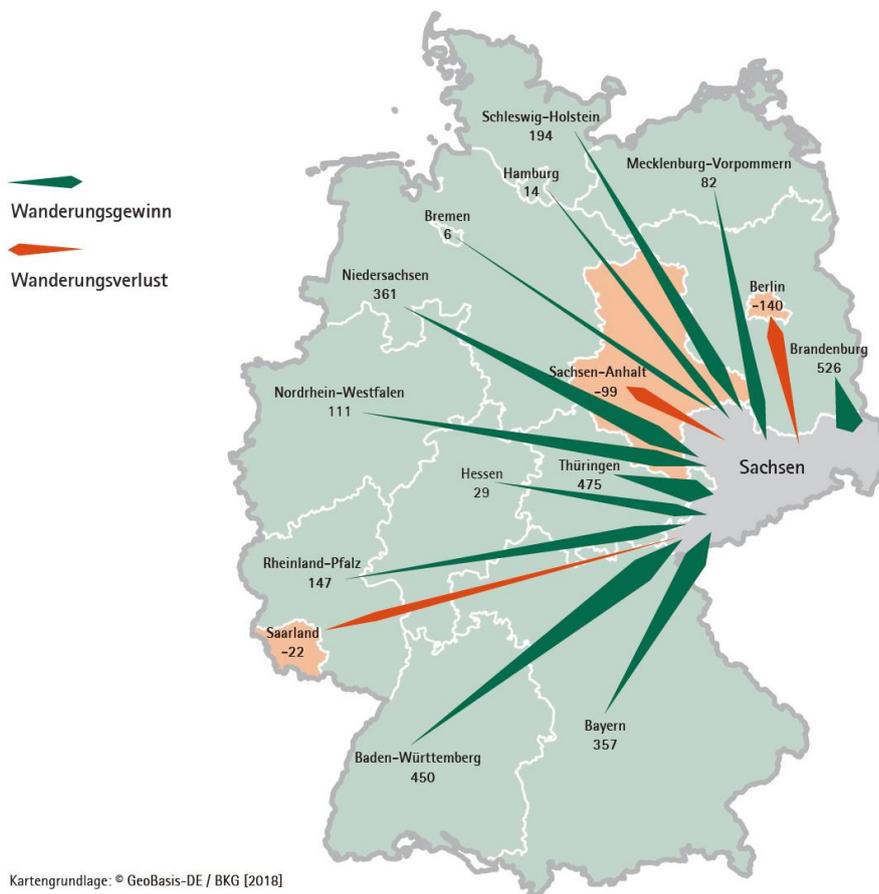
³⁷ Vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Sachsen in Karten, page 10f.

system and receive theoretical instruction at one of the 106 vocational schools. More than half of all vocational school students are distributed among the county-free cities in the Free State of Saxony. Within the districts, the district of Zwickau has the highest number of vocational school students. In 2018, 60% of new entrants to vocational schools had left general school with a secondary school certificate.

1/5th of the new entrants began their training with a lower secondary school certificate. 1/8th new entrants to vocational schools had the general qualification for university.

In Saxony, there are a total of 27 universities, thereof 6 university institutions, 6 art colleges, 13 Universities of applied sciences and 2 Universities of Administrative Sciences. Furthermore, there is the possibility of attending one of the 7 state study academies of the vocational academy. In 2016, almost 15 000 first-year students who had acquired their university entrance qualification within Germany began studying at Saxon universities. 7 201 first-year students came from other federal states. Most of them still came from the neighboring states of Thuringia, Bavaria and Saxony-Anhalt.³⁸

4 710 students from Saxony went to study in another federal state, preferably Saxony-Anhalt, Thuringia and North Rhine-Westphalia. In 2016, Saxony had a migration gain.³⁹



Map 8: Migration balance of students from and to the Free State of Saxony⁴⁰

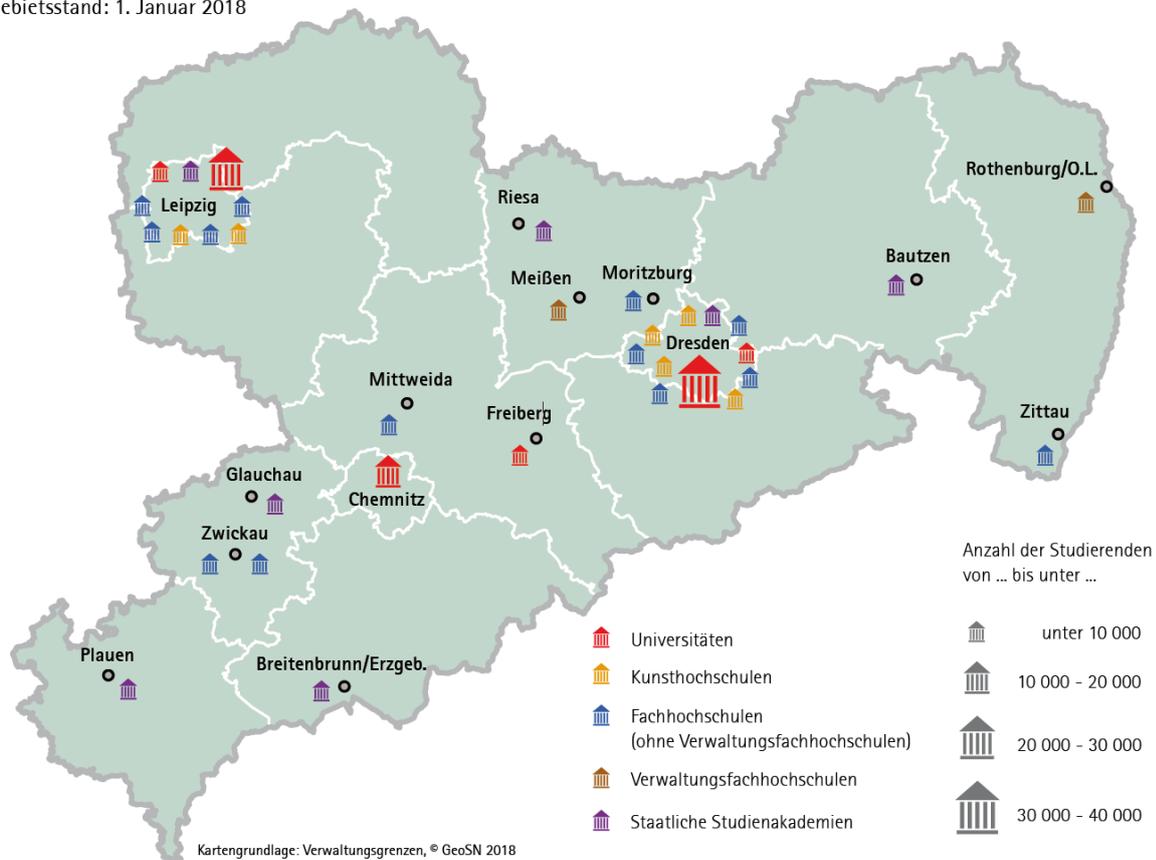
³⁸ Vgl. ebd., page 12f.

³⁹ Vgl. ebd.

⁴⁰ Ebd.: Wanderungsgewinne bzw. -verluste Sachsens bei Studienanfängern im Jahr 2016 gegenüber anderen Bundesländern, page 14.



Gebietsstand: 1. Januar 2018



Map 9: Colleges and universities in Saxony⁴¹

Private households

In 2018, there were about 2 156 400 private households in Saxony, 12 400 fewer than in 2017. The average household size has decreased from 2.3 persons per household in 1991 to only 1.9 persons per household in 2018. This decrease is mainly due to the growth in single-person households.

Significant differences in household size can be observed between the individual municipal size classes. The share of single-person households increases steadily with increasing community size. In 2018, for example, municipalities with fewer than 5 000 inhabitants had 33.4% single-person households. 12.5% had four or more persons. By contrast, in municipalities with at least 100 000 inhabitants more than one in two households (51.6%) was a single-person household and 8.1% of households had four or more persons.

In 2018, 1 054 800 couples, 125 600 single parents and 994 100 singles lived in Saxony. In 2008 there were 1 628 900 lifestyles without children. By 2018, the number had increased to 1 676 800 lifestyles (+2.9%). The number of families has declined by 12.8% in the same time period.⁴²

The monthly net income that private households can dispose of is distributed differently across the Saxon regions. Households in the counties of Bautzen (2 014 €), Leipzig (1 957 €) and Saxon Switzerland-Eastern Ore Mountains (1 937 €) have the highest average net income (median). The lowest average net household

⁴¹ Ebd.: Hochschulen und Staatliche Studienakademien der Berufsakademie 2017, p. 15

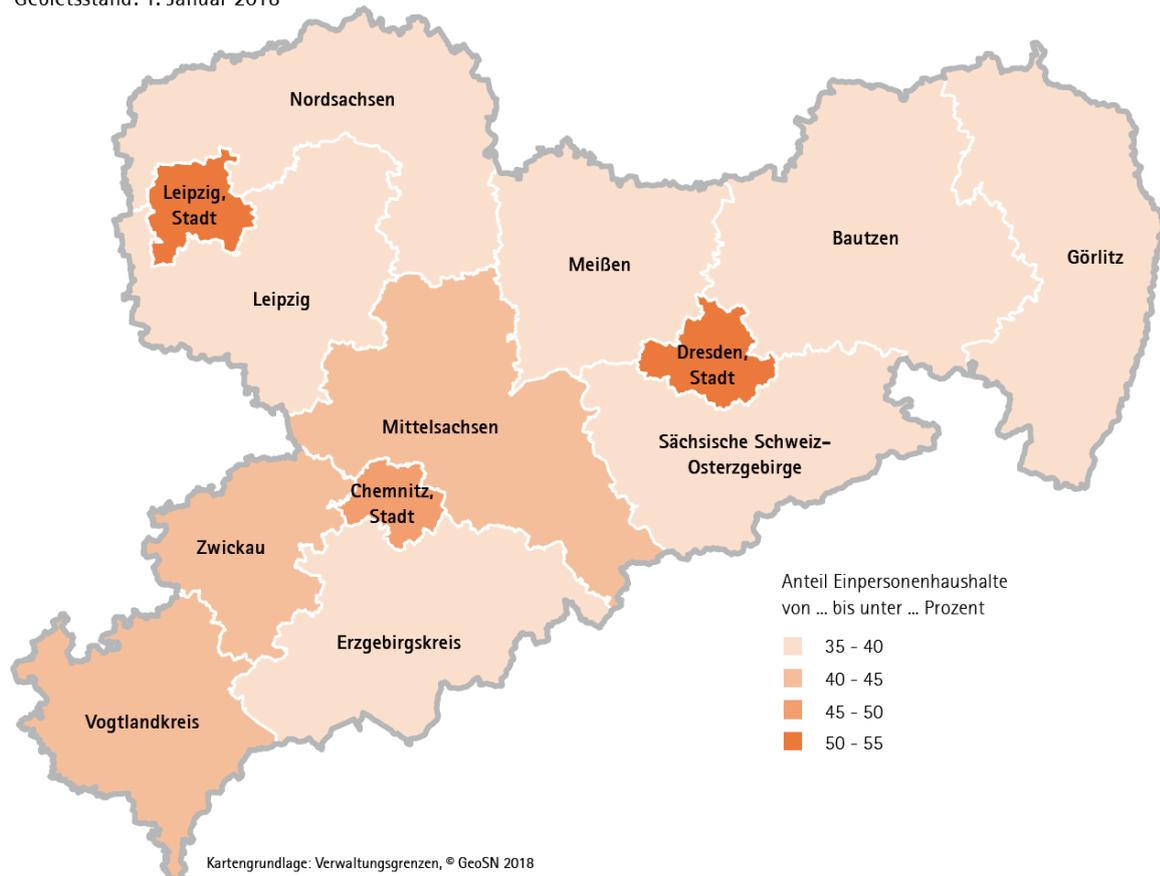
⁴² Vgl. ebd. Familien, Haushalte, <https://www.statistik.sachsen.de/html/370.htm> [accessed on 11 February 2020]



income is found for the county-free city of Leipzig (1 689 €), which has the highest proportion of single-person households in Saxony.⁴³

In 2018, 90.5% of the private households in the Free State of Saxony had an Internet connection (stationary and/or mobile). Around 1/5th of households (22.6%) have two or more cars. 48.7% of households have two or more bicycles.⁴⁴

Gebietsstand: 1. Januar 2018



Map 10: Share of single-person households in private households⁴⁵

Private car stock

In 2017, 2 122 324 private cars were registered in the Free State of Saxony. The number of private cars has increased steadily since 2010. In 2017 the growth rate has peaked at 0.7%. The largest absolute private car stocks are in the large county-free cities. Dresden (222 636) and Leipzig (220 026) are at the top, followed by Chemnitz (123 841). Rathen has the lowest absolute number of registered private cars (184). In general, the larger cities have a well-developed public transport infrastructure, so that the number of private cars per inhabitant is relatively low here. The average number of private cars in Saxony

⁴³ Vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Sachsen in Karten, p. 20

⁴⁴ Vgl. ebd.: https://www.statistik.sachsen.de/download/300_Voe-Faltblatt/Faltblatt_Ausstattung-privater-Haushalte_2019.pdf [accessed on 11 February 2020]

⁴⁵ Ebd., p. 20



is 521 cars per 1 000 inhabitants. In some municipalities the private car stock per 1 000 inhabitants is very high because companies have registered their entire vehicle stock there.⁴⁶

Employment

In Saxony there are 1 621 500 employees subject to social insurance contributions. The unemployment rate is at 6%. Approx. 801 000 people (49%) work in the service sector, 460 000 people (28%) in manufacturing and 341 700 people (19%) in trade, transport and catering. Approx. 18 800 people (1%) work in the forestry sector.

The structure of the employed population in the individual districts and independent cities varies. In the three county-free cities, for example, the public service sector, education sector and the health care sector account for a higher proportion of employees than the state average. In contrast, the overall share of agriculture, forestry and fishing is sometimes so small that it cannot be represented graphically.

The proportion of people working in manufacturing is highest in the Ore Mountain county (28.4%), followed by the counties of Zwickau, Central Saxony, Vogtland, Bautzen and Meissen.

The spatial interdependence of the municipalities in economic life is reflected in commuter behavior.

Wages in the Free State of Saxony have increased comparatively sharply in recent years. Between 2014 and 2018, the Free State of Saxony was able to record an increase in average gross monthly salaries of 6% - the highest increase in Germany.⁴⁷

Saxon employees' benefit, among other things, from the statutory minimum wage introduced at federal level at the beginning of 2015. The gap to West German wages has narrowed in recent years.

Nevertheless, salaries in the Free State of Saxony are still significantly lower than the federal average. The average wage of Saxon full-time employees in 2016 was 2.388 € gross per month. Employees throughout Germany received 3.133 € per month. Salaries in the Free State of Saxony are also low compared to other eastern German states. Only in Thuringia and Mecklenburg-Western Pomerania was the wage level lower than in the Free State of Saxony.⁴⁸

1.3.3. Description of cross-border relations

Cross-border cooperation with the Republic of Poland and the Czech Republic is particularly important for the Free State of Saxony. Due to Saxony's location in the border triangle of Germany, Poland and the Czech Republic, state development is increasingly influenced by processes beyond the more than 570 km long state border (123 km to the Republic of Poland and 454 km to the Czech Republic). About one third of Saxony's population lives in the border region. The areas close to the border take up almost half of Saxony's national territory.

The geographical proximity and the EU enlargement to the East have particularly intensified cooperation in recent years. Due to different structures and conditions, the Saxon border areas have different development opportunities, which are to be supported by spatial planning. In this respect the implementation of differentiated objectives and concepts for the individual sub-areas along the border are prioritized. Cooperation across state borders is included in the state development plan 2013 with independent objectives for the development of cross-border cooperation. The comparable regional

⁴⁶ Vgl. ebd., p. 44

⁴⁷ Vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Sachsen in Karten, p. 22

⁴⁸ Vgl. ebd.



planning authorities on both sides of the border are called upon to coordinate and implement plans and measures with cross-border effects in partnership.⁴⁹

The development of transport links combined with accessibility requirements contributes to the development of the economic and cultural region Saxony-Bohemia-Lower Silesia and to the exchange of services with the German and European economic areas. The integration of Saxony via cross-border transport corridors to the metropolitan regions of Wroclaw and Prague is to be implemented via efficient long-distance transport links.

Saxon institutions use various instruments to promote and intensify cross-border cooperation. The instrument of "European Territorial Cooperation" (ETC) with its programmes contributes significantly to the deepening of neighbourly relations and the joint spatial development of the border region.⁵⁰

With the "Saxon-Czech Border Area Study"⁵¹ from the year 2013, a cross-border coordinated overall strategy for the future joint spatial development of the border area was created. It was commissioned by the Ministry for Regional Development of the Czech Republic and the Saxon State Ministry of the Interior. The study area comprises the closer Saxon-Czech border region. Numerous actors on both sides of the border were involved in the development process. Among others, the Saxon and Czech ministries, the Saxon and Czech districts close to the border, the regional planning associations, the Euroregions as well as many other regional actors were involved. The results of the border area study serve to improve the coordination of action- and problem-solving oriented cross-border activities in order to strengthen the common border area. Among other things, topics such as population and services of general interest, labour market and economy, transport and technical infrastructure, environmental, nature and landscape protection and regional development were examined. Taking into account numerous "best practices", the border region study contains valuable suggestions for the work of the state and municipal levels, especially the regional planning associations and the Euroregions in the search for joint implementation strategies. In this way, the border region study offers suggestions and impulses for concrete projects and measures of cross-border cooperation.

The cooperation programme Free State of Saxony - Czech Republic 2014-2020 (SN-CZ 2014-2020) aims at sustainable territorial development by implementing joint economic, social and ecological activities. The further development of the Saxon-Czech border region into a common, sustainable living, natural and economic area is the common goal of the Free State of Saxony and the Czech Republic. This also includes strengthening competitiveness and the sustainable improvement of the living conditions of the people living in the common border region. Priority IV (Improving the institutional capacity of public authorities and stakeholders and efficient public administration) has the specific objective of making a significant contribution to territorial cohesion by strengthening and developing cross-border cooperation to support the joint development of the border area. In the programme period 2014-2020, a project has been implemented which explicitly addresses the new Dresden-Prague line⁵². The aim was to bring together the authorities and institutions on both sides, which will in future jointly participate in the construction of the new Dresden-Prague line. Studies on the impact of traffic on the regions in the border area were examined more closely.

⁴⁹ Sächsische Staatsregierung (Hrsg.): Landesentwicklungsplan 2013, Dresden 2013, p. 55

⁵⁰ Vgl. SMR (Hrsg.): Grenzübergreifende Zusammenarbeit mit Tschechien und Polen, <https://www.landesentwicklung.sachsen.de/2339.htm> [accessed on 5 February 2020]

⁵¹ Vgl. SMI (Hrsg.): Sächsisch-tschechische Grenzraumstudie - Zusammenfassende Analyse und Entwicklungsstrategie https://www.landesentwicklung.sachsen.de/download/Landesentwicklung/forum_ifl_22.pdf [accessed on 5 February 2020]

⁵² Vgl. EGTC New Railway line Dresden-Prague: <https://www.nbs.sachsen.de/13322.html> [accessed on 5 February 2020]



1.3.4. Presentation of companies in the area (manufactures, logistics, transport), identifying their activities

The economic power of the Free State of Saxony, measured by gross domestic product and disposable income per inhabitant, is ranked twelfth in the federal state comparison. Germany's gross domestic product (GDP) in 2018 was around 3 390 billion € and around 126 billion € in the Free State of Saxony in the same year. This corresponds to a share of 3.7% of total German GDP. The share of the manufacturing industry in gross value added (in current prices) is 32%. The share of the service sector is 67%. These figures are almost in line with the national average.⁵³



Map 11: Mechanical and plant engineering in Saxony⁵⁴

Saxony is one of the highly industrialized regions in Germany. The automotive industry and mechanical and plant engineering are the main structural features of the region. The Free State has a long tradition in both sectors.⁵⁵

In addition, the electrical engineering industry, including microelectronics, textile and clothing industry, railway industry, aerospace industry, healthcare industry, chemical industry, paper industry and food industry are of great importance to the state's economic policy. The manufacturing industry, including

⁵³ Vgl. SMWA (Hrsg.): Logistikwirtschaft im Freistaat Sachsen. Analysen - Herausforderungen - Potenziale, Dresden 2019, page 5f.

⁵⁴ Wirtschaftsförderung Sachsen GmbH (Hrsg.): Maschinen- und Anlagenbau im Überblick, <https://standort-sachsen.de/de/investoren/branchen/maschinen-und-anlagenbau> [accessed on 6 February 2020]

⁵⁵ Vgl. ebd.



mining and quarrying, generated a turnover of 67 billion € in Saxony in 2017. Its share of the gross value added in Saxony is around 20.3%.⁵⁶

Automotive Industry

The automotive industry is a major sector. It accounts for more than a quarter of industry sales and over a third of foreign sales. 5 vehicle and engine plants of Volkswagen, BMW and Porsche as well as around 780 suppliers, outfitters and service providers are established in Saxony. Approx. 1/8th of the private cars built in Germany originate from Saxon vehicle production.

More than 95 000 employees work in Saxony's automotive industry. With the gradual conversion to electric vehicles in automotive industry, the Free State of Saxony is undergoing a far-reaching and challenging transformation process, which is being accompanied by the Saxon State Ministry of Economics, Labour and Transport (SMWA). Saxony is a region in which this transformation process begins particularly early. The impending change in the automotive industry has considerable significance for growth, prosperity and employment of the entire federal economy.⁵⁷



Map 12: Automotive industry in Saxony⁵⁸

The Free State of Saxony aspires to be a pioneer in modern transport and vehicle technologies and actively shapes the future of efficient mobility. On behalf of the SMWA, the Saxon Energy Agency - SAENA

⁵⁶ Vgl. ebd.

⁵⁷ SMWA (Hrsg.): Industrie. Branchenstruktur, <https://www.industrie.sachsen.de/12374.html> [accessed on 5 February 2020]

⁵⁸ Wirtschaftsförderung Sachsen GmbH (Hrsg.): Das "Autoland Sachsen" im Überblick, <https://standort-sachsen.de/de/investoren/branchen/automobilindustrie> [accessed on 6 February 2020]



GmbH has been coordinating Saxon activities in the field of electro mobility since 2011 and the "Intelligent Transport Systems" (ITS) topic area since 2014.

The SAENA as the Competence Centre for Efficient Mobility Saxony is the contact for future-oriented and efficient mobility in the Free State. The aim of the competence centre is to network Saxon know-how carriers in the innovative sector of intelligent transport systems, to make potentials visible and usable and to establish Saxony as a pioneer for networked mobility and thus strengthen the location.⁵⁹

Microelectronics industry

The information and communications technology (ICT) sector, including the microelectronics industry, comprises about 2 300 companies and non-university research institutions with more than 60 000 employees. It generates an annual turnover of about 14 billion €. The software industry, with about 1 500 companies and more than 23 000 employees and a turnover of 3.1 billion €, is a significant engine of growth in this sector. Topics with increasing importance in industry and research are the Internet of Things, Industry 4.0, Smart Factory and Smart Mobility.

The region around Dresden is the largest microelectronics location in Europe with approx. 250 companies and non-university research institutes and over 26 000 employees, which generate annual sales of around 6.5 billion €. ⁶⁰

Mechanical Engineering industry

Saxony is the largest mechanical engineering location in Eastern Germany. With approx. 360 companies, employing 39 500 people, the Free State of Saxony continues its 180-year-old tradition. The cradle of German mechanical engineering is in Chemnitz. The companies have a high level of innovative strength and distinctive competencies in manufacturing, automation and process engineering. This makes the industry an important partner for practically all other industrial sectors, especially in the age of Industry 4.0. Key areas in this industry include special-purpose machines, machine tools and textile machine construction. With over 300 members, the Saxony Mechanical Engineering Innovation Association VEMASinnovativ has developed into the largest cluster in production technology in Germany. ⁶¹

Metal industry / Chemical industry / Plastics industry

The metal industry in Saxony (including metal production and processing, manufacturing of metal products) employs approx. 52 500 people in 650 companies. The chemical industry in the Free State employs over 8 200 people in 71 companies with an annual turnover of around 2.7 billion €. The Basic chemicals industry accounts for a high share of 40% of turnover. With 155 companies and around 12 500 employees, the plastics industry is one of the strongest sectors with annual sales of around 2.1 billion €. It plays an important role in the Free State of Saxony as a supplier of the automotive industry. ⁶²

⁵⁹ SMWA (Hrsg.): Industrie. Branchenstruktur, <https://www.industrie.sachsen.de/12374.html> [accessed on 5 February 2020]

⁶⁰ Vgl. ebd.

⁶¹ Vgl. ebd.

⁶² Vgl. ebd.

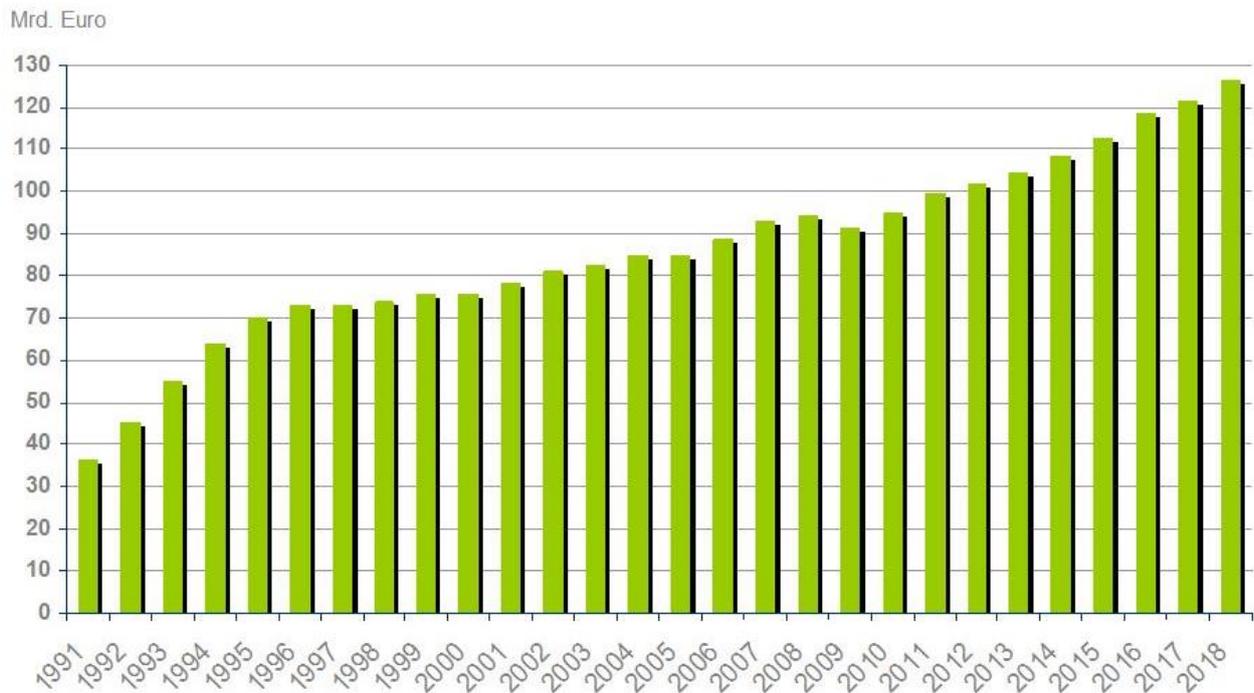


Textile and clothing industry

For Saxony, the textile and clothing industry is an important economic factor: The industry with its approximately 12 000 employees generate more than half of its turnover with the production of technical textiles for various purposes, 30% is accounted for by home textiles and considerably less than 20% by clothing. Saxon textile companies have a total turnover of more than 1 billion €. In comparison to the other new federal states, the textile and clothing industry occupies an important position in the Free State of Saxony with a sales share of almost 75%. Along with North Rhine-Westphalia, Baden-Württemberg and Bavaria, Saxony is one of the four most important centres of the German textile and clothing industry.⁶⁷

Healthcare industry

The healthcare industry, including health-related services, comprises more than 900 companies in Saxony with over 16 000 employees and an annual turnover of approximately 1.4 billion €. The pharmaceutical and medical technology industries are particularly strong. The pharmaceutical industry accounts for 37% and medical technology for 27% of the total turnover of the health industry in Saxony.⁶⁸



Quelle: Statistisches Landesamt des Freistaates Sachsen, 2019

Figure 3: GDP growth in Saxony from 1991 to 2018⁶⁹

⁶⁷ Vgl. ebd.

⁶⁸ Vgl. ebd.

⁶⁹ Ebd.: Das sächsische BIP 1991 - 2018 (in jeweiligen Preisen), <https://standort-sachsen.de/de/standort/wirtschaft> [accessed on 5 February 2020]

1.3.5. Industrial production, major floater (origin) and destination points

Due to its good geographical location, Saxony is a central logistics gateway for Europe-wide distribution. Among other things, it has prompted the international logistics company DHL to relocate its European air freight hub from Brussels to Leipzig. At Leipzig/Halle airport, cargo liners can be handled 24 hours a day, 365 days a year. A direct flight route connects Leipzig with Hong Kong and Los Angeles, thus drastically reducing the transit times of intercontinental shipments.⁷⁰



Map 14: Location of Saxony with distances (travel times)⁷¹

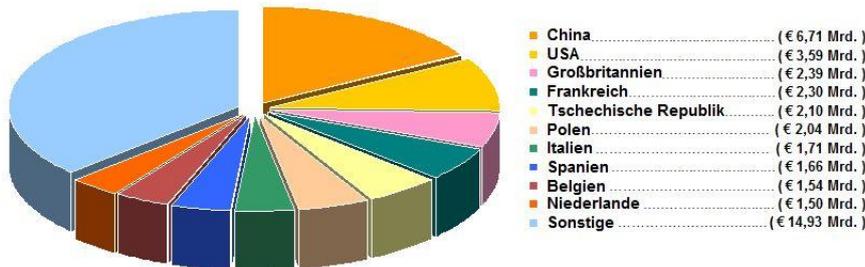
⁷⁰ Vgl. Wirtschaftsförderung Sachsen GmbH (Hrsg.): Logistik Standort Sachsen - im Herzen Europas, <https://standort-sachsen.de/de/branchen/weitere-branchen/logistik> [accessed on 5. February 2020]

⁷¹ Ebd.



In 2018 Saxon exports amounted to 40.47 billion €. Saxony's main export partner worldwide is China. In 2018, deliveries to China have increased by 12% to 6,7 billion € compared to the previous year. Overall, exports to Asia have increased by 5%. Meanwhile, deliveries to the American continent decreased by 12% at the same time. A decisive factor was the 14% drop in exports to the USA, Saxony's second most important export partner after China.⁷²

Sachsens Exportpartner 2018 (insgesamt € 40,47 Mrd.)



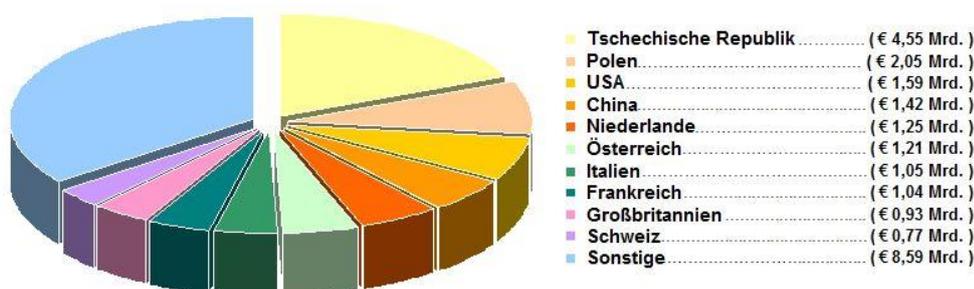
Quelle: Statistisches Landesamt des Freistaates Sachsen, 2019

Figure 4: Export partners of Saxony in 2018⁷³

With a share of about 58% of all exports, Europe was the most important continent for exports by Saxon producers in 2018. Deliveries to the partners Czech Republic (exporting country no. 5) and Poland (exporting country no. 6) increased slightly by 2% and 3% respectively compared to 2017.

In 2018, Saxony's imports amounted to 24.45 billion €. More than 70% of all imports to Saxony came from European countries. Main importers in 2018 were the neighbouring countries of the Czech Republic and Poland. Outside of the EU the USA (importing country no. 3) and China (importing country no. 4) are major import partners of Saxony.⁷⁴

Sachsens Importpartner 2018 (Import insgesamt € 24,45 Mrd.)



Quelle: Statistisches Landesamt des Freistaates Sachsen, 2019

Figure 5: Import partners of Saxony in 2018⁷⁵

⁷² Vgl. Ebd.: Sachsens Außenhandel, <https://standort-sachsen.de/de/expoiteure/sachsens-aussenhandel> [accessed on 5 February 2020]

⁷³ Ebd.

⁷⁴ Vgl. ebd.

⁷⁵ Ebd.



Products from the automotive industry are Saxony's most important export products, accounting for 35.8% of foreign sales. Its sales abroad have more than doubled in the last 10 years. In 2018, the automotive industry's foreign sales amounted to 9.1 billion €. The main customers were USA and China.⁷⁶

1.3.6. Agriculture production, food processing

There are approximately 901 000 ha of utilised agricultural area in Saxony (2017), of which 704 600 ha (~78%) are arable land and 191 000 ha (~21%) are permanent grassland. >1% of the area is used for permanent crops and home and kitchen gardens. Cereals are grown on just under 380 000 ha.

The average yield for cereals (including grain maize and similar) is 70.6 dt/ha. The highest grain yield per county is achieved in the county of Leipzig with 77.0 dt/ha. The average yield for winter wheat is 75.1 dt/ha, for winter barley 73.2 dt/ha, for rye 50,9 dt/ha and for grain maize 96.5 dt/ha. 2017 was a year with average cereal yields. A total of almost 2.7 million tonnes of cereals, including grain maize, were brought in, including more than 1.4 million t of wheat. The highest share of grassland in the agriculturally used area is in the ore mountain county, at just under 44%. The lowest share (>10%) is in the county of Northern Saxony. The Ore mountain county has also the highest share of pastures.

In the Free State of Saxony, a total of 462 920 livestock units are counted (2016). The ore mountain county has the highest livestock density of 85 units per 100 ha of agricultural land. Cattle farming industry is also dominant here, which is consistent with the high proportion of pastures. In contrast, pig farming is concentrated in the counties in the north of the Free State of Saxony, such as North Saxony, Meissen, but also Bautzen and Leipzig.⁷⁷

1.3.7. Logistic, storage and distribution points

Saxony's industrial base with its core sectors of the automotive industry, microelectronics/I&C technology, mechanical and plant engineering and environmental technology offers potential for logistics services. The Logistics sector in Saxony has approx. 170 000 employees and generates total revenue of around 11.7 billion € (estimated value). This corresponds to a share of 4.3% of the total logistics revenue in Germany (2018). Almost 8% of all employees subject to social security contributions in Saxony work in the logistics sector (2018).

In a nationwide comparison, Saxony shows increased shares of total logistics turnover in industrial contract logistics, courier-, express- and parcel-services and air freight. In Saxony there are more than 20 logistics-relevant institutions at Saxon universities and colleges as well as six research institutes focusing on new logistics-related technologies and their transfer to the economy.

Key location factors for logistics companies in Saxony are the well-developed infrastructure and the dense and extensive transport network.

While oversized and heavy loads are usually transported via the motorways, companies also have access to rail freight transport through private sidings, public loading roads, rail ports and transshipment terminals for combined transport. Here, goods are not loaded directly onto the railway, but are transhipped between road and rail in standardized transport containers. In wagonload traffic, the modern train formation facility in Halle (Saale) is an important bundling point for Saxon rail transport.

⁷⁶ Vgl. ebd.

⁷⁷ Vgl. Statistisches Landesamt des Freistaates Sachsen (Hrsg.): Sachsen in Karten, p. 26



In addition to road and rail freight transport, inland waterway transport via the Elbe River also plays an important role in freight transport. For the handling of goods Saxony has the three inland ports in Dresden, Riesa and Torgau.⁷⁸

Leipzig/Halle Airport plays a particular role in air freight traffic. It is the 2nd largest cargo airport in Germany after Frankfurt airport (2.2 million t in 2017) as well as Europe's 5th largest cargo hub. The express service provider DHL, which operates its European hub here since 2008, has a major share in this development.⁷⁹ Air freight volumes at Leipzig/Halle Airport increased to around 1 221 429 t in 2018 (an increase of 7.3% compared to 2017).⁸⁰

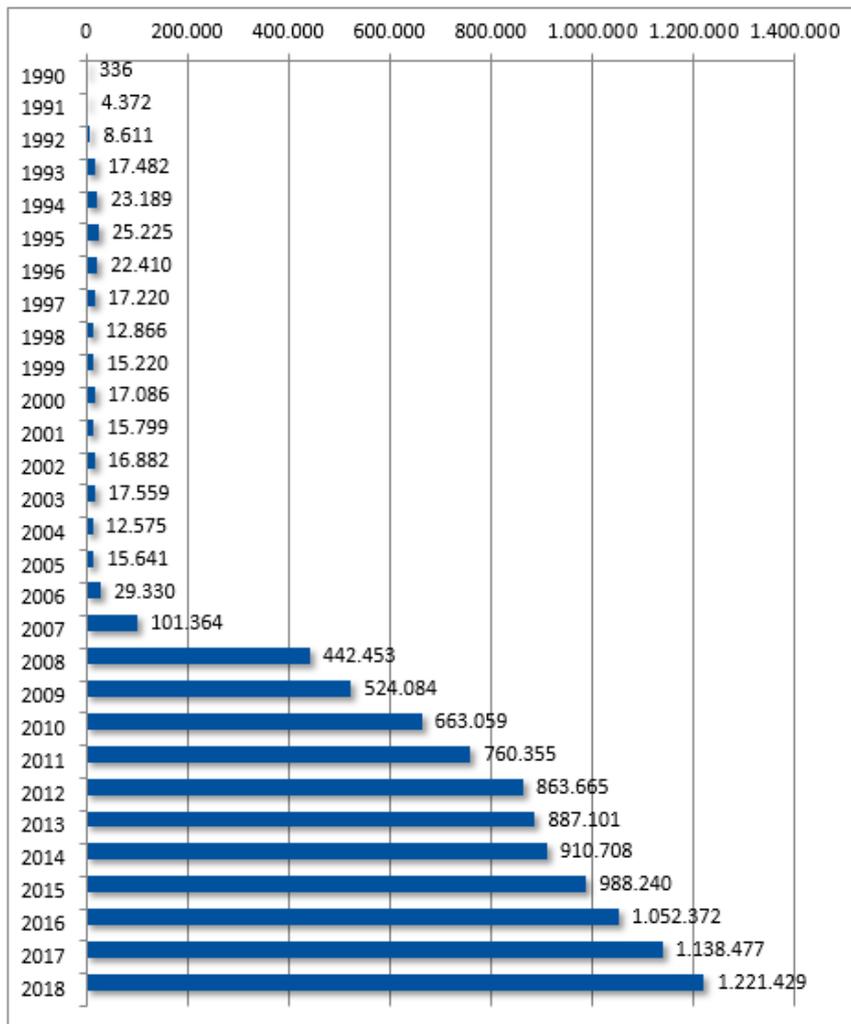


Figure 6: Development of freight and mail volumes at Leipzig/Halle Airport (in tonnes)⁸¹

⁷⁸ Vgl. SMWA (Hrsg.): Logistikwirtschaft im Freistaat Sachsen. Analysen - Herausforderungen - Potenziale, Dresden 2019, p. 12

⁷⁹ Vgl. ebd.: Logistikwirtschaft im Freistaat Sachsen. Analysen - Herausforderungen - Potenziale. Zusammenfassung der Studie, p. 20

⁸⁰ Vgl. Flughafen Leipzig/Halle GmbH (Hrsg): Verkehrsentwicklung, <https://www.leipzig-halle-airport.de/unternehmen/ueber-uns/zahlen-und-fakten/verkehrsentwicklung-158.html> [accessed on 5 February 2020]

⁸¹ Ebd.



1.4. Presentation of freight characteristics

1.4.1. Partners (market actors)

The main players in freight transport are the major European operators. In addition, there are regional providers who are able to assert themselves on the market with special products.

The following renowned logistics companies operate in the field of contract logistics and cargo transport / freight forwarding in the Free State of Saxony:

INDUSTRY SECTOR	NAME	LOCATION
	Kühne + Nagel International AG	Leipzig, Dresden, Chemnitz
	DB Schenker / Schenker Deutschland AG	Leipzig, Chemnitz, Dresden, Grimma
	Schnellecke Group AG & Co. KG	Dresden
	Rhenus-Gruppe (Rhenus Office Systems GmbH, Rhenus SE & Co. KG, Rhenus AL Chemnitz GmbH, Rhenus & Hellmann GmbH & Co. KG)	Meerane, Leipzig, Chemnitz, Großschirma, Zwickau
Contract logistics ⁸²	Emons Spedition GmbH	Dresden, Glauchau, Chemnitz, Zwickau
	DSV Air & Sea GmbH	Leipzig
	BLG LOGISTICS GROUP AG & Co. KG	Leipzig
	Dachser GmbH & Co. KG	Dresden
	Rudolph Logistik Gruppe GmbH & Co. KG	Leipzig
	World Courier GmbH	Leipzig
	Ceva Logistics GmbH	Leipzig
Cargo transport / freight forwarding ⁸³	DHL Hub Leipzig	Leipzig
	AeroLogic GmbH	Leipzig
	Sächsische Binnenhäfen Oberelbe GmbH	Dresden, Riesa, Torgau
	ITL Eisenbahngesellschaft mbH	Dresden

⁸² Vgl. Wirtschaftsförderung Sachsen GmbH (Hrsg.): Kontraktlogistik, <https://standort-sachsen.de/de/branchen/weitere-branchen/logistik/branchenstruktur/kontraktlogistik> [accessed on 6 February 2020]

⁸³ Vgl. ebd.: Gütertransport/Spedition, <https://standort-sachsen.de/de/branchen/weitere-branchen/logistik/branchenstruktur/guetertransport-spedition> [accessed on 6 February 2020]



Additionally, many companies are active in the fields of IT services, mail order and Internet trade.

The main players in the OEM corridor which are relevant for the project and the partnership are the rail transport companies, which today already provide a significant proportion of the transport service. Such actors can be named the following operators:

- Deutsche Bahn Cargo
- ČD Cargo
- METRANS
- VTG
- ITL Eisenbahngesellschaft
- BOHEMIAKOMBI
- LKW Walther
- Kombiverkehr
- Preymesser
- OEBB Rail Cargo
- MAERSK
- LINEAS
- Saxon inland ports Upper Elbe (SBO)

1.4.2. Current major directions

The current main destinations in the OEM corridor, which concern the Free State of Saxony, are directly related to the regional economy of Saxony and the transit flows that pass through Saxony. The transit flows concern the North Sea and Baltic Sea ports to the North and the agglomerations of Prague and Vienna to the South:

- Port of Hamburg
- Port of Bremerhaven
- Port of Rotterdam
- Port of Duisburg
- Port of Rostock
- Agglomeration Ruhr Area
- Agglomeration Prague
- Agglomeration Vienna



1.4.3. Dimensions of the freight traffic

As there is no detailed recording of freight flows in the Free State of Saxony on the basis of administrative districts, the evaluation was carried out using the traffic interdependence forecast 2030 of the German Federal Ministry of Transport. The data basis for the forecast is the traffic data for the year 2010, which is based on the forecast horizon 2030, considering planned transport infrastructure projects.

REGION LEIPZIG

	Outbound (tons)	Inbound (tons)	Total	Share
Rail	4.167.122	2.762.846	6.929.968	18,3%
Road (truck)	15.419.081	15.361.517	30.781.318	81,5%
IWW	60.604	7.599	68.203	0,2%
Total tons	19.647.527	18.131.962	37.779.489	100,0%

REGION DRESDEN

	Outbound (tons)	Inbound (tons)	Total	Share
Rail	9.060.280	6.223.775	15.284.055	28,63%
Road (truck)	19.910.737	17.936.748	37.847.485	70,89%
IWW	150.736	108.456	259.192	0,49%
Total tons	29.121.753	24.268.979	53.390.732	100,00%

REGION CHEMNITZ

	Outbound (tons)	Inbound (tons)	Total	Share
Rail	1.142.050	1.273.912	2.415.962	6,86%
Road (truck)	15.739.216	17.083.155	32.822.371	93,14%
IWW	609	155	764	0,002%
Total tons	16.881.875	18.357.222	35.239.097	100,00%

Table 8: Forecast 2030 of in- and outbound of goods⁸⁴

⁸⁴ ...



Especially in Saxony, special transports (large-volume and heavy lift transports) account for a significant share of the volume. As a rule, these are high-value cargoes, which, however, weigh considerably less than conventional shiploads (with approx. 1,000 tons). Nevertheless, these special transports have a comparatively high added value. It is clear that road freight transport has the highest share of total freight transport in all administrative districts of the Free State. Rail transport has a much lower share. Rail is clearly underrepresented in the southern districts in particular. As expected, inland waterways are only available in the districts of North Saxony, Meissen and Dresden relevant.

The three Saxon ports are universal ports and can handle all kinds of goods. The following two diagrams (cf. Figure 7 and Figure 8) show the development of goods handling by port location or by mode of transport.



Figure 7: Cargo handling (tons) in Saxon ports⁸⁵



Figure 8: Handling of goods (tons) in the Saxon ports, by mode of transport⁸⁶

⁸⁵ ...
⁸⁶ ...

The international volume of goods (by tonnage) for international land transport, ordered by country, was also analysed. The mapped diagram (cf. Figure 9) shows the Saxon export to individual target regions. The height of the columns for the respective district indicates the proportion of shipments to each region which are shown in colour at the bottom right of the Europe overview map.

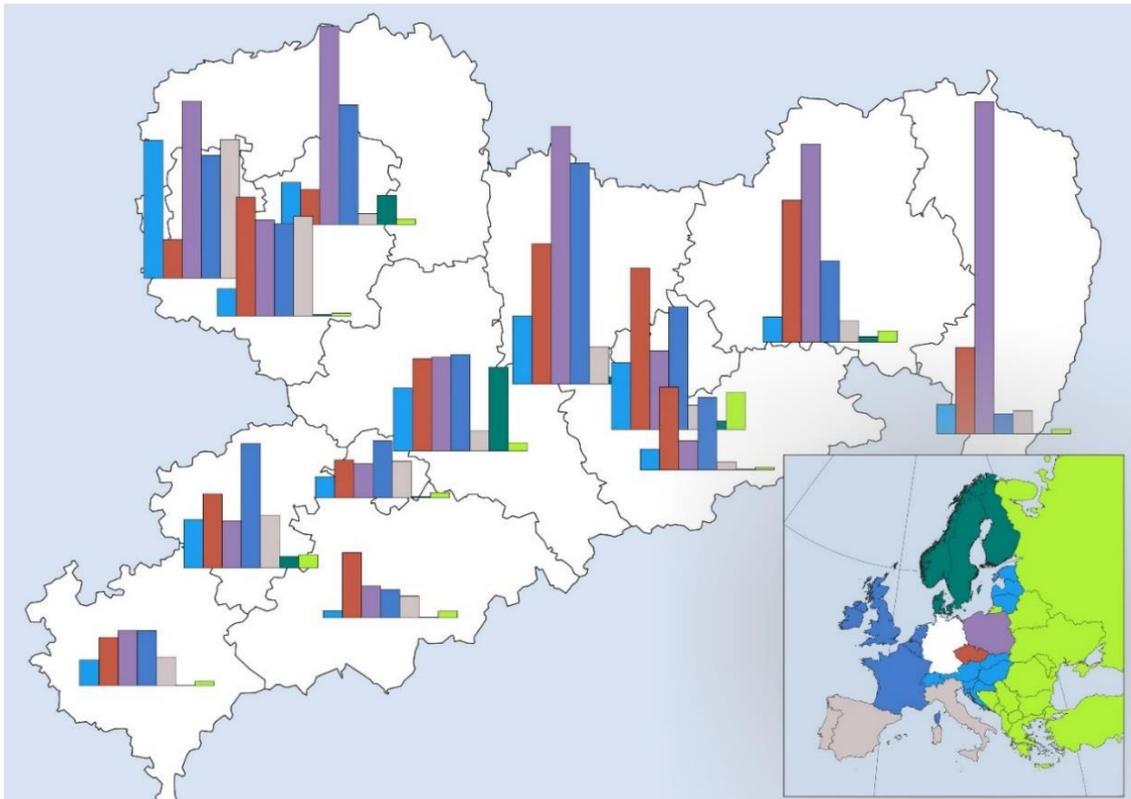


Figure 9: International flows of goods Saxony (outbound) by countries and regions by tonnage, forecast 2030⁸⁷

The relatively high proportion of exports to Poland from the administrative districts of eastern Saxony is particularly striking. But Poland also plays an important role as an export partner for the other districts, followed by the Czech Republic. Although both countries - in comparison to the size and also the economic power of the other regions under consideration (e.g. France, Benelux, Great Britain and Ireland in dark blue) - are not so large, they are considered to be the most important regions for Saxony. So the immediate neighbours play an important role.

A similar picture emerges related to the import of goods. Here as well, Poland has an important role as trading partner. In general, the import flows are related more evenly to other regions - above all France, Benelux, Great Britain and Ireland. For imports from Poland all North Saxon districts are important (unlike in export only the East Saxon districts).

In case of the international freight flows shown, it must be noted that the goods shown are goods of high tonnage and that the tonnage cannot be equated with the value of the goods. While with neighbouring countries both high value as well as less valuable goods are exchanged, trade with distant countries (e.g. overseas) generally refers to high value goods. Against this background, it also appears to be logical that more distant countries (Spain or Russia) are indicated with lower volumes.

⁸⁷ ...

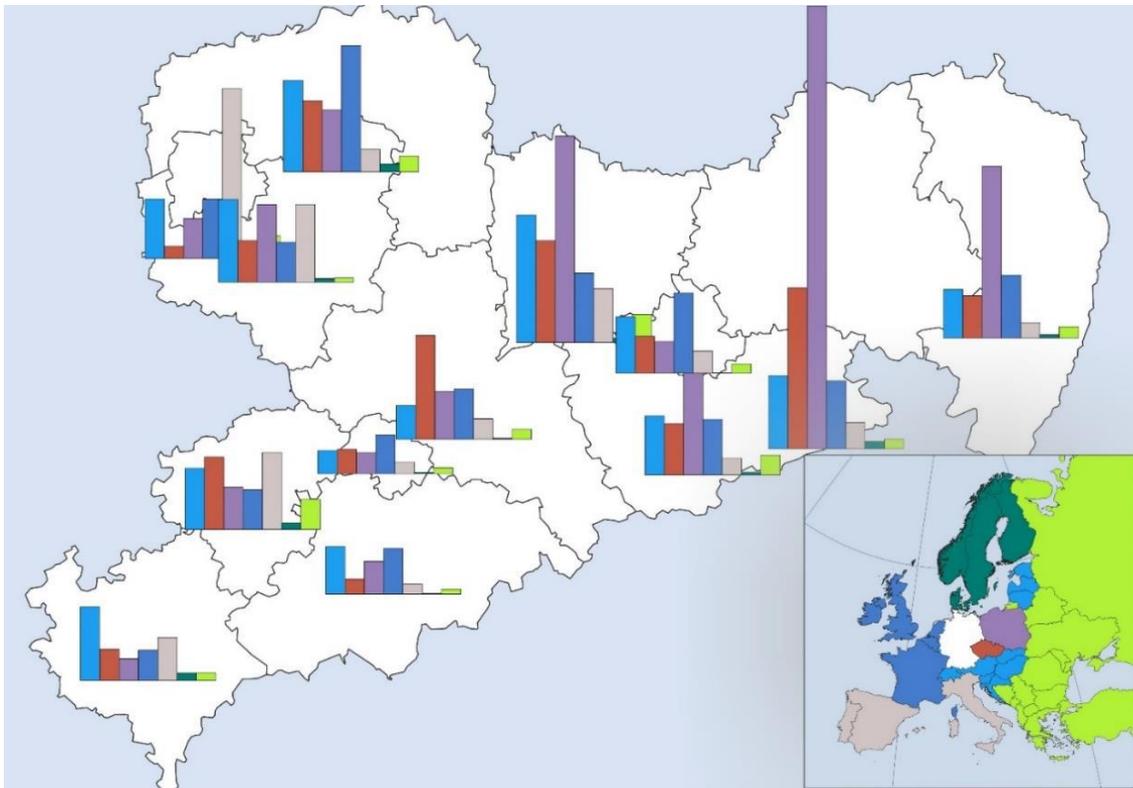


Figure 10: International flows of goods Saxony (inbound) by states and regions by tonnage, forecast 2030⁸⁸

Since transit goods flows through the Free State of Saxony are not recorded statistically, this has to be checked on the basis of data collected at the main border crossings. Since the main goods traffic on the road is transported via few border crossings, the number of truck journeys via the Ludwigsdorf border crossing for traffic to and from Poland (A4 motorway) and via the Breitenau border crossing for traffic to and from Czech Republic (A17 motorway) has a high informative value with regard to the international volume of transit goods via Saxon roads.

As can be seen in Figure 11, the volume of traffic across the two border crossings has significantly increased. In particular on the east-west axis, the volumes have increased in the last 14 years by four times. Besides the motorways Warsaw-Berlin and Prague-Nuremberg, the A4 motorway is the most important east-west axis to and from Eastern Europe.

On the A17 motorway in the direction of the Czech Republic, the increase in the volume of goods is somewhat lower, but also a clear upward trend is visible here. The reasons for this are on the one hand the stronger economic interdependences with Eastern Europe, especially since the EU enlargement in 2004. On the other hand, the continuous improvement of road connections is also relevant. Since 2016 exists a continuous motorway connection from Saxony (A4) through southern Poland (E40/A4) to the Ukrainian border. Also in western direction, the A4 motorway provides an important connection to the Ruhr area and to the ARA ports (Amsterdam, Rotterdam, and Antwerp). A similar connection - although less strong - can be established for the A17 motorway.

Partly the source and destination of truck transport is Saxony, however, it can be assumed that the largest part of the truck traffic on the A17 belongs to transit traffic and will continue to increase in the future.

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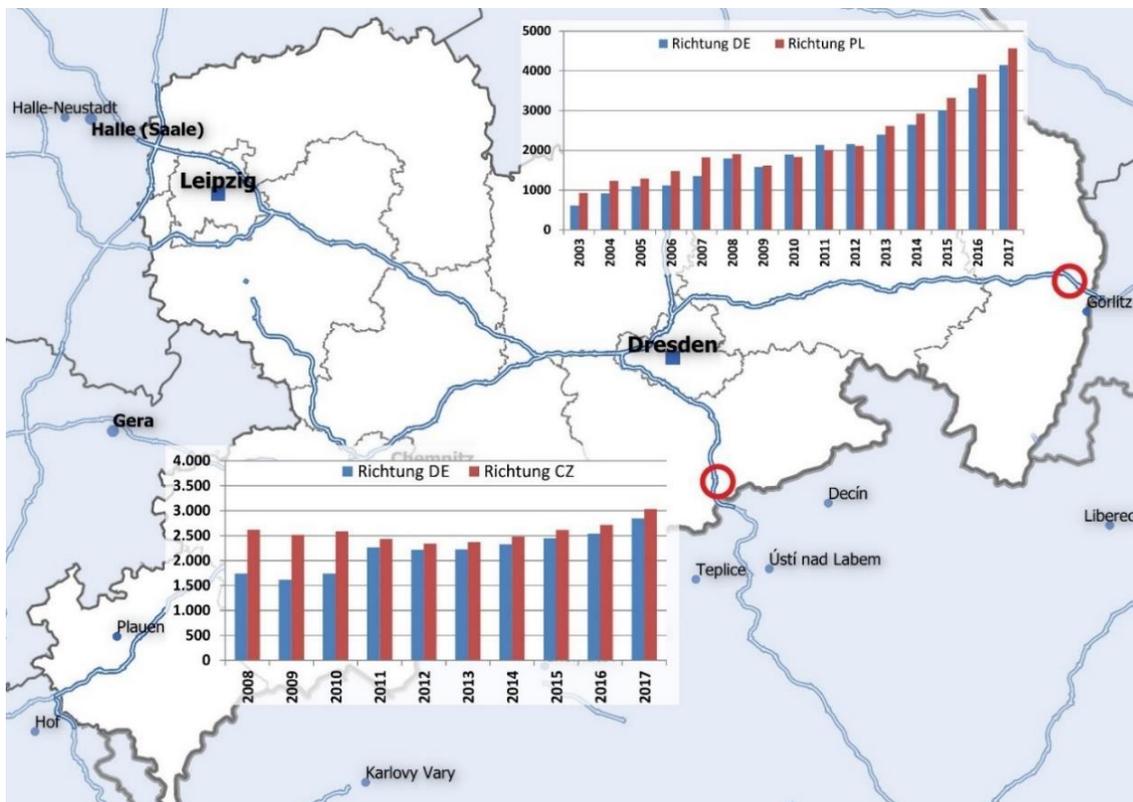


Figure 11: Truck volumes at motorway border crossings in Saxony - trucks > 3.5t with trailers/trucks⁸⁹

For rail freight transport, the figures for transit traffic are also not recorded statistically. Nevertheless a pattern similar to that of road freight transport can also be observed here. Relevant for transit traffic are primarily the two main border stations:

- Horka for traffic to/from Poland and
- Bad Schandau for traffic to/from the Czech Republic

The Horka border crossing was re-opened in December 2018 after a several year construction closure of the line to Knappenrode. Therefore, no figures are currently available for this border crossing.

However, it can be assumed that this border crossing will be the second important border crossing for freight traffic in direction of Poland after Frankfurt (Oder). In the long term, the total volume of rail freight traffic in the direction of Poland and further towards Eastern European countries will be divided between these two border crossings. Saxony thus has an efficient border crossing to Poland.

On the one hand, Saxony's industry is well connected to the Eastern European rail network through this border crossing, but on the other hand an increase in transit traffic is also expected.

For rail freight traffic in the direction of the Czech Republic, the border station Bad Schandau is one of the most frequented railway border crossings in Germany. At present, the crossing is used daily by about 60 freight trains per direction, i.e. a total of about 120 freight trains. Since the Czech Republic has a high rail share in the modal split for international freight traffic (especially for container traffic), and at the same time a large part of the of Czech overseas trade is handled via the port of Hamburg, it can be assumed that most of traffic volumes observed here is mainly transit traffic through Saxony.

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1.4.4. Presentation of loading devices

Modern handling equipment is used in the terminals of the Free State of Saxony. Modern reach stackers are available in the terminals for container handling. Portal cranes are used for goods handling in the ports and the Dresden and Leipzig terminals. Container depots are available in the terminals or in the immediate vicinity of the terminals.

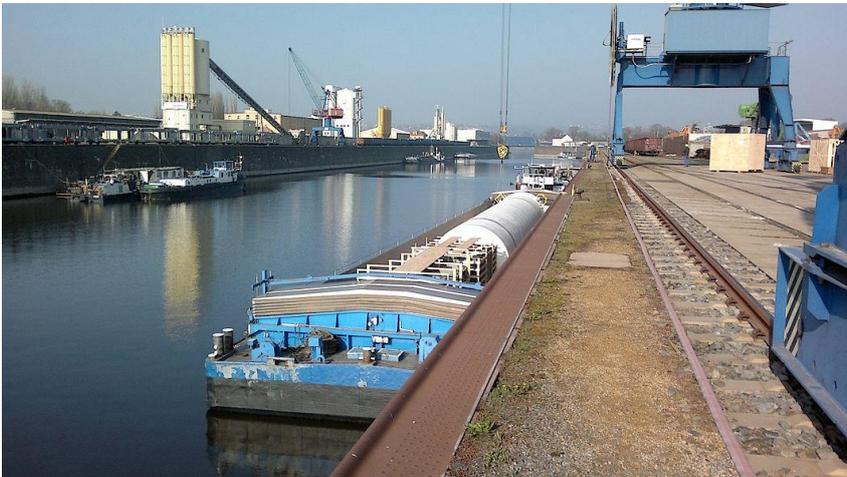
LOCATION	MODE	LOADING DEVICES	TOTAL TRACK LENGTH
Port Alberthafen Dresden-Friedrichstadt	trimodal	1 mobil crane 1 container stacker 2 reach stacker 1 heavyweight crane	6 500 m
GVZ Dresden	rail/road	2 portal cranes	2 x 1000 m
Railport Chemnitz	rail/road	1 portal cran	450 m
Contargo Glauchau	rail/road	2 reach stacker	2 x 300 m
Port of Riesa	trimodal	2 portal cranes 3 reach stacker 1 container stacker	6 tracks 9000 m
Port of Torgau	trimodal	2 portal cranes	2 x 1000 m
DUSS-Terminal Leipzig-Wahren	rail/road	4 portal cranes	8 x 700 m
Emons Terminal Leipzig-Schkeuditz	rail/road	2 reach stacker	1050 m

Table 9: Handling equipment of Saxon terminals



Picture 1: Portal cranes at the freight terminal Dresden (GVZ Dresden)⁹⁰

⁹⁰ LUB Consulting GmbH



Pictures 2 & 3: Handling facilities in the Port of Dresden (SBO)⁹¹



Picture 4: Handling facilities in the Port of Torgau (SBO)⁹²



Picture 5: Handling facilities in the Port of Riesa (SBO)⁹³

⁹¹ Sächsische Binnenhäfen Oberelbe GmbH

⁹² Ebd.

⁹³ Ebd.



Pictures 6 & 7: Railport facilities of Railport Chemnitz⁹⁴



Picture 8: Portal crane handling of Terminal Leipzig-Wahren (DUSS)⁹⁵



Picture 9: Covered terminal Leipzig-Schkeuditz (Emons)⁹⁷



Picture 10: Reach stacker at the Contargo terminal Glauchau⁹⁶

⁹⁴ Railport Chemnitz, www.railport-chemnitz.de

⁹⁵ Deutsche Bahn

⁹⁶ Contargo

⁹⁷ Emons Rail Cargo



1.5. SWOT analysis

1.5.1. SWOT analysis of the system of freight transport

<i>Strengths</i>	<i>Weaknesses</i>
<ol style="list-style-type: none"> 1. Increasingly attractive logistics location 2. Efficient metropolitan regions 3. Good connections to Central and Eastern Europe and to the German seaports 4. Modern handling facilities 	<ol style="list-style-type: none"> 1. Poor accessibility of rural areas, especially in Eastern Saxony 2. Missing electrification of important railway lines (Dresden-Görlitz, Chemnitz-Leipzig) 3. Very high noise emissions of freight transport in the Elbe valley
<i>Threats</i>	<i>Opportunities</i>
<ol style="list-style-type: none"> 1. Congestion of motorways (e.g. A4 towards PL) 2. Flood risks to the railway infrastructure along the OEM corridor (Dresden-Usti) 3. Persistent periods of low water levels on the Elbe river 4. Persistent periods of low water levels on the Elbe river 5. Further increase in CO2 emissions 6. Demographic change (skilled workers) 	<ol style="list-style-type: none"> 1. Additional federal funding (end of coal-based power generation) for infrastructure measures 2. Planned shortening of planning times 3. Rail freight transport using additional border crossings

1.5.2. SWOT analysis of the framework conditions for the pilot action (new intermodal services / OEM freight liner train)

<i>Strengths</i>	<i>Weaknesses</i>
<ol style="list-style-type: none"> 1. Strengthening the players in the rail freight sector 2. Bundling effects 3. Further shifts of freight transport to the rail 4. Modern handling facilities 	<ol style="list-style-type: none"> 1. Weak economic development of the regions concerned 2. Strong resistance in the transport market 3. Tense situation on the labour market (train drivers) 4. Low availability of wagons
<i>Threats</i>	<i>Opportunities</i>
<ol style="list-style-type: none"> 1. Risk of intervention in market competition 2. Lack of funding 3. Lack of interest from customers 	<ol style="list-style-type: none"> 1. Better coordination between EU, federal and state governments 2. Development of new transport solutions 3. Planning reliability

2. ANALYSIS OF FREIGHT TRENDS (TIME RANGE 2030 / 2050)

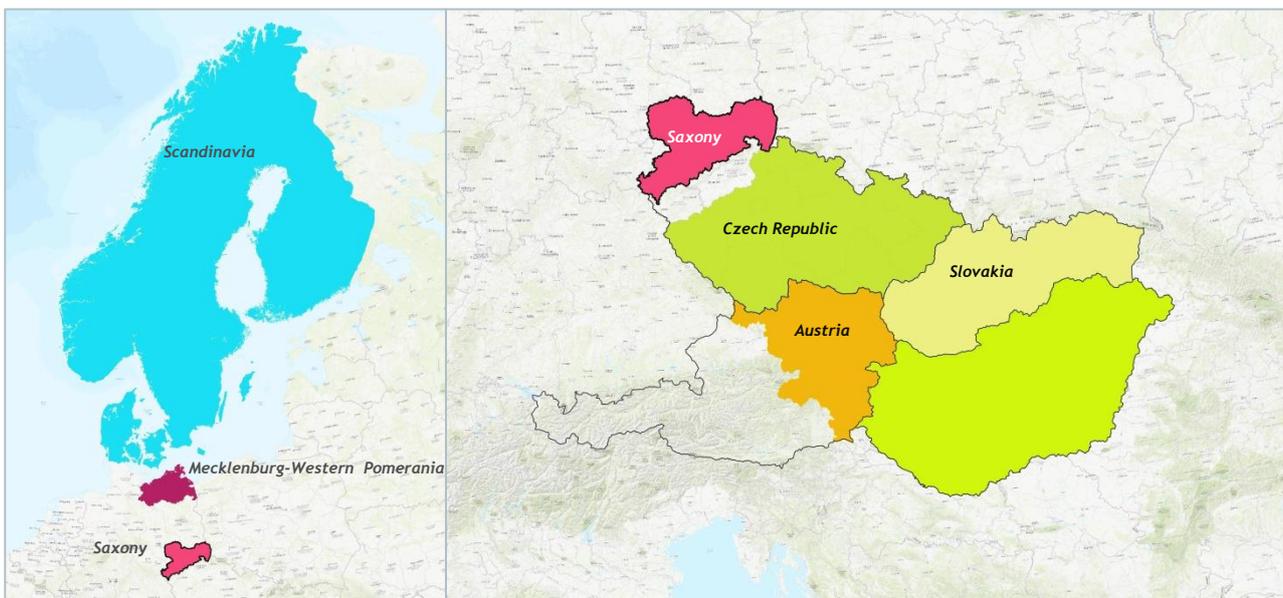
2.1. Possible directions of developments

In the traffic forecast 2030, Germany-wide traffic interdependencies were calculated in the form of source-destination matrices of freight and passenger traffic for the base year 2010 and the forecast horizon 2030, and the route-specific network loads of the individual modes of transport determined in network reallocations were calculated. The method forms an important basis for long-term planning of the transport system, for policy-making and spatial structure.

The traffic forecast 2030 includes all traffic flows that affect the territory of Germany, i.e. flows with source and/or destination in Germany and transit traffic using the German transport infrastructure. In calculating the transport links, all long-distance transport modes, i.e. rail, road, inland waterways, air and sea transport, were included (except pipelines). Furthermore, a distinction was made between freight transport by type of goods and passenger transport by type of infrastructure.

For the OEM corridor, data can be forecasted if corresponding ranges are specified. The following forecast data applies to the following spatial delimitation (NUTS regions):

- Mecklenburg-Western Pomerania - DE80
- Scandinavia - DK01, DK02, DK03, DK04, DK05, SE1, SE2, SE3, FI1, FI2
- Czech Republic - CZ01, CZ02, CZ03, CZ05, CZ06, CZ07, CZ08
- Slovakia - SK01, SK02, SK03, SK04
- Hungary - HU1, HU2, HU3
- Austria - AT11, AT12, AT13, AT22, AT31



Map 15: Area of intervention, directions of goods from and to Saxony in the OEM corridor⁹⁸

⁹⁸ Own visualisation



The annual tonnage, the modes of transport used and the groups of goods transported are determined. All information is provided per direction of transport.

TRANSPORT VOLUME (TONS) PER YEAR FROM SAXONY	RAIL	ROAD
<i>northbound</i>		
Mecklenburg-Western Pomerania	557 278	772 930
Scandinavia (SE, NO, FI)	23 254	90 393
<i>southbound</i>		
Czech Republic	73 520	1 221 874
Slovakia	59 991	199 847
Austria	175 888	469 192
Hungary	57 579	150 109

Table 10: Forecast 2030 of transport volume per year from Saxony to parts of the OEM corridor⁹⁹

TRANSPORT VOLUME (TONS) PER YEAR TO SAXONY	RAIL	ROAD
<i>northbound</i>		
Mecklenburg-Western Pomerania	213 531	739 894
Scandinavia (SE, NO, FI)	39 668	289 118
<i>southbound</i>		
Czech Republic	182 967	1 467 258
Slovakia	116 812	153 442
Austria	148 318	275 530
Hungary	8 212	127 350

Table 11: Forecast 2030 of transport volume per year from parts of the OEM corridor to Saxony¹⁰⁰

⁹⁹ ...
¹⁰⁰ ...



2.2. Possible new connections

Railbridge DE-PL

Due to the considerable increase in the volume of trucks between Saxony and Poland, the state government of the Free State of Saxony is trying to avoid a further worsening of the tense situation on the A4 motorway.

Together with the Polish authorities, a solution is being sought in the form of a rolling highway. This solution is currently being investigated in the Railbridge project. In Saxony, the possibilities for stops (loading / unloading sites) at the Glauchau, Leipzig, Kodersdorf, Horka and Görlitz stations are being investigated.

New railway line Dresden-Prague

The new route will not only bring Saxony and the Czech Republic closer together and reduce the travel time to less than one hour. It will also double the number of long-distance passenger services and increase the capacity for freight transport. Additionally, a cross-border local transport connection in the direction of Most is planned. In the result, the economic position of Saxony will be significantly strengthened by the better connection to Europe - the ports in the north and the Mediterranean region will be reached much faster.

The rail connections through the Elbe valley and the Saxon-Czech border crossing in Bad Schandau have already reached their capacity limits. The line is developing into a serious bottleneck for rail traffic from German seaports to the Czech Republic and further on to the EU Member States in South-East Europe. According to forecasts for the year 2030, freight traffic to and from the seaports is expected to increase by an average of 3.7% per year.

The share of freight traffic through Saxony in a north-south direction will increase by an average of 2.2% per year. Since a further expansion of the existing rail connection is not possible for topographical and nature conservation reasons, a new route must be found.

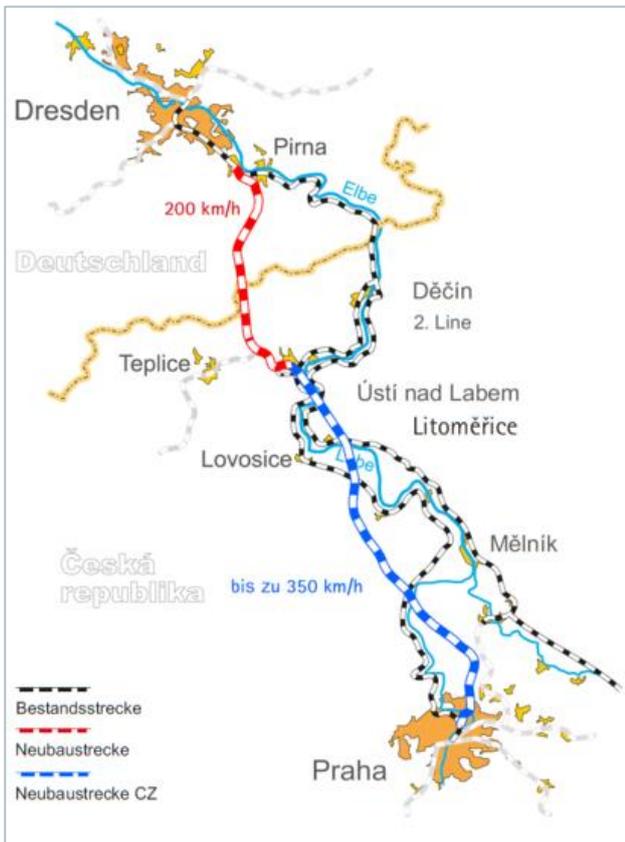
When construction can begin can only be said after the planning has been completed and the planning approval notice has been issued. The completion of the line depends on the subsequent construction progress. An exact date cannot be given at present for such a large project.

The regional planning procedure for this project in the Free State of Saxony runs since December 2020.

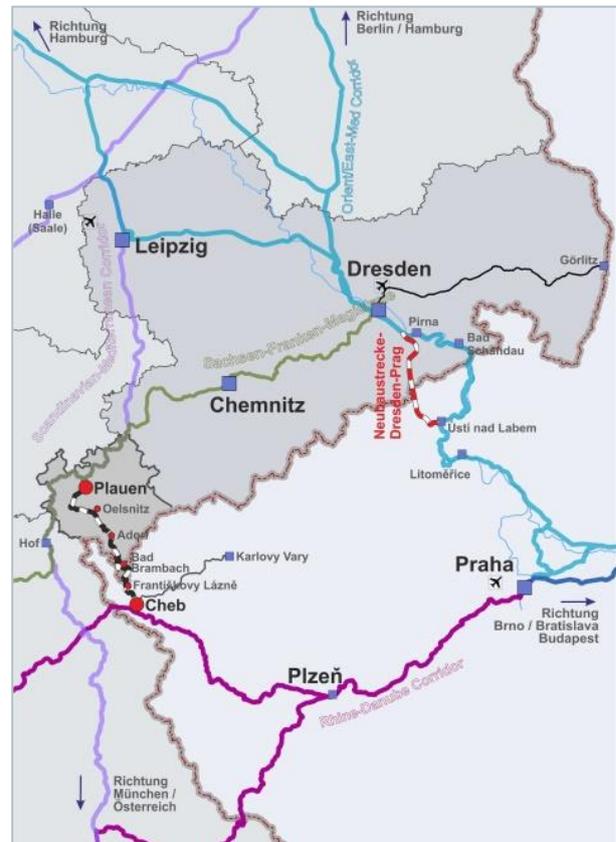
Electrification and upgrade of the cross-border railway line Plauen-Cheb

The Vogtland region is interested in a better connection to the TEN-T network, especially to the OEM corridor. An upgrading of the Plauen-Bad Brambach-Cheb railway line is being considered, which can provide the connection to the Prague region.

Currently, the line is single-track and not electrified. Current plans contain the electrification and closing the single-track gaps with a second track, leading to substantial capacity increase for both rail passenger and freight volumes. The project may also have further effects on the OEM corridor, as the current alternative route for the section between Germany and the Czech Republic passes through Cheb-Schirnding. However, this line is also single track and only suitable for trains with a length of up to 610 m.



Map 16: Planned route of the new railway line Dresden-Prague¹⁰¹



Map 17: Planned Extension Plauen-Cheb¹⁰²

¹⁰¹ EGTC New railway line Dresden - Prague: <https://www.nbs.sachsen.de/index.html> [accessed 05 February 2020]

¹⁰² LUB Consulting GmbH



3. PRESENTATION OF PLANNED DEVELOPMENTS (SCREENING OF DOCUMENTS)

3.1. Identification and presentation of strategies and documents with relevance for spatial planning and infrastructure planning

At the levels of the Federal Republic of Germany and the Free State of Saxony, there are various informal and formal strategies and documents with relevance for spatial planning and infrastructure development:

- Bundesverkehrswegeplan 2030 / Federal Transport Infrastructure Plan 2030
- Verkehrsverflechtungsprognose 2030 / Transport Interconnection Forecast 2030
- Masterplan Binnenschifffahrt / Inland Waterway Transport Masterplan
- Masterplan Schienengüterverkehr / Rail Freight Masterplan
- Bundesprogramm „Zukunft Schienengüterverkehr“ / Federal Programme „Future Rail Freight Transport“
- Initiative „Deutschland-Takt“
- Strategiekonzept Schiene - Eisenbahninfrastruktur im Freistaat Sachsen / Strategic Concept Rail - Railway Infrastructure in the Free State of Saxony
- Strukturstärkungsgesetz Kohleregionen / Structural Development Act for Coal Mining Regions
- Landesverkehrsplan Sachsen 2030 / State Transport Plan of Saxony 2030
- Nahverkehrspläne der Verkehrsverbände Vogtland (ZVV), Mittelsachsen (VMS), Mitteldeutschland/Leipzig (MDV/ZVNL), Oberelbe (VVO) und Oberlausitz-Niederschlesien (ZVON) / Transport plans of the transport associations Vogtland (ZVV), Central Saxony (VMS), Central Germany/Leipzig (MDV/ZVNL), Upper Elbe (VVO) and Upper Lusatia-Lower Silesia (ZVON)
- Gesamtkonzept Elbe / Overall Concept Elbe
- Bundesraumordnungsgesetz / Federal Spatial Planning Act
- Freistaat Sachsen - Landesentwicklungsplan 2013 / Free State of Saxony - State Development Plan 2013
- Regionalpläne der Planungsregionen Leipzig-West Sachsen, Chemnitz-Erzgebirge, Oberlausitz-Niederschlesien und Oberes Elbtal-Östliches Erzgebirge / Regional plans of the planning regions Leipzig-West Saxony, Chemnitz-Ore Mountains, Upper Lusatia-Lower Silesia and Upper Elbe Valley-Eastern Ore Mountains

Subsequently, these documents are being analysed and evaluated with regard to their relevance for the project.



3.2. Analysis of contents of identified strategies and documents contents of identified strategies and documents

TITLE	Bundesverkehrswegeplan 2030 / Federal Transport Infrastructure Plan 2030
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur / Federal Ministry of Transport and Digital Infrastructure
DATE AND PLACE OF PUBLICATION	2016, Berlin
LANGUAGE	german / english
CONTENT	The Federal Transport Infrastructure Plan (BVWP) 2030 is the most important instrument of federal transport infrastructure planning and sets the course for transport policy for the next 10 to 15 years. It considers both existing networks and expansion and new construction projects in the road, rail and waterway transport modes. The core objectives of the BVWP 2030 are the maintenance of existing networks and the elimination of bottlenecks on main axes and in important transport hubs. ¹⁰³
RELEVANCE TO THE PROJECT	BVWP 2030 incorporates projects in the TEN-T corridor Orient/East-Med (appendix 1-3)
ONLINE AVAILABILITY / FURTHER INFORMATION	German version: https://www.bmvi.de/SharedDocs/DE/Publikationen/G/bundesverkehrswegeplan-2030-gesamtplan.pdf?__blob=publicationFile English version: https://www.bmvi.de/SharedDocs/EN/Documents/G/ftip-2030.pdf?__blob=publicationFile

¹⁰³ Vgl. BMVI (Hrsg.): Bundesverkehrswegeplan 2030, <https://www.bmvi.de/DE/Themen/Mobilitaet/Infrastrukturplanung-Investitionen/Bundesverkehrswegeplan-2030/bundesverkehrswegeplan-2030.html> [accessed on 5 February 2020]



TITLE	Verkehrsverflechtungsprognose 2030 / Transport Interconnection Forecast 2030
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur (Federal Ministry of Transport and Digital Infrastructure)
DATE AND PLACE OF PUBLICATION	2014, Berlin
LANGUAGE	german / english
CONTENT	<p>Within the framework of the Traffic Interdependency Forecast 2030, the traffic interdependencies within Germany at county level as well as with abroad were calculated for all modes of transport. For this purpose, the source-destination passenger transport (e.g. commuter traffic, shopping etc.) as well as for different goods groups in freight transport (e.g. ores, food etc.) were forecasted. The central results of the traffic interdependence forecast are that the volume of traffic and transport performance in Germany will continue to increase until 2030. Different trends can be observed both for the individual modes of transport and in the national regions.¹⁰⁴</p>
RELEVANCE TO THE PROJECT	The Traffic Interdependence Forecast 2030 makes includes statements and data on European traffic flows and cross-border transit traffic
ONLINE AVAILABILITY / FURTHER INFORMATION	https://www.bmvi.de/SharedDocs/DE/Anlage/G/verkehrsverflechtungsprognose-2030-schlussbericht-los-3.pdf?__blob=publicationFile

¹⁰⁴ Vgl. ebd.: Verkehrsverflechtungsprognose 2030, <https://www.bmvi.de/SharedDocs/DE/Artikel/G/verkehrsverflechtungsprognose-2030.html> [accessed on 5 February 2020]



TITLE	Masterplan Binnenschifffahrt / Inland Waterway Transport Masterplan
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur / Federal Ministry of Transport and Digital Infrastructure
DATE AND PLACE OF PUBLICATION	2019, Berlin
LANGUAGE	german
CONTENT	The Inland Waterway Transport Masterplan contains 90 different individual projects that are intended to benefit inland navigation in Germany in the coming years. The main aim is to modernize the infrastructure and make the inland waterway fleet more environmentally friendly. The master plan sets the general framework and defines fields of action on how better competitiveness, a higher degree of digitization, modernization of the infrastructure and the fleet and the promotion of skilled workers can be better achieved in future. ¹⁰⁵
RELEVANCE TO THE PROJECT	The Inland Waterway Transport Masterplan contains a comprehensive set of measures taking into account European transport flows and logistics chains
ONLINE AVAILABILITY / FURTHER INFORMATION	German version: https://www.bmvi.de/SharedDocs/DE/Publikationen/WS/masterplan-binnenschifffahrt.pdf?__blob=publicationFile English version: https://www.bmvi.de/SharedDocs/EN/publications/waterway_transport_masterplan.pdf?__blob=publicationFile

¹⁰⁵ Vgl. ebd.: Masterplan Binnenschifffahrt, <https://www.bmvi.de/SharedDocs/DE/Artikel/WS/masterplan-binnenschifffahrt.html> [accessed on 5 February 2020]



TITLE	Masterplan Schienengüterverkehr / Rail Freight Masterplan
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur / Federal Ministry of Transport and Digital Infrastructure
DATE AND PLACE OF PUBLICATION	2017, Berlin
LANGUAGE	german / english
CONTENT	<p>The Rail Freight Master Plan is the result of joint work by the Federal Ministry of Transport and Digital Infrastructure, rail companies, sector associations from transport, logistics and industry and scientists at the Rail Freight Round Table. It presents a model for efficient and sustainable rail freight transport and identifies fields of action and milestones. The Master Plan aims to achieve a lasting, demonstrable improvement in the competitiveness and logistics capability of the rail freight traffic. It includes the comprehensive technological and process modernization of rail freight transport as an essential component for more freight traffic on the rail.¹⁰⁶</p> <p>The master plan is intended to improve service quality, reduce costs, increase productivity and ensure the competitiveness of rail-bound logistics in the long term. By implementing large parts of the recommended measures of the master plan should significantly improve the competitiveness of rail freight transport.¹⁰⁷</p>
RELEVANCE TO THE PROJECT	The Rail Freight Masterplan includes measures to develop the TEN core network (e.g. new construction and expansion of the rail network, page 14, 17f)
ONLINE AVAILABILITY / FURTHER INFORMATION	<p>German version: https://www.bmvi.de/SharedDocs/DE/Publikationen/StV/masterplan-schienengueterverkehr.pdf?__blob=publicationFile</p> <p>English version: https://www.bmvi.de/SharedDocs/EN/publications/rail-freight-masterplan.pdf?__blob=publicationFile</p>

¹⁰⁶ Vgl. Allianz pro Schiene e. V. (Hrsg.): Überblick: Masterplan Schienengüterverkehr, <https://www.allianz-pro-schiene.de/themen/aktuell/ueberblick-masterplan-schienengueterverkehr> [accessed on 5 February 2020]

¹⁰⁷ Vgl. ebd.



TITLE	Bundesprogramm „Zukunft Schienengüterverkehr“ / Federal Programme „Future Rail Freight Transport“
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur / Federal Ministry of Transport and Digital Infrastructure
DATE AND PLACE OF PUBLICATION	-
LANGUAGE	german
CONTENT	<p>The Federal "Future Rail Freight Transport" supports the objectives formulated in the Rail Freight Master Plan. It aims directly at improving the competitiveness of rail freight transport in the transport markets. The federal programme "Future Rail Freight Transport" is explicitly named in several places in the master plan as an instrument to support the implementation of milestones: In connection with the digitalization of vehicles and business processes, with the automation of railway operations and with the development and procurement of innovative and environmentally friendly vehicle technology. In general, the Federal Programme "Future Rail Freight Transport" aims to establish and Programme further develop research and funding structures for rail freight transport with focal points that are to be continuously evaluated and adapted. Sector-specific application research and product development as well as the market launch of innovations are at the center of this programme.¹⁰⁸</p> <p>The programme was approved by the Bundestag but is not yet included in the federal budget.</p>
RELEVANCE TO THE PROJECT	<p>The strategic approach of the federal programme Future Rail Freight Transport takes into account the European character of rail transport. Coordination with ongoing european activities is to be ensured (e.g. harmonization of innovations with our European partners and ensuring their cross-border operational capability)</p> <p>Activities within the framework of the federal programme should also provide innovative impulses in the European area</p>
ONLINE AVAILABILITY / FURTHER INFORMATION	<p>Presentation of the Netzwerk Bahnen e. V. (NEE) on the federal programme „Future Rail Freight Transport“:</p> <p>https://www.netzwerk-bahn.de/assets/files/downloads/2018_februar-bundesprogramm-zukunft-schienengueterverkehr.pdf</p>

¹⁰⁸ Vgl. Netzwerk Bahnen e. V. (Hrsg.) Bundesprogramm Zukunft Schienengüterverkehr. Anlass, Ziele, Programmschwerpunkte, Umsetzung, p. 3, https://www.netzwerk-bahnen.de/assets/files/downloads/2018_februar-bundesprogramm-zukunft-schienengueterverkehr.pdf [accessed on 5 February 2020]



TITLE	Initiative „Deutschland-Takt“
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur / Federal Ministry of Transport and Digital Infrastructure
DATE AND PLACE OF PUBLICATION	2018, Berlin
LANGUAGE	german
CONTENT	<p>Deutschland-Takt refers to a concept for a planned nationwide interval timetable. Local and long-distance transport, rail and bus services are to be coordinated throughout Germany; with good transfer possibilities and without long waiting times. A train is to run on the main axes every 30 minutes.</p> <p>By 2030, the “Deutschland-Takt” is to be implemented. Planning and implementation are controlled by the so-called "Zukunftsbündnis Schiene", an alliance of politics, business and associations, which is headed by the Federal Ministry of Transport.</p> <p>Trains should always arrive at important hub stations at approximately the same time and depart again shortly afterwards. This creates optimal transfer possibilities and easy-to-remember timetables. Freight railways should also benefit: System train paths are planned from the outset and the targeted expansion of the infrastructure creates additional capacities. A target timetable for the Germany timetable also enables a precisely tailored and efficient infrastructure expansion. The motto is: "First the timetable, then the infrastructure planning". Once the rail timetable is fixed, regional bus lines can also be coordinated with rail traffic. In this way, public transport grows together into one system and nobody has to wait much longer.¹⁰⁹</p>
RELEVANCE TO THE PROJECT	The “Deutschland-Takt” will have a major influence on the scheduling of rail traffic in Germany. A target timetable for freight traffic is also included. The spatial structure of Saxony is taken into account as well
ONLINE AVAILABILITY / FURTHER INFORMATION	https://www.bmvi.de/SharedDocs/DE/Artikel/G/BVWP/bundesverkehrswegeplan-2030-deutschlandtakt.html https://deutschland-takt.de/ https://www.allianz-pro-schiene.de/glossar/deutschland-takt/

¹⁰⁹ Vgl. Allianz pro Schiene e. V. (Hrsg): Deutschland-Takt, <https://www.allianz-pro-schiene.de/glossar/deutschland-takt> [accessed on 5 February 2020]



TITLE	Strategiekonzept Schiene - Eisenbahninfrastruktur im Freistaat Sachsen / Strategic Concept Rail - Railway Infrastructure in the Free State of Saxony
AUTHOR	Sächsisches Staatsministerium für Wirtschaft, Arbeit und Verkehr / Saxon State Ministry of Economics, Labour and Transport
DATE AND PLACE OF PUBLICATION	2014, Dresden
LANGUAGE	german
CONTENT	<p>The strategic concept contains the common objectives for the most important railway infrastructure projects in the Free State of Saxony and provides clear perspectives for the strategic orientation for the further development of long-distance and regional lines, S-Bahn services and rail freight transport in the coming years and the future.</p> <p>Of particular importance is the improved connection of Saxon cities and regions to the long-distance rail network. The expansion and electrification of the railway lines Leipzig - Chemnitz and Dresden - Görlitz - border D/PL were thus anchored in the strategic concept, as was the long-term large-scale project of a high-speed rail freight and passenger line from Dresden to Prague.</p>
RELEVANCE TO THE PROJECT	Railway lines in Saxony are considered in a European context. References are made to the TEN-T-network, the Orient/East-Med corridor and the significance of the new line Dresden-Prague (pages 10f, 13f, 22)
ONLINE AVAILABILITY / FURTHER INFORMATION	https://publikationen.sachsen.de/bdb/artikel/22496/documents/30592



TITLE	Strukturstärkungsgesetz Kohleregionen / Structural Development Act for Coal Mining Regions
AUTHOR	Bundesministerium für Wirtschaft und Energie / Federal Ministry of Economics and Energy
DATE AND PLACE OF PUBLICATION	The draft law was passed by the Federal Cabinet in 2019. The parliamentary procedure is currently underway
LANGUAGE	german
CONTENT	<p>The Coal Regions Structural Strengthening Act is intended to create a binding legal framework for structural policy support for the regions affected by the coal phase-out, in particular by granting financial aid for investments and other measures until 2038.</p> <p>On the way to turning coal regions into regions of the future, the Federal Government is supporting structural change with up to 40 billion € by 2038. The EU Commission also intends to provide money for the energy turnaround within the framework of a so-called Green Deal. Provided that these plans flow into the future EU financial framework 2021 to 2027.</p>
RELEVANCE TO THE PROJECT	Key infrastructure projects will have a considerable influence on the overall development of the transport network in Saxony
ONLINE AVAILABILITY / FURTHER INFORMATION	https://www.bmwi.de/Redaktion/DE/Downloads/E/entwurf-eines-strukturstaerkungsgesetzes-kohleregionen.pdf?__blob=publicationFile&v=12 (draft)



TITLE	Landesverkehrsplan Sachsen 2030 / State Transport Plan of Saxony 2030
AUTHOR	Sächsisches Staatsministerium für Wirtschaft, Arbeit und Verkehr / Saxon State Ministry of Economics, Labour and Transport
DATE AND PLACE OF PUBLICATION	2019, Dresden
LANGUAGE	german
CONTENT	<p>The State Transport Plan is a specialist plan for the development of the overall transport system in the Free State of Saxony and for the individual transport modes. It formulates the strategic goals, focal points of action and necessary measures for a future-oriented, resource-saving and climate-friendly development of mobility in the Free State of Saxony.</p> <p>The strategic mobility policy orientation of the state government with a view to the year 2030 is formulated in five guiding principles.</p> <p>The State Transport Plan 2030 sets the course for a future-oriented, sustainable, barrier-free and in particular multimodal mobility development.</p> <p>The main priorities of the LVP Saxony 2030 are the strengthening of public transport, especially in rural areas, and the promotion of barrier-free access to transport facilities and information. In addition, there is an increased expansion of the cycle path network on federal and state roads as well as the implementation of cycle expressway connections for everyday cycle traffic. The existing state road network is to be maintained and improved. The principle is: maintenance before expansion and expansion before new construction. In future, new road infrastructure construction will be limited to supplementing essential network elements. For the state roads, the State Transport Plan fulfils the function of a demand and investment framework plan.</p>
RELEVANCE TO THE PROJECT	The State Transport Plan includes the development of the TEN-T network and the Orient/East-Med corridor
ONLINE AVAILABILITY / FURTHER INFORMATION	https://publikationen.sachsen.de/bdb/artikel/33981/documents/52382



TITLE	Nahverkehrspläne der Verkehrsverbände Vogtland (ZVV), Mittelsachsen (VMS), Mitteldeutschland/Leipzig (MDV/ZVNL), Oberelbe (VVO) und Oberlausitz-Niederschlesien (ZVON) / Local transport plans of the transport associations Vogtland (ZVV), Central Saxony (VMS), Central Germany/Leipzig (MDV/ZVNL), Upper Elbe (VVO) and Upper Lusatia-Lower Silesia (ZVON)
AUTHOR	ZVV, VMS, MDV, VVO, ZVON
DATE AND PLACE OF PUBLICATION	ZVV - 2014 / VMS - 2016 / MDV/ZVNL - 2016 / VVO - 2019 / ZVON - 2018
LANGUAGE	german
CONTENT	<p>The local transport plans are basic planning instrument to ensure the complete organization and structure of the public transport in Saxony. They determine the type and scope of transport service. Planning objectives are derived for the line management and the improvement of the links between the transport modes. They ensure local transport services for the population and efficient coordination between the individual modes of transport such as local rail passenger transport, tram/tram and bus.</p> <p>The local transport plans are the starting point and basis for all further detailed regional planning that affects local public transport (incl. local public transport). The contents of the local transport plans are based on the framework requirements of the Saxonian regulation on the preparation of local transport plans. Therefore, they contain inventories, evaluations, traffic forecasts, public transport concepts, financing concepts as well as environmental reports of the Strategic Environmental Assessment for the respective local transport areas.</p>
RELEVANCE TO THE PROJECT	The plans describe the development of passenger traffic at local level and relate to the overall transport development in Saxony
ONLINE AVAILABILITY / FURTHER INFORMATION	<p>ZVV: https://vogtlandauskunft.de/media/vogtlandauskunft/Download/INTERN/150716_NVP_V_Beschluss3.pdf</p> <p>VMS: https://www.vms.de/vms/nahverkehrsplan/</p> <p>MDV/ZVNL: https://www.zvnl.de/wp-content/uploads/2017/06/Nahverkehrsplan-Leitfaden-Anlagen-1.pdf</p> <p>VVO: https://www.vvo-online.de/doc/VVO-Nahverkehrsplan.pdf</p> <p>ZVON: https://www.zvon.de/de/dnl/NVP_ZVON_Beschlussfassung_2018.1174.pdf</p>



TITLE	Gesamtkonzept Elbe / Overall Concept Elbe
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur / Federal Ministry of Transport and Digital Infrastructure
DATE AND PLACE OF PUBLICATION	2017, Bonn
LANGUAGE	german
CONTENT	<p>With the Overall Concept Elbe, the river is given a long-term development perspective, which should harmonize the transport use of the Inner Elbe with the water management necessities and the preservation of the valuable natural area. To this end, the overall concept includes a new guideline for the Elbe as well as proposals for measures for concrete implementation on site. The follow-up process is of particular importance. It will further develop the present framework for action, clarify open questions and thus continue the process. Stakeholders and the general public will be involved in the discussion and implementation of measures and the further development of the concept.</p> <p>The Overall Concept Elbe was developed by a working group of the Federal Government and the federal states, which were supported by stakeholders from business, the environment and civil society during the preparation of the concept in the advisory body.¹¹⁰</p>
RELEVANCE TO THE PROJECT	<p>The Elbe represents an important waterway in the OEM corridor. At the same time, its unreliable navigability provides a serious bottleneck.</p> <p>The implementation measures named in the overall concept are therefore important to develop the Elbe river (e.g. maintaining of good navigational conditions with a step-by-step objective of securing a draught of at least 1.4 m on most days of the year) as an important function contributor of the OEM corridor</p>
ONLINE AVAILABILITY / FURTHER INFORMATION	https://www.gesamtkonzept-elbe.bund.de/Webs/GkElbe/DE/Informationen/Ergebnis/Broschuere.pdf?_blob=publicationFile&v=1

¹¹⁰ Vgl. BMVI (Hrsg.): Gesamtkonzept Elbe, https://www.gesamtkonzept-elbe.bund.de/Webs/GkElbe/DE/GesamtkonzeptElbe/gesamtkonzeptElbe_node.html [accessed on 5 February 2020]



TITLE	Bundesraumordnungsgesetz / Federal Spatial Planning Act
AUTHOR	Bundesministerium für Verkehr und digitale Infrastruktur / Federal Ministry of Transport and Digital Infrastructure
DATE AND PLACE OF PUBLICATION	2009, Bonn
LANGUAGE	german
CONTENT	<p>The Federal Spatial Planning Act (ROG) provides the legal framework regulations on the conditions, tasks and guiding principles of spatial planning in Germany. The ROG contains detailed regulations on the uniform federal structure and design of state development plans and regional plans, on the implementation of regional planning procedures and on the coordination of the various planning levels.</p> <p>The basic aim of spatial planning for the entire territory of the Federal Republic of Germany is to develop a balanced settlement and open space structure which also takes the functionality of the natural environment into account. An urban sprawl of the landscape is to be avoided and an effective infrastructure is to be maintained. Rural areas should be developed and recreational areas should be promoted. The Spatial Planning Act is intended to ensure that housing needs are met.</p>
RELEVANCE TO THE PROJECT	The ROG is the supreme spatial planning law of the Federal Republic of Germany
ONLINE AVAILABILITY / FURTHER INFORMATION	https://www.gesetze-im-internet.de/rog_2008/



TITLE	Freistaat Sachsen - Landesentwicklungsplan 2013 / Free State of Saxony - State Development Plan 2013
AUTHOR	Sächsische Staatsregierung / Saxonian State Government
DATE AND PLACE OF PUBLICATION	2013, Dresden
LANGUAGE	german
CONTENT	<p>The state development plan contains principles and objectives for spatial planning and development and, taking into account the sectoral plans of spatial significance, represents a flexible, sustainable overall spatial planning concept for the Land, aimed at long-term planning security. In interaction with the regional plans, it is intended to regulate spatial use claims at an early stage and bring them to consensus, create planning security and accelerate planning.</p> <p>The framework of the State Development Plan is set out in the regional plans for the planning regions of Leipzig-West Saxony, Upper Elbe Valley/Eastern Ore Mountains, Upper Lusatia-Lower Silesia and the Chemnitz region and is given concrete form and spatial definition. At present, three of four regional plans are still being updated in order to adapt them to the LEP 2013. Responsible for regional planning are the four regional planning associations under the sponsorship of the administrative districts and independent cities. In turn, urban land use planning at the municipal level must take into account the concrete objectives of regional planning and take into account the principles in the weighing up process. Mandates for action to concretize the state planning guidelines at the regional planning level are intended to give the regions a broad scope for shaping and making final decisions and to strengthen the responsibility of the municipal level.</p> <p>According to the Spatial Planning Act, spatial development plans such as the State Development Plan must be reviewed every ten years. If necessary, they are to be adapted to further developments by updating them.</p>
RELEVANCE TO THE PROJECT	The state development plan contains all specifications for spatial planning in Saxony. Reference is made to the development of traffic in chapter 3 (page 81f). The development of the supra-regional railway infrastructure and the trans-european network are discussed in chapter 3.3 (p. 90)
ONLINE AVAILABILITY / FURTHER INFORMATION	https://www.landesentwicklung.sachsen.de/31381.htm



TITLE	<p>Regionalpläne der Planungsregionen Leipzig-West Sachsen, Chemnitz-Erzgebirge, Oberlausitz-Niederschlesien und Oberes Elbtal-Östliches Erzgebirge / Regional plans of the planning regions Leipzig-West Saxony, Chemnitz-Ore Mountains, Upper Lusatia-Lower Silesia and Upper Elbe Valley-Eastern Ore Mountains</p>
AUTHOR	<p>Leipzig-West Saxony: Regionaler Planungsverband Leipzig-West Sachsen / Regional Planning Authority Leipzig-West Saxony</p> <p>Chemnitz-Ore Mountains: Planungsverband Region Chemnitz / Planning Association Chemnitz Region</p> <p>Upper Lusatia-Lower Silesia: Regionaler Planungsverband Obere Lausitz-Niederschlesien / Regional Planning Association Upper Lusatia-Lower Silesia</p> <p>Upper Elbe Valley-Eastern Ore Mountains: Regionaler Planungsverband Oberes Elbtal-Osterzgebirge / Regional Planning Association Upper Elbe Valley - Eastern Ore Mountains</p>
DATE AND PLACE OF PUBLICATION	<p>Leipzig-West Saxony - 2008 / Chemnitz-Ore-Mountains - 2008 / Upper Lusatia-Lower Silesia - 2010 / Upper Elbe Valley-Eastern Ore Mountains - 2009</p>
LANGUAGE	<p>german</p>

CONTENT	<p>A regional plan is the spatial development plan for a planning region. It is developed from the regional development plan, specifies the general objectives and principles according to regional characteristics and thus provides, among other things, a framework for the communal urban land use planning. The regional planning associations are obliged to draw up a regional plan for their planning region.</p> <p>In the regional plans, the principles according to § 2 ROG as well as the objectives and principles of the regional development plan are shaped spatially and objectively on the basis of an assessment of the state of nature and landscape and of spatial development. The regional plans also assume the function of the landscape structure plans in accordance with the Saxony Nature Conservation Act.</p> <p>Since 2004, an environmental assessment must be carried out as part of the preparation of regional development plans. This environmental assessment requires in particular the preparation of an environmental report and early (possibly also transboundary) participation of the public and the authorities which could be affected by the implementation of the plan in their environment-related area of responsibility.</p> <p>Based on the State Development Plan of 1994, the first generation of regional plans was prepared in Saxony by 2002. Subsequently, partial updates were already required for individual areas. In the meantime, the updated regional plans of the 2nd generation are available in all planning regions and are still based on the specifications of the State Development Plan of 2003 (LEP 2003).</p>
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RELEVANCE TO THE PROJECT

The regional plans represent the binding framework for the spatial planning and development of Saxony's planning regions, especially in the areas of ecology, economy, settlement and infrastructure. In accordance with the model of a sustainable order and development of the regions, a future-oriented integration of the planning regions into supra-regional, national and european developments must be ensured. References to the TEN-T network are for instance made in the Regional Plan for Western Saxony (G 2.1.2, page 13).

ONLINE AVAILABILITY / FURTHER INFORMATION

Leipzig-West Saxony: <https://www.rpv-vestsachsen.de/der-regionalplan/>

Chemnitz-Ore-Mountains: <https://www.pv-rc.de/cms/regionalplan.php>

Upper Lusatia-Lower Silesia: <https://www.rpv-oberlausitz-niederschlesien.de/regionalplanung/erste-gesamtforschreibung-des-regionalplans-2010/textteil-und-karten.html>

Upper Elbe Valley-Eastern Ore Mountains: <https://rpv-elbtalosterz.de/regionalplanung/regionalplan-2009#toggle-id-2>



3.3. Presentation of completed and ongoing projects and actions

Road

PROJECT	DESCRIPTION
New motorway A72 Chemnitz-Leipzig (2003 - 2026) ¹¹¹	<p>Due to the high frequency of traffic on the B95 between Chemnitz and Leipzig, a motorway connection between the cities was planned as an extension of the B72 motorway.</p> <p>The new construction of the 62 km long A 72 motorway will open up the southern region of Leipzig and provides a link to the economically up-and-coming regions of western and southern Saxony. The new A 72 will replace the heavily used B 95 between Chemnitz and Leipzig. In connection with this new construction, important expansion measures in the federal and state road network will be effective (B 7, S 241, S 242 and S 243).</p> <p>The construction is carried out in 5 sections.</p> <p>Sections 1 to 3 of the A 72 from the Chemnitz motorway junction to the Borna-South junction have been completed and have been under traffic since 2013. The four-lane Borna bypass on the B 95 was integrated into the A 72 motorway as section 4 when section 3.2 was opened to traffic. The sections 5.1 (length: 9.5 km) and 5.2 (length: 7,2 km) are currently under construction.</p>
Upgrade motorway A4 Dresden - Görlitz (planned) ¹¹²	<p>In the area between the Dresden West motorway junction and the Nossen motorway junction, the A4 bundles the motorways 4, 13, 14 and 17. Due to the sharp increase in the traffic load on these international axes in recent years, this section is already reaching its capacity limit during peak hours.</p> <p>The expansion of the A4 is to take place in the following sections:</p> <ul style="list-style-type: none"> ▪ Eight-lane extension of the A4 from the Nossen motorway junction (A14) to the Dresden-West motorway junction (A17) with a length of 18.2 km, ▪ Eight-lane widening of the A4 from the Dresden-West motorway junction (A17) to the Dresden-North motorway junction (A13) with a length of 14.2 km, ▪ Six-lane widening of the A4 from the Dresden-Nord junction (A13) to the Pulsnitz junction (S95) with a length of 15.3 km, <p>Widening the A4 to eight or six lanes is a medium to long-term task. Not only would all the junctions in the section have to be rebuilt, as these would also have to be shifted by one lane. Bridges over the A4 or over other roads or river areas would also have to be built or rebuilt, as the existing bridge piers would get in the way of the desired wider motorway. The Free State of Saxony expects partial relief for the A4 in particular through the completion of the Lower Silesian rail freight corridor (Niederschlesische Magistrale) in particular of heavy goods traffic.</p>

¹¹¹ Vgl. SMWA (Hrsg.): Neubau der Bundesautobahn A 72 Chemnitz - Leipzig, <https://www.verkehr.sachsen.de/856.html> [accessed on 5 February 2020]

¹¹² Vgl. SMWA (Hrsg.): SMWA beantragt Ausbau der Autobahn A4 beim Bund <https://www.medien-service.sachsen.de/medien/news/220910> [accessed on 5 February 2020]



New federal road B 178
(2008 - 2013)¹¹³

The new construction of the B 178 federal road between the A4 motorway and the border with Poland is an indispensable transport infrastructure project for the region in the border triangle.

The new road will run from Weißenberg in the north at the junction with the federal motorway 4 via Löbau and Zittau to the southeast to the Czech motorway D 35 towards Liberec (Reichenberg) and D 10 to Prague. The new construction of the B 178 is, after the A 72 Chemnitz - Leipzig, the transport project with the highest priority in the Free State.

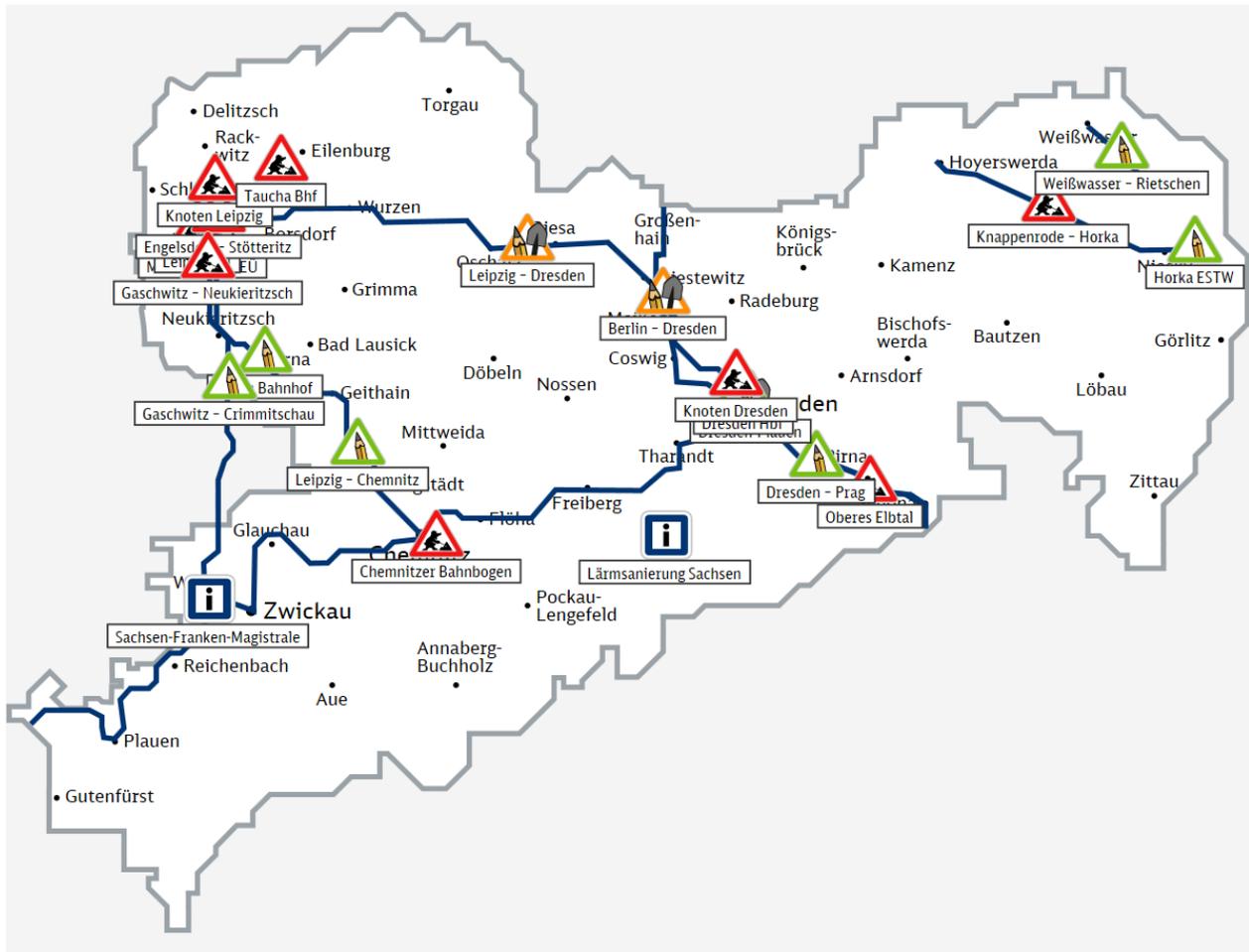
The project will reduce congestion on local roads, improve road safety, reduce capacity bottlenecks and improve European integration, while reducing the risk of accidents and environmental pollution.

The project for the new construction of the B 178 was divided into five main sections and five sub-sections: A 4 to S 112 Nostitz (5.1 km), S 112 Nostitz to B 6 north of Löbau (6,3 km), Löbau bypass (4.1 km), S 148 Löbau to S 143 Obercunnersdorf (5,9 km), S 143 Obercunnersdorf to S 128 Niederoderwitz (10,2 km), S 128 Niederoderwitz to B178 old Oberseifersdorf (5,9 km), northern bypass Zittau (4,1 km) and B 99 to the border Germany/Poland incl. border bridge (1,3 km).

¹¹³ Vgl. ebd.: B 178 Neubau der Bundesstraße zwischen der A4 und dem Dreiländereck, <https://www.verkehr.sachsen.de/3538.html> [accessed on 5 February 2020]



Rail / Urban Nodes



 Gesamtprojekt

 geplantes Bauprojekt

 aktives/geplantes Bauprojekt

 aktives Bauprojekt

Figure 12: Construction projects of the Deutsche Bahn¹¹⁴

¹¹⁴ Deutsche Bahn AG (Hrsg.): Unsere Bauprojekte in Sachsen, <https://bauprojekte.deutschebahn.com/sachsen> [accessed on 5 February 2020]



PROJECT	DESCRIPTION
New railway line Dresden-Prague (planned) ¹¹⁵	<p>The section Dresden-Czech border is already highly used. Out of the maximum 280 train slots per day, on average 126 freight trains, 17 long distance passenger trains and 56 regional trains, are travelling on this section. Given the forecasted growth in freight and passenger transport, it is to be considered that there is a high probability that this section might constitute a crucial bottleneck along the OEM corridor in 2030.</p> <p>Between the two metropolitan regions of Dresden and Prague, an approximately 43 km long new line is planned between Heidenau and Ústí nad Labem to eliminate this potential bottleneck. The envisaged higher speeds of up to 200 km/h for passenger traffic and 120 km/h for rail freight traffic will enable significantly shorter travel and transport times and open up scope for economic growth.</p> <p>In view of the increasing international traffic on the Berlin - Dresden - Prague connection, rail is also the environmentally friendly alternative to the motorway.</p> <p>The rail link between Dresden and Prague is located on the European TEN-T corridor Orient/ Eastern Mediterranean. It connects the German North Sea and Baltic Sea ports with the economic centres in South-East Europe.</p> <p>The new line will be equipped with the European Train Control System (ETCS). ETCS is a uniform train control system for European high-speed traffic. At the heart of the line is a cross-border base tunnel in the Ore Mountains with a length of at least 25 km. The construction of a new overtaking station is also planned. The construction of further tunnel and bridge structures depends on where the future line between Heidenau and Ústí nad Labem will run.</p> <p>Deutsche Bahn works closely with the Czech Railway Infrastructure Operator SŽDC. A joint planning contract is currently being drawn up to regulate the planning for the construction of the cross-border tunnel. The Free State of Saxony was actively involved in the preliminary investigations and, among other things, commissioned a feasibility study, the results of which were published in 2015.</p>
Noise remediation in Saxony (2001 - 2022) ¹¹⁶	<p>40 sub-projects have been implemented in Saxony between 2001 and December 2018. In the process, 81 km of railway line were completely sound-remediated. 4,7 km of noise barriers have been erected; another 5,9 km are in the planning or already under construction. Where active noise protection in the form of noise barriers is not sufficient, additional passive noise protection measures were implemented. For example, 2.995 apartments were equipped with sound-insulating windows and ventilators. Roof renovations were also carried out. Advantage for the residents of the cities and municipalities: They are significantly relieved of rail traffic noise.</p> <p>From 2018 to probably 2022, active noise abatement measures will be started in Saxony at the three cross-town routes Leipzig, Deutzen - Röthigen and Markranstädt and partly completely implemented. Noise abatement studies are planned for three towns (incl. Radebeul - Großenhain).</p>

¹¹⁵ Vgl. ebd.: Dresden-Prag, <https://bauprojekte.deutschebahn.com/p/dresden-prag> [accessed on 5 February 2020]

¹¹⁶ Vgl. ebd.: Lärmsanierung Sachsen, <https://bauprojekte.deutschebahn.com/p/laermsanierung-sachsen> [accessed on 5 February 2020]



Urban node Leipzig
(2001 - ongoing) ¹¹⁷

The Leipzig rail junction is undergoing extensive modernisation. With the integration into the new Erfurt - Leipzig and Leipzig - Berlin lines, numerous conversion and new construction works are required, which are divided into three construction phases.

In the first stage, the sub-centres "Leipzig East" and "Leipzig Main station" were planned and realised. They are among the most powerful electronic interlockings in Germany and have replaced 23 interlockings of various types. Since 2004, the entire Leipzig node has been controlled from these two electronic interlockings.

The second construction phase included all necessary work in relation to the Leipzig City Tunnel. This was put into operation in December 2013.

In the third construction stage, the integration of the Erfurt - Leipzig line into the Leipzig node and the reconstruction of the Leipzig/Mockau - Leipzig main station section have been ensured since 2012. In Leipzig Hbf, platforms 10-15 have already been converted and modernised. By extending them up to 420 m and adapting the platform heights, they now meet the requirements of high-speed traffic. The track plan was reorganized and two old traffic tunnels were backfilled. This allows higher entry and exit speeds of up to 160 km/h. The railway facilities at the Leipzig junction will be equipped with state-of-the-art control and safety technology. A total of 80 switches and 25 km of track as well as 51 km of overhead line system and equipment technology will be newly built.

Also included in the project is the renewal of several bridges. This was built in three stages during ongoing operations and in accordance with monument preservation regulations.

The project is co-financed by the EU with funds from the CEF programme.

Upgrade line
Knappenrode-
Hoyerswerda-Horka
(2012 - 2023) ¹¹⁸

By restoring the continuous double track of the 55 km long line, its quality was sustainably improved. In the course of the project, the track systems in the Knappenrode, Niesky and Horka stations were renewed in accordance with European standards. 33 level crossings between Knappenrode and Horka were partly replaced by bridges or equipped with modern technology. This will significantly reduce the closing times per train.

The stations Lohsa, Uhyst, Klitten, Mücka and Petershain were converted into stops with two platforms each. The platforms have modern equipment and lighting, as well as barrier-free access. The platforms at Niesky station were newly built: The house platform with its historic station roof and a new island platform. The island platform was directly connected to the bus station by a passenger tunnel and made barrier-free thanks to two lifts. Furthermore, 34 bridges were newly built or rebuilt.

Conditions were created for an average speed of 120 km/h, between the Särichen and Knappenrode branches even for 160 km/h. The line capacity can be increased from the previous 50 trains to a maximum of 170 trains per day. In addition to freight traffic, local passenger traffic also benefits from the line reconstruction. For the conurbations of Berlin, Leipzig and Dresden, the expansion is also significant from a tourism perspective.

The entire line will be equipped with ETCS. The project was co-financed by the EU with funds from the CEF programme.

¹¹⁷ Vgl. ebd.: Knoten Leipzig, <https://bauprojekte.deutschebahn.com/p/leipzig> [accessed on 5 February 2020]

¹¹⁸ Vgl. ebd.: Knapperoden-Horka, <https://bauprojekte.deutschebahn.com/p/knappenrode-horka> [accessed on 5 February 2020]



The 117 km railway line between Leipzig and Dresden connects the two largest cities in Saxony. In order to create additional capacity for passenger trains and to enable shorter travel times, the existing line will be extended to include several tracks and equipped with electronic interlocking technology (ESTW). This will create the technical conditions for speeds of up to 200 km/h. Advantage for passengers: The journey time can be reduced from 91 to 45 minutes.

The section between Leipzig and Riesa has been upgraded to double track and equipped for speeds of up to 200 km/h. Between Dresden-Neustadt and Dresden Hbf, the mainline tracks have been extended, and the Dresden-Neustadt station was gradually modernised.

The line between Riesa and the Röderau junction was extended to three tracks and completed in 2006. To connect the two long-distance lines Leipzig-Dresden and Berlin-Dresden, a double-track connection between Weißig and Böhla was built and completed in 2010. On the Weinböhlen-Radebeul West section, the tracks were renewed, overhead line and signalling systems were installed and level crossings were removed by 2010.

The 13 km S-Bahn line between Dresden-Neustadt and Coswig and the parallel long-distance line were upgraded to a total of four tracks. Local and long-distance traffic can be completely separated on this section of the line. After completion of the work, higher speeds of 80 and 120 km/h will also be possible for the S-Bahn. 22 railway overpasses as well as numerous platform tunnels and supporting structures were renewed or adapted. Furthermore, the S-Bahn line from Radebeul Ost to Meissen Triebischtal was extended and modernized. Here, amongst others, a new stop Meißen Altstadt was built. In Dresden, the new stop Dresden Bischofsplatz was built at the bridge over Fritz-Reuter-Straße. In addition, all other stops along the route were modernised and made barrier-free.

The reconstruction of the Dresden-Neustadt station was completed in 2016. All track structures, platforms and tracks and the two passenger tunnels including the platform accesses were renewed. The station was extended to be barrier-free and received five lifts to the platforms. Switches and signals have been equipped with electronic interlocking technology since 2008 and are controlled from the Leipzig operations centre. The construction works at Dresden-Neustadt station was an essential prerequisite for the four-track extension towards Coswig.

ETCS will be integrated on the line sections Leckwitz-Kottewitz and Radebeul Nord-Dresden-Neustadt. ETCS is a prerequisite for being able to increase the maximum speed on the line between Leckwitz and Kottewitz to 200 km/h.

The section of line between Dresden and Elsterwerda, including the associated connecting curve in the area of the Radebeul-Zitzschewig, will be renewed and adapted to the technical standards with ESTW technology. In addition, the railway overpass over the Meißner Straße at the city border between Coswig and Radebeul will be replaced by two new bridges. The bridges will be built one after the other in reinforced concrete frame construction. In future, the two tracks will each cross one bridge.

After completion of the first railway overpass in 2019, single-track train traffic will initially run on the first of the newly constructed superstructures. The old railway overpass will then be completely dismantled and the second bridge will be built. In the area of the combined heat and power plant, a retaining wall will be erected at the foot of the railway embankment and the Lachenweg railway overpass will be renovated. Noise protection measures to the west of the tracks are planned in connection with the work.

Upgrade line Leipzig-Dresden
(2018 - 2026)¹¹⁹

¹¹⁹ Vgl. ebd.: Leipzig-Dresden, <https://bauprojekte.deutschebahn.com/p/vde9> [accessed on 5 February 2020]



<p>Upgrade line Leipzig-Dresden (2018 - 2026)¹²⁰</p>	<p>The line section from Zeithain to Leckwitz will be extended and equipped with modern signal technology. This will enable the line speed to be increased to 200 km/h. The stop in Glaubitz will be renewed; the stop in Nünchritz will be adapted to the speed increase. The level crossings "Bahnhofstraße" and "Poststraße" in Glaubitz will be replaced by railway overpasses. In addition, extensive noise protection measures are planned.</p> <p>Complex work is planned for the Riesa node. Riesa station will be rebuilt and the track plan adapted. The station will be equipped with modern ESTW technology and ETCS. With the construction of the third track up to the Zeithain junction, it will be possible to increase speed up to 200 km/h. In the area of the railway junction, new civil engineering structures will also be built and two level crossings will be replaced by bridges.</p>
<p>Upgrade line Berlin-Dresden (2012 - 2028)¹²¹</p>	<p>The extension of the route from Berlin to Dresden was included in the Federal Transport Infrastructure Plan in 2003. The line from Blankenfelde, south of Berlin, to a few kilometres before Dresden is being upgraded by Deutsche Bahn to a maximum speed of 200 km/h. The travel time in long-distance traffic can be shortened by the infrastructural expansion.</p> <p>By 2020, major sections of the Berlin - Dresden line will be upgraded for increased speed. Among other things, 20 level crossings have already been replaced by bridges or underpasses and station areas have been modernized and redesigned.</p> <p>In addition, the track systems and overhead lines have been renewed over 125 km, modern control and safety technology has been installed and six electronic interlockings have been put into operation. The entire line will be equipped with ETCS.</p>
<p>Upgrade line Dresden-Plauen (2019 - 2022)¹²²</p>	<p>There are three railway overpasses in this section. They no longer correspond to the modern technical requirements of train traffic. Therefore a new construction is planned in each case. The renewal of the bridges also includes the renovation and partial new construction of the adjacent retaining wall sections. In addition, two new tracks will be laid over a length of around 1.5 km. The position of the tracks will be slightly changed when the superstructure and substructure are renewed. In the area of the Dresden-Plauen stop, the track will be shifted to the west by about ten meters, and about five meters in the remaining section.</p> <p>At the Dresden-Plauen station the change between regional trains, suburban trains and buses is possible for travellers. However, it also no longer meets modern travel requirements. Due to the changed track position after the modernization, a new central platform will be built for the transport station. This will be accessible via a new staircase access and in future also via a step-free elevator. The platform will also be equipped with modern facilities and a weather protection house.</p> <p>Furthermore, the overhead line system and the control and safety technology will be renewed in the entire section.</p> <p>The progress of the planning approval procedure requires the postponement of the construction work until 2021/2022, with preparatory work to be carried out from 2020. Since the "Altplauen" railway bridge has reached the end of its technical service life and no longer allows unrestricted operational use, two auxiliary bridges have been installed as a temporary solution to maintain train traffic.</p>

¹²⁰ Vgl. ebd.: Leipzig-Dresden, <https://bauprojekte.deutschebahn.com/p/vde9> [accessed on 5 February 2020]

¹²¹ Vgl. ebd.: Berlin-Dresden, <https://bauprojekte.deutschebahn.com/p/berlin-dresden> [accessed on 5 February 2020]

¹²² Vgl. ebd.: Dresden-Plauen, <https://bauprojekte.deutschebahn.com/p/dresden-plauen> [accessed on 5 February 2020]



Complex works in the
Upper Elbe Valley
(2014 - 2023)¹²³

The line between Dresden and Schöna/Border (D/CZ) is heavily used by national and international passenger and freight traffic. The connection through the upper Elbe valley is subject to heavy daily traffic. In addition, two floods in 2002 and 2013 have considerably damaged the tracks and switches in the Elbe valley. In order to guarantee the availability of the line in the future, it has been modernised since 2014.

The focus of construction works is on the section between Pirna and Schöna (state border). Here a total of approx. 11 km of overhead line system and 44 km of tracks will be renewed. In addition, numerous switches, passages and three bridges will be newly built or renewed along the line. Between Schöna and the federal border (D/CZ) a new formation protection layer will be installed. This serves as load distribution and stabilises the subgrade.

ESTW is being installed at Bad Schandau-East station. At the same time, the station used by freight traffic will be modernised.

In recent years, the overhead line in the section between Königstein and Bad Schandau as well as one track and eight switches in Rathen station have already been renewed. In addition, the trench bridge "Telschgraben" was built.

Saxony-Franconia-
Magistrale
(2014 - 2026)¹²⁴

The Saxony-Franconia Magistrale stretches over 288 km and connects the federal states of Saxony, Thuringia and Saxony-Anhalt with the states of Bavaria and Baden-Württemberg. It is part of the eastern corridor "Seaport Hamburg-Magdeburg-Leipzig-Hof-Marktredwitz-Regensburg". The route is being fundamentally renewed in order to adapt it to today's technical requirements as well as to the future demands of local and long-distance passenger and freight traffic.

Sections under construction are the Chemnitz Railway Arch, Markkleeberg-Gaschwitz-Crimmitschau and Markkleeberg-Gaschwitz-Böhlen-Neukieritzsch. Sections in planning include Dresden Hbf-Freital Ost.

¹²³ Vgl. ebd.: Komplexe Arbeiten im Oberen Elbtal, <https://bauprojekte.deutschebahn.com/p/oberes-elbtal> [accessed on 5 February 2020]

¹²⁴ Vgl. ebd.: Sachsen-Franken-Magistrale, <https://bauprojekte.deutschebahn.com/p/sachsen-franken-magistrale> [accessed on 5 February 2020]



One of Saxony's largest railway construction projects at present is the modernisation of the Dresden railway node. Since the late 1990s, the railway infrastructure and stations in the greater area of the Saxon capital have been expanded and modernised. In Dresden-Neustadt station, all track support structures, platforms and tracks have already been renewed and the two passenger tunnels including the platform accesses have been renovated and made barrier-free.

Work is currently taking place in the central hall of the main station. There are two tunnels under the tracks, which are being renewed. The former "Strohachtunnel" is being converted into a second escape route for platforms 9/10, 11/12 and 13/14. The former "Posttunnel" will be upgraded so that it can subsequently be used for internal railway media (telecommunications lines, power cables, etc.). In addition, the sections (connections) of the drainage of the hall roof will be renewed. Outdoor facilities that are no longer required will be dismantled without replacement.

Platforms 6, 9/10 and 11/12 will be renewed. They will be raised to a platform height of 55 centimetres from the top edge of the rails to allow stepless entry and exit of trains. They will also be shortened to 185 metres. All three platforms will be newly equipped with modern benches, waste bins and lighting. The route guidance and the guidance system for the blind will also be renewed.¹²⁶

The central station Dresden Hbf is one of 398 traffic stations in Saxony. Around 42 000 travellers and commuters use the station every day. As part of the comprehensive renovation of the entire station building until 2006, the roof was given a glass fibre membrane. The membrane roof, which was developed according to the design of the British architect Sir Norman Foster, is stretched over an area of approx. 33 000 m² between the arches of the hall.

Since 2010, however, these have been showing increasing damage. These damages have been extensively analysed in recent years. It was then decided to replace the membranes completely in order to permanently restore the functionality of the roof. Furthermore, minor constructional details such as the fastening and the textile orientation of the membrane were changed in order to avoid similar damages in the future.

For the replacement of the textile covering, the new membrane is first laid out on the roof. Then the old roof membrane is removed from the inside and the new one is mounted to the roof structure. This avoids an open roof over a longer period of time. The building is constructed in three sections. One part is renewed every year. Due to the sensitive material, construction is only possible during the summer months.

In preparation, securing work was carried out for the winter. Securing nets were laid in sections under the damaged fields of the hall roof.

Urban node Dresden
(2018 - 2021) &
Dresden Hbf
(planned)¹²⁵

¹²⁵ Vgl. ebd.: Dresden Hauptbahnhof, <https://bauprojekte.deutschebahn.com/p/dresden-hbf> [accessed on 5 February 2020]

¹²⁶ Vgl. ebd.: Knoten Dresden, <https://bauprojekte.deutschebahn.com/p/knoten-dresden> [accessed on 5 February 2020]



Airports

PROJECT	DESCRIPTION
Upgrade Airport Leipzig/Halle ¹²⁷	<p>The opening of Terminal B at the end of the 1990s marked the completion of an interim stage in the expansion of Leipzig/Halle Airport into a modern European airport. For the first time, Leipzig/Halle Airport had a terminal building that met the latest international standards.</p> <p>In order to meet the requirements of air traffic, the new 3 600-meter-long Runway North went into operation in March 2000. The new Runway North is not subject to any restrictions and can be used 24 hours a day.</p> <p>The multifunctional Central Terminal (long-distance train station, central check-in area with integrated baggage control, car park, service and shopping facilities) was opened in, 2003. The Central Terminal has an annual capacity of 4.5 million passengers. Due to its modular structure and its central location between the two runways, the Central Terminal offers the possibility to increase the annual capacity to 7 million passengers by extending the existing terminal building.</p> <p>As part of the new construction in 2003, the 3 600 m long Runway South was aligned parallel to the Runway North, which is the same length, so that Leipzig/Halle Airport can be flown by all types of aircraft (without range or payload restrictions).</p> <p>Runway South, which was completed in 2007, is connected to a 53 hectare apron for cargo aircraft. Since 2008, this apron has been used by DHL, the express subsidiary of Deutsche Post World Net, as a transshipment point for around 60 aircraft per day. Also directly connected to the Runway is the Cargo Area South, which offers further development opportunities for logistics and aviation companies.</p> <p>In 2007 the veterinary border inspection post was completed. A noise protection hall for engine test runs was built at Leipzig/Halle Airport in 2008.</p> <p>A maintenance hangar was completed in 2013. The building serves as a maintenance base for Volga-Dnepr Technics GmbH, a subsidiary of the Volga-Dnepr Group based at the airport. The hangar is 94 m wide and 90 m deep. The hangar structure reaches a height of around 30 m. The hangar has two crane runways that can be moved independently of each other and guarantee a maximum working height of approx. 25 m. The building also includes workshop, social and office space.</p>

¹²⁷ Vgl. Flughafen Leipzig/Halle GmbH (Hrsg.): Ausbauschritte bis 2013, <https://www.leipzig-halle-airport.de/unternehmen/ueber-uns/zahlen-und-fakten/ausbauschritte-bis-2013-159.html> [accessed on 5 February 2020]



Waterways

PROJECT	DESCRIPTION
Expansion of inland ports (ongoing) ¹²⁸	<p>A heavy lift crane with a lifting capacity of up to 600 t was built at the Dresden port. This provides all companies with permanent access to the barge for heavy goods handling. The conditions for shifting heavy cargo from road to waterway have thus been significantly improved.</p> <p>Special service facilities for servicing, maintenance and conversion of sea containers, swap bodies and special constructions were put into operation at the port of Riesa. Thus the maritime industry has direct access to these service facilities at the container terminal. The existing terminal for combined transport is already being used far beyond its theoretical capacity limit. In 2017, for example, more than 40 000 twenty-foot standard containers (TEU) were handled.</p> <p>The entire port infrastructure and port superstructure was upgraded at the port of Torgau. The quay wall and track infrastructure were renewed and two outdated cranes were replaced by a new building. With the upgrading of the track systems and level crossings on the Torgau urban line, the modernization was completed in 2018. Since then, the port has been available to all companies without discrimination. Following its upgrading, the Port of Torgau can be used trimodal by all companies in conventional cargo handling and now has efficient cargo handling and transport facilities.</p>

¹²⁸ Vgl. SMWA (Hrsg.): Mobilität für Sachsen. Landesverkehrsplan 2030, Dresden 2019, p. 21



3.4. Presentation of planned projects and actions

Road¹²⁹

- Reorganization of federal state financial relations: From 2021, the federal government assumes sole responsibility for the planning, construction, maintenance, operation, financing and asset management of federal motorways (order management by the federal states is no longer applicable)
- Extension of the A4 motorway (obtaining of the planning law permit for a further expansion in accordance with the regulations):
 - Nossen (A14) - Dresden-West (A17) to eight lanes
 - Dresden-West (A17) - Dresden-Nord (A13) to eight lanes
 - Dresden-Nord (A 13) - Pulsnitz (S 95) to six lanes
 - Pulsnitz (S 95) - Bautzen-Ost (B 156) to six-lanes
- Completion of inter-regional links in the state road network:
 - S 84 Elbe Valley Road Dresden - Meissen in connection with B6 - relocation in Dresden-Cossebaude
 - S 177 between Pirna and A4 junction Pulsnitz
 - S 289 west route between the A4 near Crimmitschau and the A 72 junction Reichenbach

Rail¹³⁰

Firmly scheduled federal and DB AG projects (according to the Federal Transport Infrastructure Plan 2030):

- Upgrade Berlin-Dresden (2nd construction stage; extension to mostly 200 km/h)
- Upgrade Leipzig-Dresden (remaining sections between Riesa and Dresden)
- Upgrade Karlsruhe-Stuttgart-Nuremberg-Leipzig/Dresden (Saxony-Franconia Magistrale)
- Expansion of the Dresden and Halle/Leipzig nodes
- Upgrade Hoyerswerda-Horka-border D/PL (double-track extension and electrification; extension for a maximum speed of 160 km/h for Knappenrode-Horka and 120 km/h for Horka-border D/PL)
- Combined transport and framework planning for marshalling yards, 2nd stage
- Upgrade of railway nodes (Chemnitz, Zwickau, Dresden)
- New railway line Dresden-Prague
- Upgrade Weimar-Gera-Gößnitz (electrification Weimar-Gera-Gößnitz/Lehndorf)
- Upgrade Leipzig-Chemnitz (electrification Geithain-Chemnitz)

Air transport¹³¹

Realization of investments in new aprons, logistic buildings and office buildings in the northern and southern sections and the central area of Leipzig/Halle Airport:

- Cargo City Nord
- Foundation of a new aircraft manufacturer on Leipzig/Halle Airport (final assembly of the regional aircraft of type Do D328Neu)
- Expansion of the Cargo Area South (construction of an empty container terminal not far from the freight handling station, construction of an approx. 7 500 m² office building on the land side, construction of an approx. 7 250 m² office and functional building on the airside)

¹²⁹ Vgl. ebd., page 45f.

¹³⁰ Vgl. ebd., page 49f.

¹³¹ Vgl. Flughafen Leipzig/Halle GmbH (Hrsg.): Neue Ausbauprojekte, <https://www.leipzig-halle-airport.de/unternehmen/ueber-uns/zahlen-und-fakten/neue-ausbauprojekte-3194.html>, [accessed on 5 February 2020].



- Expansion of the central area (construction of an office building/GAT, construction of a hangar for small aircraft)
- Apron extension in the DHL hub area (expansion of aircraft parking capacity and two new aircraft taxiway connections to the extended apron area, construction of two taxiways in the northeast/southwest area of Runway South, additional taxiways at the northeastern end of Runway South)

Inland Waterway Transport¹³²

- Building of a new trimodal terminal on the south bank of the Riesa port and expansion of track infrastructure
- Renewal of the southern quay wall of the port in Dresden

Multimodal Terminals¹³³

- Construction of a new trimodal transshipment facility for combined transport on the south side of the port of Riesa
- Construction of the Combined Transport terminal Kodersdorf (first container transshipment point in Eastern Saxony) to improve the management of traffic flows to and from Eastern Europe
- Preliminary studies for a Combined Transport terminal in the Vogtland county, which could facilitate access to combined transport in the part of Western Saxony

¹³² Vgl. SMWA (Hrsg.): Mobilität für Sachsen. Landesverkehrsplan 2030, p. 53

¹³³ Vgl. ebd., p. 59f.

4. SPATIAL ASPECTS OF NODES IN TRANSNATIONAL TRANSPORT

4.1. Needs and requirements for improvement of node functions

Regarding to spatial aspects of nodes in transnational transport, various needs and requirements for the improvement of node functions in the Free State of Saxony can be identified:

Road¹³⁴

- Creation of new road border crossings and increased permeability for commercial traffic to the Czech Republic (e.g. intensification of cross-border cooperation, better use of existing road infrastructure)
- Maintenance and improvement (principle: conservation before expansion, expansion before new construction) of the road infrastructure
- Closing of existing gaps
- Improvement of the overall condition of the state road network
- Better use of capacity reserves
- Construction of additional truck parking areas and service stations on motorways
- Implementation of traffic regulation measures on heavily frequented roads (e. g. overtaking bans for trucks, speed limits, temporary clearance of emergency lanes, variable traffic signs)
- Designation of “heavy goods roads”
- Improvement of performance and traffic safety on highly congested federal roads and state roads (e. g. expansion of lanes, strategic use of telematics facilities, construction of road bypasses, construction of additional truck parking spaces)
- Promotion of a future-oriented transport policy (e. g. shifting of growth rates in road freight transport to more environmentally friendly modes): with a share of more than 90%, the majority of freight traffic is currently transported by road. Approximately 8% is transported by rail. The share of transport by inland waterways or air freight is < 1%.
- Improvement of the eco-compatibility of road freight transport (e. g. development of city logistics concepts, use of alternative vehicle engines in urban areas)
- Extension of the A4 motorway according to the Federal Transport Infrastructure Plan 2030
- Expansion of the Central Germany-Lusatia road link (MiLau)
- Support of research projects for alternative road surface structures with increased requirements for evenness and improved grip (increasing traffic safety and protecting the environment by reducing fuel consumption, tire wear and tire/road noise)

Rail¹³⁵

- Elimination of bottlenecks in the railway network
- Improvement of the connection between rural areas and urban centres
- Further development of cross-border railway infrastructure
- Expansion of railway nodes according to demand
- Provision of economically viable long-distance passenger rail transport and rail freight transport:
 - Maintenance of long-distance passenger rail services
 - Provision of high-quality long-distance transport services / Connection of high-quality long-distance transport lines to national and international main axes (focus on lines connecting the southwest and east Saxon areas):

¹³⁴ Vgl. ebd., p. 45f.

¹³⁵ Vgl. ebd., p. 49f.



- Leipzig-Chemnitz
- Dresden-Görlitz-Wrocław
- Leipzig/Dresden-Chemnitz-Plauen-Hof-Nürnberg/München
- Berlin-Cottbus-Görlitz (-Wrocław)
- Weimar-Gera-Göbnitz (Elektrifizierung Weimar-Gera-Göbnitz/ Lehndorf)
- Assessment of implementation and financing possibilities for the following rail projects:
 - Upgrade Dresden-Görlitz-border D/PL (demand-oriented upgrade and electrification)
 - Upgrade Cottbus-Görlitz (electrification)
 - Leipzig-Bad Lausick-Geithain (part of upgrade Leipzig-Chemnitz)
 - Plauen-Bad Brambach-Cheb
- Development of technologies and concepts for the innovative use of available railway infrastructures (e. g. reactivation/re-commissioning of dedicated and cancelled railway lines as required)

Air transport¹³⁶

- Development of the airports Leipzig/Halle and Dresden in line with demand for intercontinental air traffic
- Expansion of the European Freight Hub at Leipzig/Halle Airport
- Better integration of Leipzig/Halle Airport into the national railway network
- Reduction of CO₂ emissions and noise emissions in air traffic

Inland waterway transport¹³⁷

- Maintenance of the Elbe river for inland navigation / Provision of reliable operating conditions for inland waterway transport
- Expansion of the ports of Riesa and Dresden in line with demand

Multimodal terminals¹³⁸

- Demand-oriented expansion of freight villages
- Further qualification of ports with road and rail connections to better meet their function as hubs or terminals for combined transport
- Development of a further location in southwest Saxony for multimodal transport

Structural change in the lignite (brown coal) mining regions of Saxony¹³⁹

- Implementation of structural development measures in the areas of infrastructure expansion, business and innovation promotion / Anchoring of relevant structural development measures in a "Federal Transport Infrastructure Act for Coal Mining Regions"
- Implementation of priority transport projects (the Free State of Saxony has submitted the following priority projects for both areas to the federal government):
 - Lusatian district:
 - Railway line Berlin-Cottbus-Weißwasser-Görlitz (-Wrocław) as a rapid transit railway
 - Electrification/upgrade of the railway line Dresden-Bautzen-Görlitz-border D/PL (-Zittau)

¹³⁶ Vgl. ebd., p. 52

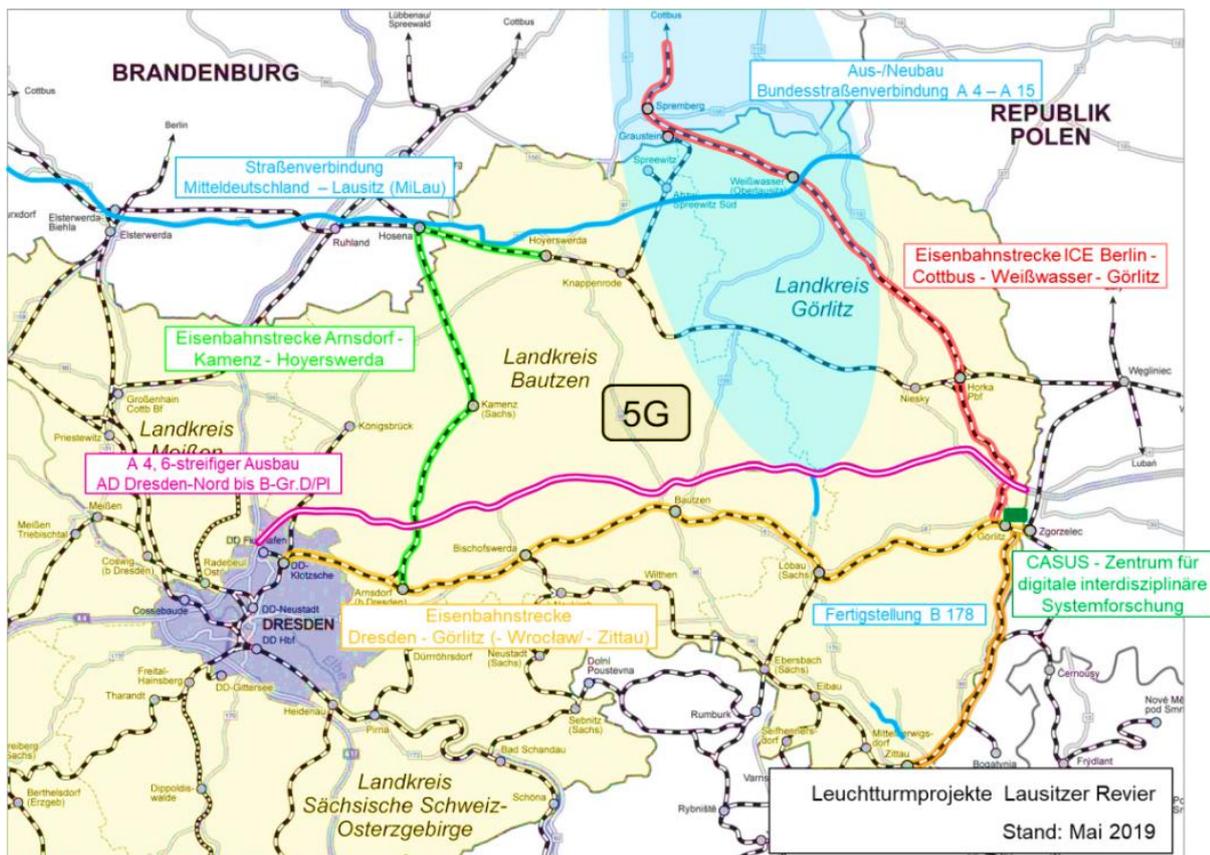
¹³⁷ Vgl. ebd., p. 53

¹³⁸ Vgl. ebd., p. 59f.

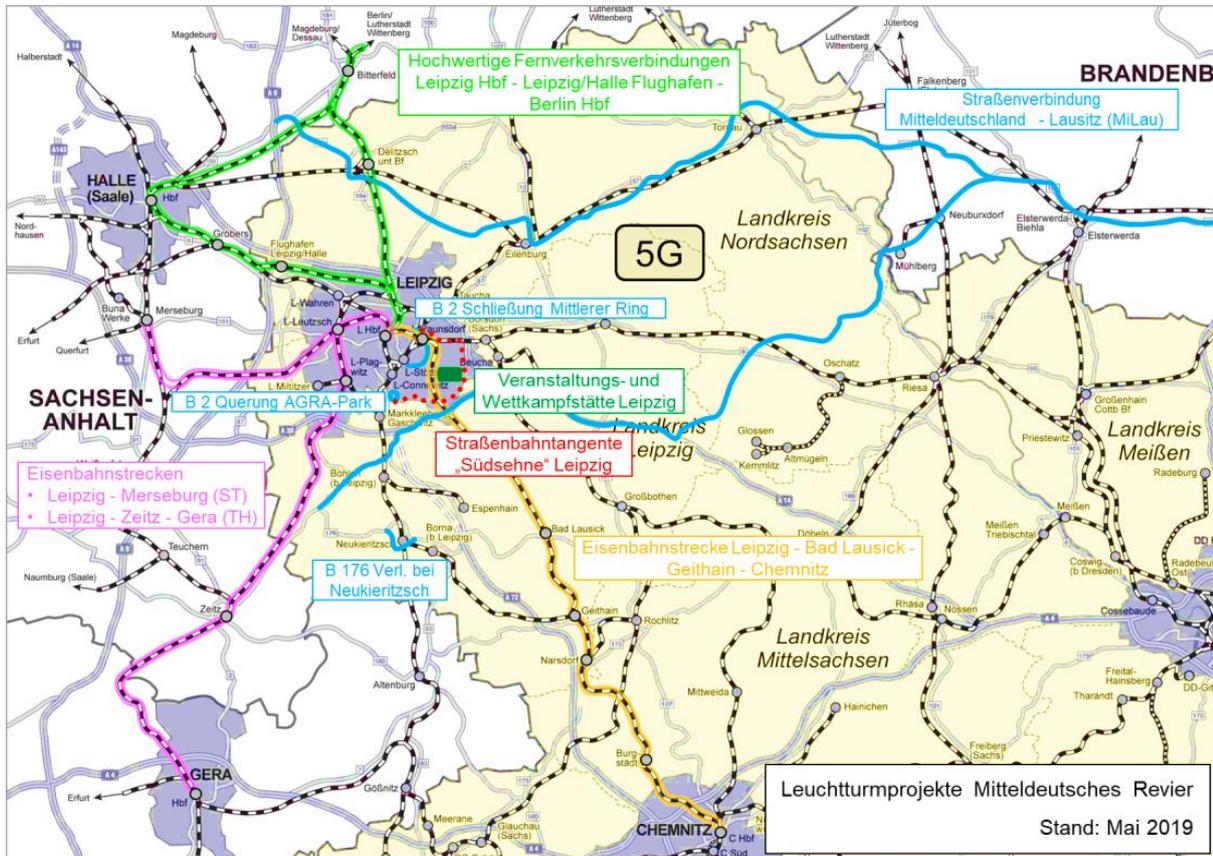
¹³⁹ Vgl. ebd., p. 66f.



- Railway line Dresden-Zittau via Bischofswerda-Neukirch-Wilthen-Ebersbach-Mittelherwigsdorf
 - Extension/upgrade and electrification of the railway line (Dresden-) Kamenz-Hoyerswerda-Spremberg (Lusatian Lakeland)
 - Inner Lusatian federal roads, new federal road between A4 and A15
 - A4 Dresden-Nord-border D/PL (six-lane extension)
- Central German district
- Federal road link Central Germany-Lusatia (MiLau)
 - Electrification of the Leipzig-Bad Lausick-Geithain-Chemnitz railway line
 - S-Bahn line Leipzig-Merseburg; S-Bahn line Gera-Zeitz-Pegau-Leipzig Südkreuz/Südsehne
 - Lowering of the federal road B2 in the area of the AGRA Park Leipzig/Markkleeberg during renewal/completion of the Mittlerer Ring Leipzig/B176 relocation near Neukieritzsch
 - Improvement of the supra-regional ICE link from the Berlin Airport to Leipzig/Halle Airport
- Realisation of further long-distance road projects with the funds provided by the federal government for structural change



Map 18: planned infrastructure measurements in the Lusatia district¹⁴⁰



Map 19: Planned infrastructure measurements in the Central German district¹⁴¹

4.2. Process of node development (analysis of the processual dimension)

The recent study on the logistics industry in the Free State of Saxony provides many recommendations for action which, amongst others, should contribute to improving the infrastructure and freight transport:

- Prioritisation of gap closure and construction measures in road sections with a high proportion of heavy traffic
- Establishment of additional offers in combined transport to shift transit truck traffic onto rail (including semi-trailers that cannot be craned)
- Testing of heavy load routes for the designation of heavy load corridors with defined maximum transport parameters
- Examine the inclusion in the VEMAGS® Interactive Map additional information on loading possibilities for large and heavy goods in ports and loading points in the rail network
- Provision of state budget funds for preliminary planning services for new construction and expansion projects on the DB Netz railway network
- Provision of budgetary resources for NE (private) railway infrastructure for rail freight
- Expert participation in the implementation of the measures agreed in the Elbe master plan for freight shipping, in particular regular maintenance of the Saxon Elbe
- Reintroduction of a state funding programme for private sidings
- Pilot project to assess the effects of extending the 44-tonne derogation (truck axle load limit)



- Pilot projects with the participation of Saxon railway companies or logistics locations (e.g. use of innovative/modular freight wagons)
- Use of the air freight handling station at Leipzig/Halle Airport for (time-critical) pre-carriage and onward carriage by rail
- Functional extension of the information portal "Elbe Promotion Center"
- Pilot projects for the digitisation of multimodal logistics chains involving inland navigation (planning tools, interface design, etc.)
- Consideration of the requirements of logistics-intensive companies in local land use planning (e.g. dimensioning of access roads)
- Coordinated strategy for the development of nationally significant settlement areas for logistics-related uses

4.3. Networking activities

Several initiatives and cooperation structures support the process of node development in the Free State of Saxony. With regard to the logistics sector, the Network Logistics Central Germany (Netzwerk Logistik Mitteldeutschland e.V.) and the Association of Freight Villages in Germany (DGG) can be considered the most relevant initiatives.

Network Logistics Central Germany (Netzwerk Logistik Mitteldeutschland e.V.)

Through its member companies, the network¹⁴² represents a section of the logistics companies in the region of Saxony and Saxony-Anhalt and other companies and institutions that are active in the logistics sector. The network was founded with the aim of providing a platform for companies to develop joint ideas, concepts and also business models. The concrete aims of the association are reflected in four thematic areas, each of which is covered by working groups. The network has its registered office in Leipzig and two branch offices in Chemnitz and Dresden.

To increase the awareness of the member companies and the region, the association pursues specific logistics marketing. In the field of network and location marketing, the association members are offered various opportunities to better market their own company. This is done, for example, by organising network evenings, participating in joint exhibition stands of the association and the presence and marketing of all association members at all events of the association. For this purpose, companies from the fields of marketing, public relations, event management and graphic design/printing participate in the association.

The association also stands for a target-oriented cooperation of logistics companies. The main idea of the working group members is to be able to survive more successfully in the market in cooperation with other logistics companies than without. To this end, the managing directors, branch managers, freight forwarding or fleet managers of the logistics companies participate in the association.

In the area of human resources, the member companies work together to sensitise the population of the region to the needs and requirements of the logistics sector. Regular exchanges of skilled workers are held in an attempt to counteract the shortage of skilled workers. A training and job exchange offers job seekers a quick overview of vacancies. Personnel development and recruiting companies, health insurance companies as well as training and further education companies participate in the association.

Small and medium-sized logistics companies in particular are finding it difficult to keep up with the increasing technical demands of the logistics market. Through the association's participation in research and development projects in the field of "IT & Logistics", the association offers targeted support for

¹⁴² Netzwerk Logistik Mitteldeutschland e.V.: <http://www.logistik-leipzig-halle.net/>



logistics companies in technical matters. In addition to technical service providers (e.g. telematics), especially software companies participate in the association.

Association of Freight Villages in Germany (DGG)

The capabilities of the DGG¹⁴³, the association of Freight Villages in Germany, include the development of contact potentials and the share of experiences between the single FV locations in German and European FV.

The main activity fields are:

- Intermodal traffic (implementation of intermodal relations between Freight Villages)
- Research and international consulting services
- Intensification of the location marketing and harmonisation of performance standards
- Benchmarking
- Supply pooling
- Development of sustainable schemes for independent Freight Village operators

23 FV locations as well as a leading logistics real estate developer count to the members of the DGG currently. The DGG has its headquarters in Bremen and branch office in Dresden. FV members in the investigation area include the three freight villages in Dresden, Leipzig and Glauchau (near Chemnitz).

¹⁴³ Deutsche GVZ-Gesellschaft: <https://www.gvz-org.de/en/>



5. PRESENTATION OF NECESSARY ADDITIONAL DEVELOPMENTS

In addition to the aspects mentioned in the former chapters, a number of complementary regional challenges and regional needs can be identified with regard to public passenger transport, city logistics, cycling and pedestrian traffic and new (innovative) concepts and technologies.

These issues support the functionality of the OEM corridor, however they have to be tackled on different levels and by different institutions than the partners and stakeholders involved in the project.

Public passenger transport¹⁴⁴

- Improvement of long-distance passenger transport services (e.g. optimization of the accessibility of long-distance railway stations)
- Securing services of general interest through an adequate public transport offer, especially in rural areas
- Securing the accessibility of company locations
- Ensuring affordable and barrier-free mobility
- Use of innovations and potentials of digitalization
- Increase of the modal split share in total passenger transport / better interconnection of different modes and means of transport
- Reduction of environmental pollution, especially in conurbations
- Orientation of more customer-friendly public transport services to the mobility needs
- Intelligent combination of different public transport services (e.g. integrated interval timetable)
- Implementation of the "Sachsen-Tarif" as uniform overhead tariff for inter-association travels
- Promoting independent and environmentally sound mobility for young people (e.g. education ticket)
- Demand-oriented increase of offers in local rail passenger transport
- Use of flexible forms of service, alternative mobility concepts (car-sharing, combined passenger and freight transport, club and citizen buses, mobility offers for special user groups) and individually retrievable mobility offers
- Development and linking of supra-regional public transport services, especially cross-border services
- Further infrastructure development to improve local rail passenger transport (e.g. service frequencies, timing of journeys, provision of connections, expansion of the "Chemnitz model")

City logistics¹⁴⁵

- Development of environmentally and climate-friendly concepts for urban transport (promotion of urban logistics concepts, telematics services, alternative driving systems)

Cycle traffic¹⁴⁶

- Increase of the share of bicycle traffic in the total traffic volume
- Development of transport infrastructure for cycling
- Improvement of road safety of cyclists
- Improvement of the interconnection of the bicycle and other public transport systems
- Evaluation and updating of the bicycle traffic concept
- Optimization of the tourist cycle network "SachsenNetz Rad"

¹⁴⁴ Vgl. SMWA (Hrsg.): Mobilität für Sachsen. Landesverkehrsplan 2030, p. 54f.

¹⁴⁵ Vgl. ebd., p. 62

¹⁴⁶ Vgl. ebd., p. 63f.



Pedestrian traffic¹⁴⁷

- Consideration of walking as an important element of an intermodal transport system (e.g. pedestrian-friendly accessibility, light signal control and design of interfaces between the different modes of transport)
- Avoidance of motorised private transport by providing incentives for active mobility, especially on short distances
- Creation of a continuous infrastructure network for pedestrians
- Safe design of school routes
- Development of pedestrian-friendly urban environments (wide and clean footpaths, attractive squares, good pedestrian accessibility through mixed use)
- Improvement of road safety for pedestrians
- Extensive accessibility to transport infrastructure and passenger transport
- Reduction of air and noise pollution

New concepts and technologies¹⁴⁸

- Development of innovative concepts for traffic avoidance
- Cross-modal connection optimization through modernization of existing computer-controlled operation control systems for public transport in the densely populated areas and linking to regional operation control systems in the public transport areas
- Cross-transport system development of regional traffic management systems in the conurbations of Dresden, Leipzig-Halle and Chemnitz and linking with traffic management systems of the federal motorways
- Use of the ascertainable information for traffic situation determination and efficient parking space use; further development and completion of the systems, solution of current and foreseeable load problems of the traffic infrastructures and realization of dynamic truck guidance, guidance and parking concepts
- Provision of innovative solutions for the demand-oriented and cost-effective organization of passenger transport in sparsely populated areas
- Deployment of intelligent transport systems
- Introduction of automated driving functions (e.g. test fields in urban areas)
- Further support of the distribution of electric mobility and provision of a state wide charging infrastructure
- Optimization and implementation of alternative propulsion technologies (biofuels, synthetic fuels and hydrogen)

¹⁴⁷ Vgl. ebd., p. 65f.

¹⁴⁸ Vgl. ebd., p. 69-74



6. STAKEHOLDER ANALYSIS AND STAKEHOLDER INVOLVEMENT

6.1. Identification of relevant stakeholders

For the implementation of pilot actions

<i>Level of influence and power</i>	+	<i>Keep satisfied</i>	<i>Key players</i>
		1. Clients of pilot actions 2. Economic development agencies 3. Freight terminals logistic providers	1. Rail freight operators 2. Local and regional spatial planning authorities
		<i>Monitoring</i>	<i>Keep informed</i>
	-	1. DG MOVE 2. INEA Advisory Group for CEF Transport	1. Secretaries of RFC 7 2. Federal (national) and regional ministries of transport and spatial planning (DE, CZ, Saxony, Ústecký kraj) 3. Infrastructure providers
		-	+
		<i>Level of interest and commitment</i>	

For the elaboration of Corridor Capitalisation Plans

<i>Level of influence and power</i>	+	<i>Keep satisfied</i>	<i>Key players</i>
		1. Federal (national) ministries of transport and spatial planning (DE, CZ) 2. Local spatial planning authorities	1. Regional ministries of transport and spatial planning (Saxony, Ústecký kraj) 2. Regional spatial planning associations (Saxony)
		<i>Monitoring</i>	<i>Keep informed</i>
	-	1. DG MOVE 2. INEA Advisory Group for CEF Transport 3. Regional transport associations (Saxony)	1. Network Logistics Central Germany 2. Economic development agencies & chambers of commerce 3. Infrastructure providers, freight terminals logistic providers & rail freight operators 4. OEM Corridor Coordinator & Secretaries of RFC 7 5. Metropolitan Region Central Germany 6. Saxon State Directory
		-	+
		<i>Level of interest and commitment</i>	



6.2. Description of the approach towards stakeholder involvement during the elaboration of the regional analysis of challenges and needs

Since in the case of the Free State of Saxony many and comprehensive sources and studies with current and recent data and information are available, so far stakeholders have not been involved during the elaboration of the regional analysis of challenges and needs.

However, the regional analysis will be provided to the regional planning associations Upper Elbe Valley-Eastern Ore Mountains and Leipzig-West Saxony, the Saxon State Directory, the Metropolitan Region Central Germany and the Network Logistics Central Germany to collect possible feedback and to prepare the further involvement of these institutions in the elaboration of the Corridor Capitalisation Plan.



7. ANNEXES

7.1. Maps

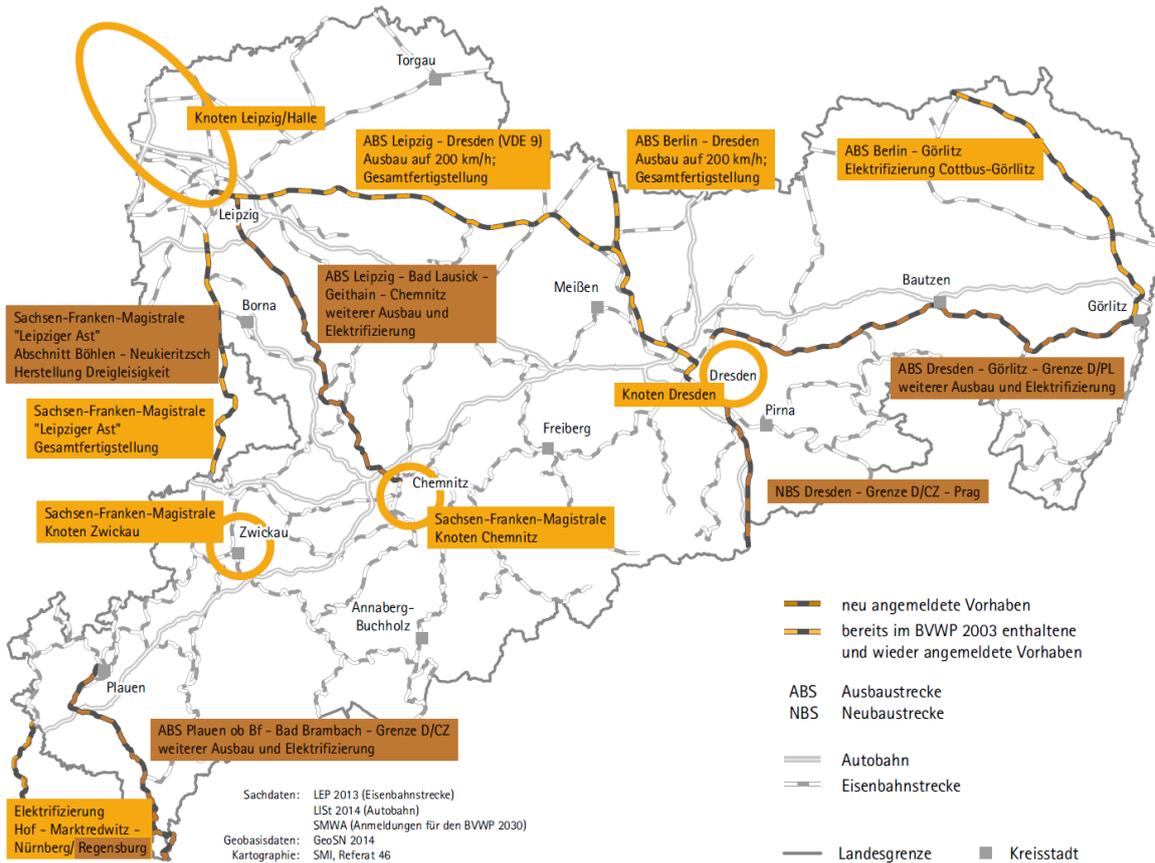


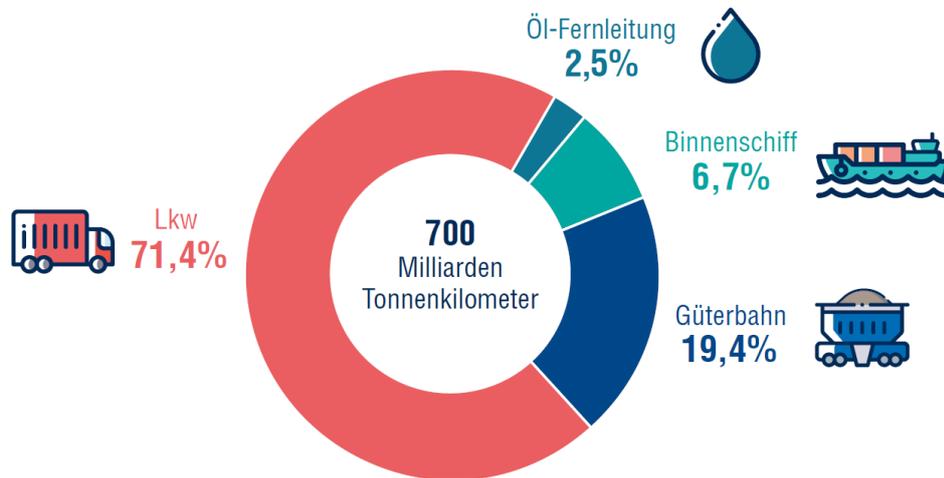
Figure 13: Registration of projects for the BVWP 2030¹⁴⁹

¹⁴⁹ SMR (Hrsg.): https://www.landesentwicklung.sachsen.de/download/Landesentwicklung/42_KB_AusbauEisenbahnstrecken.pdf [accessed on 28 February 2020]



7.2. Figures

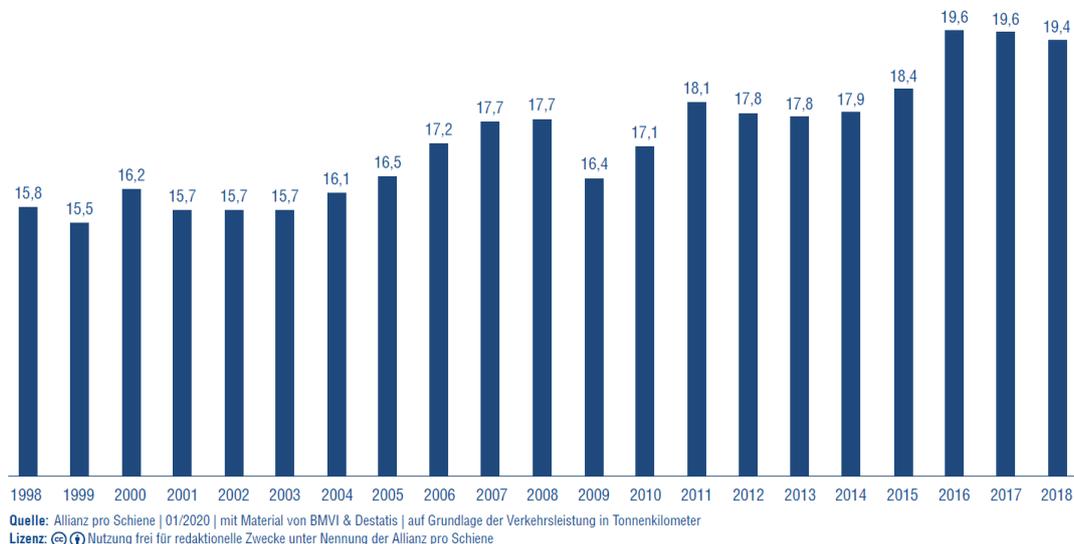
Anteile der Verkehrsträger am Güterverkehr 2018 in Deutschland



Quelle: Allianz pro Schiene | 01/2020 | mit Material von BMVI & Destatis | auf Grundlage der Verkehrsleistung in Tonnenkilometer
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Figure 14: Shares of modes of transport in freight transport in Germany (2018)¹⁵⁰

Anteile der Bahnen am Güterverkehr 1998-2018 in Deutschland, in Prozent



Quelle: Allianz pro Schiene | 01/2020 | mit Material von BMVI & Destatis | auf Grundlage der Verkehrsleistung in Tonnenkilometer
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Figure 15: percent share of rail in freight transport in Germany (1998 - 2018)¹⁵¹

¹⁵⁰ Allianz pro Schiene (Hrsg.), https://www.allianz-pro-schiene.de/wp-content/uploads/2020/02/200122_G%C3%BCterverkehr.pdf [accessed on 28 February 2020]

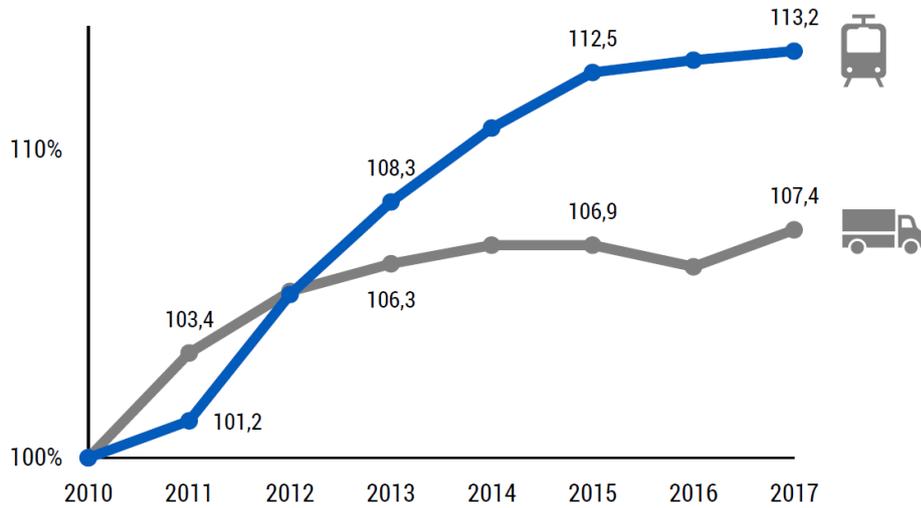
¹⁵¹ Ebd.



Preisentwicklung im Güterverkehr in Deutschland

Erzeugerpreisindex in Prozent

— Lkw — Güterbahn



Quelle: Allianz pro Schiene, Basis: Statistisches Bundesamt.

Figure 16: Development of freight transport prices in Germany (2010 - 2018)¹⁵²

¹⁵² Ebd.