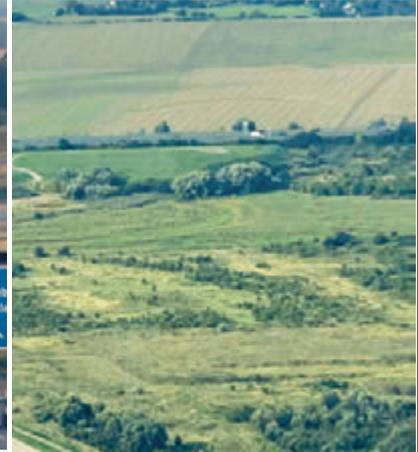


A Region Where Logistics Matter: Saxony-Anhalt



SACHSEN-ANHALT

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The state government strives to maintain and promote Saxony-Anhalt as a prime region for logistics services.

The stage is set to meet this challenge. In the past three years we have expanded all modes of transport, improved prerequisites for freight transport and opened up new mobility choices. More than ever, future developments will focus on bottlenecks. On the one hand, road traffic is likely to maintain its importance whereas everything else will have to change to meet emerging challenges. However, the challenges of the energy revolution with its massive impact both on transportation and traffic must not put excessive strain on market players.



As far as the state government is concerned, the importance of rail and waterways as environmental modes of transportation will increase. Only a combination of different transport options will help Saxony-Anhalt to successfully direct and handle seaport hinterland traffic and east-west routes. In the future, our transport networks will find widespread acceptance only if we succeed in creating added value at logistics hubs. Gradual reduction of harmful emissions presents another step on this way.

In this respect, Saxony-Anhalt sees itself as working in accordance with the objectives of the EU's transport policy and promotes its implementation. This approach is reflected by the fact that companies intending to participate in projects of the Marco Polo programme will receive support as well as by involvement in the European Chemlog Tracking and Tracing project.

Tried and tested in the past, our revised logistics concept touches upon those areas where transportation on the one hand and economy, environment and science on the other hand interface. To promote the image of our state, we added a new chapter about activities pertaining to the logistics initiative. The total of 63 measures illustrates that objectives are immediately translated into practice.

Uniting representatives of logistics companies, carriers, associations and scientific and research institutions, the Logistics Advisory Board of the state of Saxony-Anhalt has become an indispensable link to the logistics sector. By now the advisory board can look back at nearly five years of successful work.

I am delighted to invite you to learn more about logistics activities in our state.

A handwritten signature in black ink, appearing to read 'Thomas Webel', written in a cursive style.

Thomas Webel
Minister of Regional Development and Transport of the Federal State of Saxony-Anhalt

1. Management Summary



Despite, or just because of, the changes in the flows of goods as induced by progress in technology the importance which transport engineering has to economic growth remains undisputed. Global trading, an increase in carryings due to networking of businesses and markets, individual customer-stated requirements, new modes of co-operation along the logistic value chain, development of new technologies for flow of information and goods tracking, as well as advancing just-in-time/just-in-sequence requirements - all these entail an above-average growth of the logistics industry. In the economic area of Saxony-Anhalt, both opening of markets and elimination of trade barriers in the EU accession states have brought about impressive dynamics in the economy. Saxony-Anhalt as a part of central Germany, with its excellently developed infrastructure, wants to be seen as a ‚Gate to the East‘. This is also backed by plenty of logistics businesses and distribution centres of all branches of industry which have settled, or plan to settle, in our State. Further impro-

vement of locational factors offers an inherent potential to attract even more companies having processing and finishing of the incoming goods as their central elements, to establishing business and, thus enhance value creation, in the region. Well-developed through road and rail links, the area of Leipzig/Halle with the airport as an international logistics hub is becoming the leading competence region for transport and logistics in central Germany. The State will render further support to the Leipzig-Halle Logistics Network, which consists of the airport and the logistics businesses working in the area. At the same time, the Central German Chemical Triangle in the area of Halle, with its exponential economic growth, offers a broad market for the logistics industry. Such a positive development is also expected for the Magdeburg area, backed by development and improvement of the waterway infrastructure as well as the largest river port of the new federal states. Joint operation of the river ports in Saxony-Anhalt has an inherent prospect of offering a logis-

tic hinterland hub for the German seaports. The state is pursuing intensive efforts to establish co-operation at all levels which is aimed at creating a highly capable network in ‚wet operations‘. It is the responsibility of infrastructure operators and politicians to intensify co-operation with key maritime logistics centres such as the German North Sea and Baltic ports such that the river ports on the Elbe and canals can fully draw on their potentials. Transport infrastructure is a governing factor in the buoyant market of logistics. Given the growing importance of cross-border and multimodal integrated transport systems, it also needs to be upgraded Europe-wide. Saxony-Anhalt is going to have a share in the associated added value, always provided the state paves the way for own competence of performance within the region in good time.

In an effort adapted to overcome a ‚transit state only‘ situation there appear to be five task areas which need to be developed into an attractive overall concept:

As well as the transport infrastructure, these include development of forward-looking technologies and basic offers for knowledge transfer, well-trained staff and personnel, and a sustainable blend of ecologic and economic factors. Transport infrastructure advances experienced to date are already bearing fruit, as can be seen from numerous locations of commercial facilities established in the region. This approach must be consistently continued, with efficient support re-

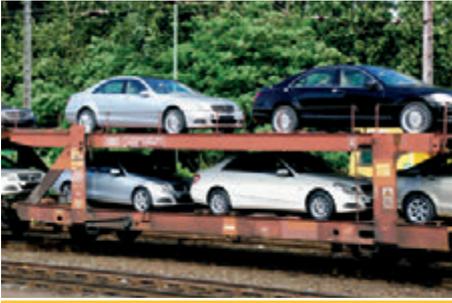
quired through applications having an affinity for logistics, e.g. through Galileo interlinked with RFID or telematic systems. Moreover, there are the challenges ensuing from Germany’s Energiewende (energy revolution) impacting the transport industries and addressing electric mobility. Adequately qualified personnel is a third, decisive locational factor for the logistics industry. To allow future demands as well, policies are required which range from image promotion for the industry through to retraining of manpower. The image of the logistics industry also comes in important with the fourth central element, environmental and climate protection.

In this field, the industry will benefit from the use of advanced compatible technologies. Environmental and climate protection are key topics at EU and national levels.

Ecologic transport operators increasingly govern the European transportation policy. The most recent disclosure of a TEN Elbe corridor shows that both the state and the EU pursue identical targets in this respect. Irrespective of the re-classification of the German federal waterways, which is to the disadvantage of the the waterway system in the East, the state will pursue an aggressive strategy in pleading for full East-West and North-South through-transport capability of the waterway system as whole. Measures contemplated by the state will be adjusted to the relevant programmes planned from federal and EU perspectives, being increasingly geared to switching transport to rail and waterways.



2. Facts and Figures of the Region



2.1 Basic Information

Facts and Figures for the region of Saxony-Anhalt are also based on data of currently available transport forecasts for the period until the year 2025. Moreover, the following Series were used for reference for the basic data:

- Federal Motor Transport Authority:
VD 2 Verkehrsverflechtung,
Previously: Fachserie 8,
Kraftverkehr und Verkehrs-
verflechtung
State of Saxony-Anhalt
- Federal Statistical Office, Wiesbaden:
Special Series 8, Series 2
Railway transport
- Land Statistical Office:
Statistical Report/Special Series
Inland navigation

The Federal Ministry of Transport, Building and Urban Development has also presented an analysis of Germany-wide intermodal transport for the forecast horizon of 2025 based on the year 2004. While markedly broadening the planning horizon compared to forecasts on which earlier studies were based, it confirms the growth of goods transport despite the decreasing total population. Passed by the federal government in 2009, the Freight Transport and Logistics Action Plan takes this development into account and claims to pave the way for the transportation policy as a whole.

2.2 Transport Relationships and Transport Volume

Saxony-Anhalt is an economically and dynamically growing federal state, linked to an excellent developed and modern transport infrastructure. This sound prerequisite as well as the optimal location in the heart of Europe and close to the East European

markets also entail a high increase in the movement of freight and goods in conjunction with a progressive transport volume. On the territory of the Federal Republic of Germany the latter is predicted to increase until the year 2025 by 48% in long-distance freight transport and by 74% in transport capacity. In road haulage alone, the transport volume and the transport capacity are to increase by 55% and 84%, respectively. The increase in transport performance anticipated for the rail transport mode is 65%. The respective growth of transport volume and capacity for inland water transport will be 20% and 26%.

A similar development can be predicted for the state proper, even though effects due to the economic situation, increasing haul distances and diminishing consignment sizes have resulted in temporary declines or stagnation, especially in the road haulage volume.

All in all, freight transport on the road during the 2007–2010 period was somewhat on the decline.

Yet, amounting to an 82.6% share in the state's transport volume (Tables 1 and 2, p. 10), it still ranked at the top of all carriers. The volume of railways in Saxony-Anhalt, compared with 2007, increased again by 20%. Thus, Saxony-Anhalt contributing 10% to cargo handling on the rail ranks third among the federal states Germany-wide, an excellent outcome of the federal and the state's efforts made and the share of relevant support programmes in switching freight transport to ecologically beneficial modes. Further impro-

vement of the rail infrastructure too by DB Netz AG has contributed.

Saxony-Anhalt's dispatch of consignments to the German seaports by rail, reaching a volume of 3.3 million MT in 2011, had a particular share in this development.

Especially in international freight transport it is anticipated to increase further in the years to come. Varied types of goods in the order of 34 million MT were exported in 2011. Medium-term forecasts predict that railways will see further increases which, in turn, are going to consolidate the positive development experienced to date. Inland navigation too is to participate in the development. Natural phenomena such as floods and low water, or ice run, cause annual variations (Table 4, p. 24).

Container handling in the three key ports of Saxony-Anhalt continuously increased from initially 11,500 TEU in the year 2000 to some 126,650 TEU in 2011. The start of HGV/rail container handling at the trimodal locations of Halle and Aken, and commissioning of the container terminal in the Magdeburg Hanseatic Port, have entailed substantial impulses for growth (Table 5, p. 24). This implies that the trimodal locations will need to be developed further such that future seaport hinterland transport requirements can be met.

Additional positive effects are anticipated from the possible construction of the Saale Lateral Canal and upgrading of the important-to-the-state ports on Saxony-Anhalt's inland waterways.



Table 1 Freight transport volume in Saxony-Anhalt (in million MT)

Transport operator	2000	2002	2004	2006	2008	2009	2010
Rail	30.4	36.4	42.8	45.9	34.3	41.4	42.5
Inland waterway	6.7	6.1	7.0	7.5	6.9	6.5	7.2
Road	268.6	240.4	251.3	245.0	249.0	235.3	235.1
Total	305.7	282.9	301.1	298.4	290.2	283.2	284.8

Sources: Land Statistical Office until 2006
Federal Statistical Office since 2007

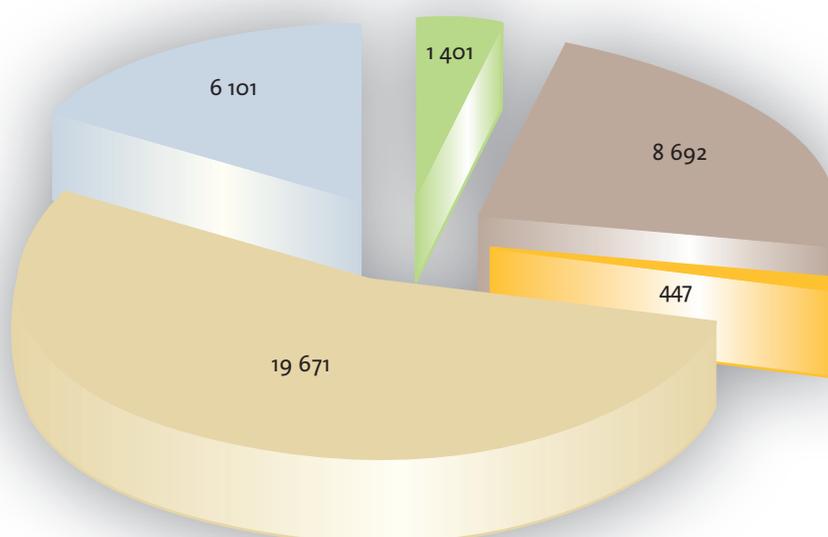
Table 2 Modal shares in freight transport volume in Saxony-Anhalt (in %)

Transport operator	2000	2002	2004	2006	2008	2009	2010
Rail	10.0	12.8	14.2	15.4	11.8	14.6	14.9
Inland waterway	2.2	2.2	2.3	2.5	2.4	2.3	2.5
Road	87.8	85.0	83.5	82.1	85.8	83.1	82.6

Source: Ministry of Regional Development and Transport of the Land of Saxony-Anhalt

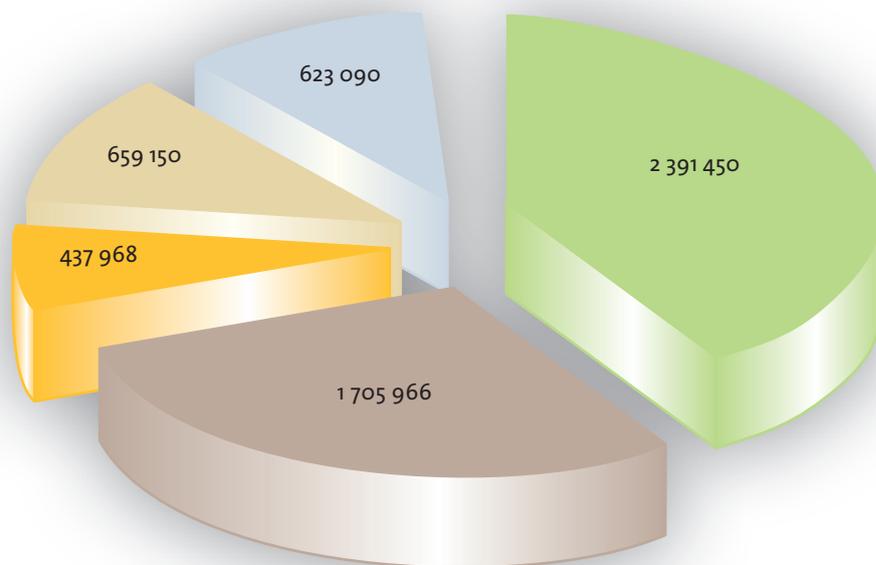
Goods handling of selected freight classes (NST 2007) by transport operators in Saxony-Anhalt (dispatch/receipt) in million MT in the year 2010

Pie Chart 3.1 Rail

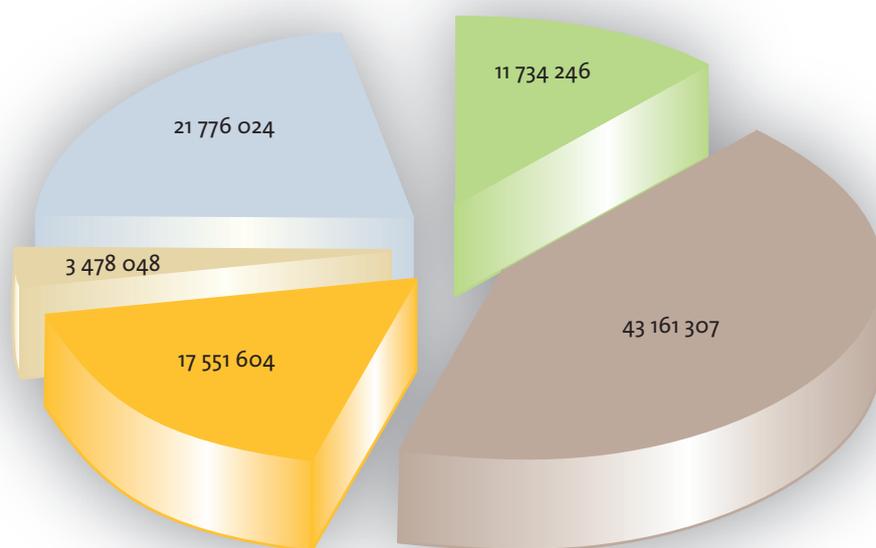


Sources:
* New goods classification since 2009
** Federal Statistical Office (inland waterway vessels, rail)
*** German Federal Office for Motor Vehicles

Pie Chart 3.2 Inland waterway



Pie Chart 3.3 Road



- Agriculture
- Ores and non-metallic minerals
- Food and semi-luxuries
- Coking plant and petroleum products
- Chemical products

The path pursued by the Land of Saxony-Anhalt to transfer transport of goods to the rail and to inland waterways, is also reflected in the modal split. Table 2 on Page 10 emphasises this aspect. The latter modes of transport benefit from the growth in the overall transport volume.

All in all, the shares of rail, waterway or road transports referred to the relevant branch of industry vary greatly. With railways shown as an important provider of transport services for the chemical industry, inland waterway vessels represent essential carriers for ores, non-metallic minerals, and products of mining. Generally, however, the highest volume was experienced on the road (Charts 3.1; 3.2 and 3.3 pp. 10 11).

According to that, the volume expected for the year 2015 is 4.6 million MT south, and 3.8 million MT north, of Magdeburg. This remarkable forecast has not yet taken into account the future transport volume on the River Saale. In the medium term, training of the River Saale by means of the Saale Lateral Canal near Tornitz allows the expectations to be adjusted upwards. The dynamically growing container-handling volume too has been largely disregarded. Given the further increasing container-handling figures, typically in the seaport of Hamburg (the forecast for 2015 amounts to 18 million TEU), and the limited capacity reserves of rail and road transport, the container-transport volume per inland waterway vessel is expected to increase.

The River Elbe, being an international waterway and having a targeted fairway depth all the year round of 1.60 m and more (345 days per year) from 2010 from Dresden through to Geesthacht, has an unused-capacity potential of establishing competitive links to the hinterland. In a study of the navigation-related potential of the Elbe river region, the container-handling potential in the Port of Hamburg is considered as high as 5 percent.

2.2.1 Road Haulage

The road network of regional transport in the State of Saxony-Anhalt (Fig. 1, p. 13), as at January 1st, 2012, totalled 10,984 km, of which 2,613 km were federal highways (including 407 km of motorways), 4,057 km of state roads, or Landesstraßen (roads which are the responsibility of the state), and 4,314 km of county roads, or Kreisstraßen (responsibility of the district).

Thus, the road infrastructure currently has 10,984 km of supra-local roads. For federal highways, the share of developed and reconstructed or renewed roads or sections amounts to 96%, while that of state roads is as low as 57%.

Thus, the development need for state roads is essentially higher. However, transport development in the long term is very challenging with respect to the road infrastructure. So, all forecasts made for Germany consistently predict for the coming years a continued growth trend in road haulage,

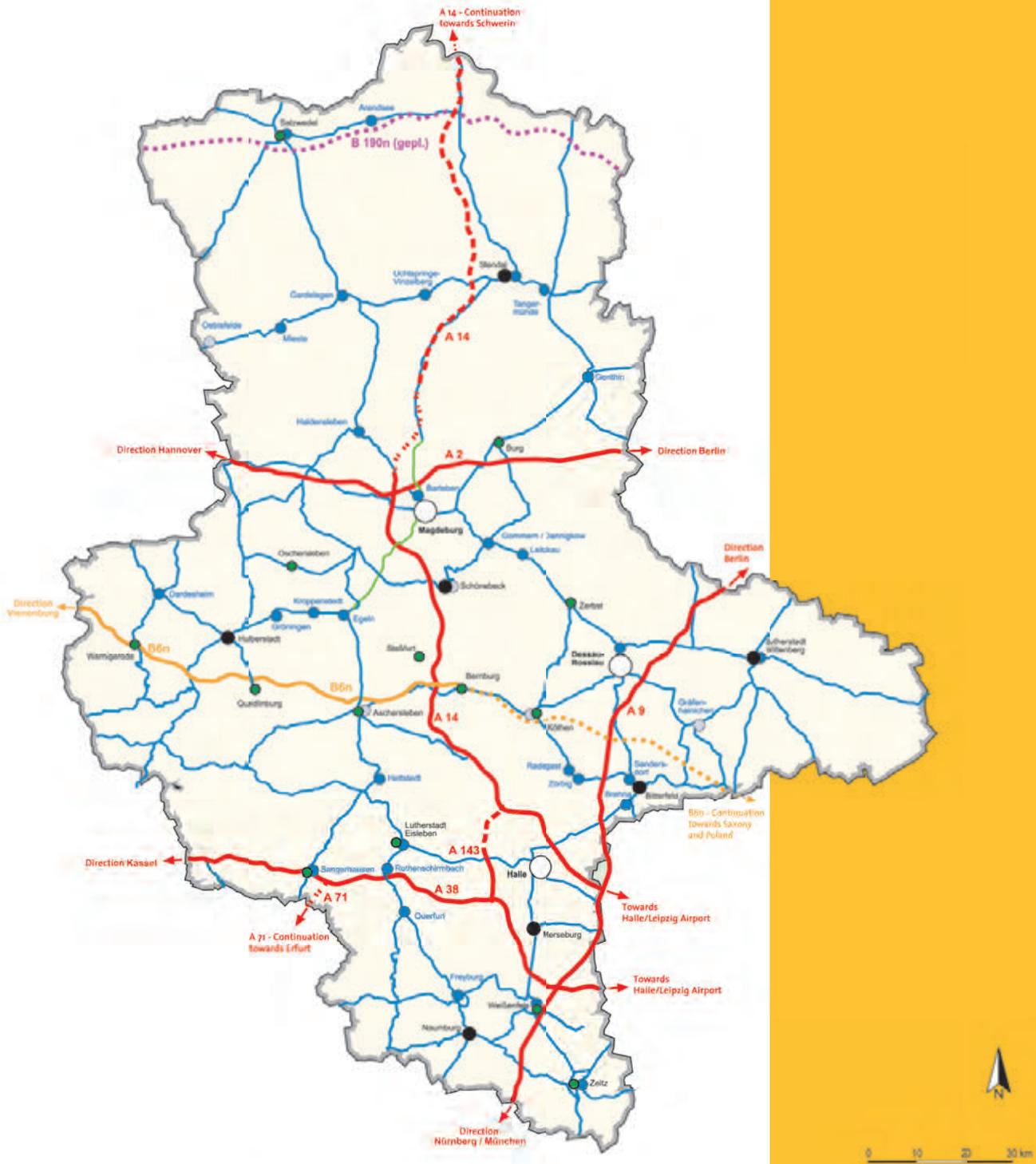


Fig. 1 Overview of road network (as at May 31, 2012)

- | | | | | | | | |
|--|---|--|---|--|---|--|--|
| | Federal motorway (complete) | | Federal highway 6n | | Federal highway, important bypasses (complete) | | Town centre |
| | Federal motorway (construction planned) | | Federal highway 6n (construction planned) | | Federal highway, important bypasses (partly complete) | | Medium-sized central place with part function of a big-sized central place |
| | Federal motorway (under construction) | | Federal highway 190n (under construction) | | Federal highway, important bypasses (partly complete) | | Medium-sized central place |
| | Federal highway | | | | | | |
| | Federal highway, four-lane | | | | | | |

both in transport volume and in haul distances. Germany, given its central location and its status as a territorial country, will even get added weight for through-transport. Due to altered transport operations and the formation of logistic networks such as distribution transports, it is assumed that, also in local zones (up to 50 km), both the goods volume carried and the transport capacity will increase.

Referring to the federal motorways, work in Saxony-Anhalt is focused on, typically, implementing the A 143 between the Halle-Neustadt motorway junction and the link to the A 14 motorway junction North as the last section of the VDE route. Supplementary planning permission has not yet been granted. The remaining VDE road projects (extension and development) such as conversion of the A 2 and the A 9 into six-lane motorways, new construction of the A 14 between the regional centres of Magdeburg and Halle, as well as the Südharzautobahn A 38 motorway are in progress.

The A 71 as a VDE project is complete. The section (VDE feeder project) from Heldrungen to the motorway junction Oberröblingen is scheduled to be completed in 2012. Also, closing the gap of the A 14 between Magdeburg and Schwerin has commenced. It is true though that maintenance services on the existing motorways will noticeably increase now and in future. Roughly two thirds of the 127 km long total length of the B 6n in Saxony-Anhalt,

from the Lower Saxony/Sachsen-Anhalt state border to the A 14, Junction Bernburg, are already open to traffic. Thus, a competitive West-East link is being established. It is particularly important to the development of the region of the Harz mountain range. The European Union, the federal and the state governments have made available a total of about € 650 million for construction of the B 6n motorway. Several urgently required bypasses as set out in demand planning for the federal highways are currently at varied stages of preparation. The financing limit is specified by the IRP for the period until 2015.

Moreover, due to the high degree of development already achieved, focal



activities are maintenance services as well as conversion and development of main roads for through-traffic in case of federal highways through co-operation with communities and public service companies. So far, 56 bypasses and part sections of bypasses have been implemented with a capital expenditure of € 1.6 billion, their total length being roughly 500 km.

Construction of another three sections of bypasses with a length of 17 km is in hand, the capital expenditure being some € 94 million. This includes the Schönebeck bridge across the River Elbe.

Maintenance and proper development of existing roadways, which

cope with the actual transport loads, are key tasks for the state-road network. A transport infrastructure tailored to suit the needs is governed by the quality of the bridges which, essentially, can be described in terms of load capacity, age structure and state score as characteristic properties. Bridges in the course of federal motorways were completely renewed in Saxony-Anhalt. Therefore, current maintenance work is focused on bridges on federal highways and state roads, considering that bridges on state roads are in a much poorer structural condition. The ensuing urgent need has been identified and is gradually reduced.



2.2.2 Rail Cargo Transport

The track length of the network of railways in the state as at January 1, 2012 comprised 1 933 km of DB Netz AG and 1 136 km of non-federal railways. Some 800 km are used exclusively for freight transport, of which 226 km are 'open to the public'. The density of network coverage, being 18.3 km/100 km², is above the average of the new federal states. As is true in road haulage, both punctuality and flexibility are top requirements. Irrespective of whether high-value industrial or consumer goods are concerned both consignors and consignees expect a high safety standard and reliability in rail transport. Referring to complete train-load transport, most of the large freight transport companies are represented in Saxony-Anhalt. In addition to the DB Group affiliates DB Schenker Rail, RBH and MEG, these typically include the companies of Captrain (RBB/ITL), SBB Cargo Deutschland, TXLogistik, CTL, Pressnitztalbahn, InfraLeuna, Haveländische Eisenbahn (hvle), as well as Häfen und Güterverkehr Köln. In single-carriage operations, DB Schenker Rail is the only EVU which provides this service area-wide, with the large plant-owned and industrial railways at the chemical sites of Wittenberg-Piesteritz, Bitterfeld, Schkopau and Großkorbetha as well as the Halle Railport all integrated. At the chemical sites of Wittenberg-Piesteritz (SKW), Bitterfeld (Regiobahn Bitterfeld-Berlin), Schkopau (Mitteldeutsche Eisenbahn) and Großkorbetha/Leuna (InfraLeuna), the operators of plant-owned railways transfer the goods to the loading points of

multi-modal transport and conventional wagonload transport.

This demonstrates that there are good chances even for smaller EVUs to be successful in this market, considering that not only chemical products, but also non-metallic minerals are carried, for example by the Lappwaldbahn. Currently, 16 such EVUs have operations in Saxony-Anhalt. There are rail haulage hubs at the locations of Magdeburg, Halle, Dessau-Roßlau, Stendal, Bitterfeld-Wolfen, as well as at Wittenberg-Piesteritz, Schkopau and Großkorbetha.

As at January 1, 2012 the state of Saxony-Anhalt had 95 public or customer-related goods transport facilities mainly served by DB Schenker Rail.

For example, the future marshalling facility in Halle, the shunting yard in Magdeburg-Rothensee as well as Großkorbetha goods station, which is important to the chemical industry, are among the goods transport facilities. Jointly they form the backbone of rail-bound goods transport (Fig. 2, p. 17, overview on pp. 18 19, and Fig. 17, p. 55). Moreover, the five trimodal ports, which are important to the state, and the trimodal Leipzig/Halle Airport as interchanges provide a sound basis for multimodal transport.

However, in order to satisfy the increased requirements in future too, measures will need to be implemented to further electrify railway sections, increase the maximum speed, double the track so as to suit the demand, and avoid demolishing rail infrastructure. On high-frequency goods transport sections, electrification should be implemented in perspective as far as and including the 'last mile' with a view to optimising interfaces.

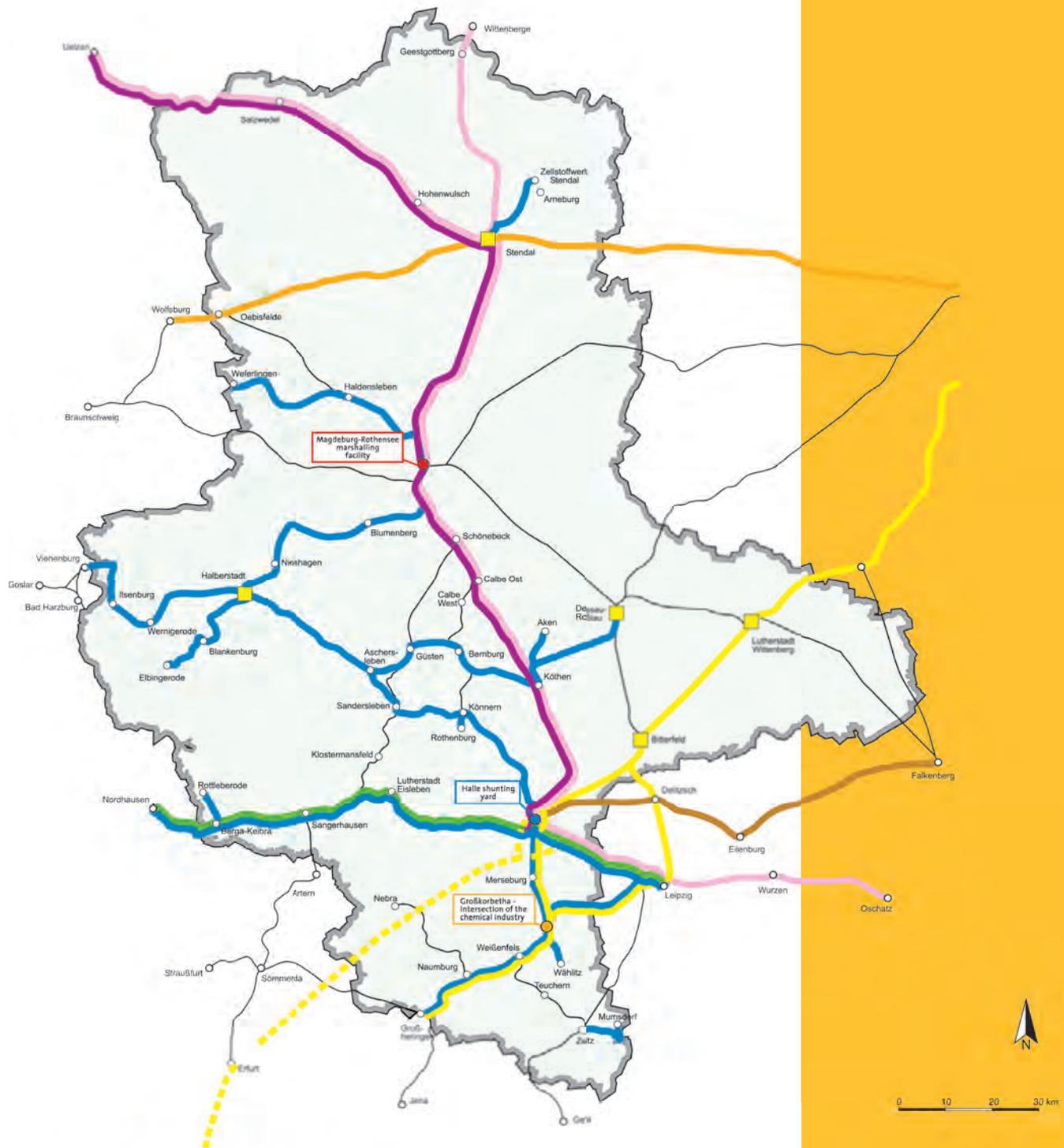


Fig. 2 Overview of main railways network (as at May 31, 2012)

- | | |
|---|--|
| <ul style="list-style-type: none"> — ICE: — Berlin - Hannover — Berlin - Halle/Leipzig — Leipzig - München — Dresden - Leipzig/Halle - Magdeburg — Magdeburg - Stendal - Bremen/Hamburg - - - Halle/Leipzig - Erfurt - Nürnberg (in Bau) | <ul style="list-style-type: none"> — Leipzig - Halle - Kassel — Halle - Eilenburg - Horka - Wegliniec (PL) — regionally significant goods transport sections — future freight transport corridor (east) ■ Railways junction |
|---|--|

No.	Freight transport station	Railway line/Interchange	Note
01	Aken (Elbe)	Köthen-Halle, Halle-Magdeburg/ Köthen, River Elbe, A 9, motorway	Aken Port
02	Altengrabow	Altengrabow-Magdeburg	SC, military CTL
03	Baalberge	Bernburg-Köthen-Halle	
04	Barby	Magdeburg-Halle, River Elbe	CTL
05	Bebitz	Bernburg-Halle	
06	Bernburg	Bernburg-Köthen-Halle, River Saale	
07	Bernburg-Zementwerk	Bernburg-Köthen-Halle, River Saale	Chemical products
08	Bitterfeld	Berlin-Halle-Leipzig, B 100	CTL Wittenberger Agrarhandel
09	Bitterfeld Nord	Berlin-Halle-Leipzig, B 100	
10	Blankenburg (Harz)	Halberstadt-Magdeburg, B 6n	
11	Blankenburg (Harz) Nord	Halberstadt-Magdeburg, B 6n	Fels Werke, Transgas
12*	Blumenberg	Magdeburg-Halberstadt, B 81	LP Westfalen AG
13	Bodendorf	Weferlingen Haldensleben	SC Haniel company
14	Braunsbedra	Merseburg-Halle-Erfurt, A 38 motorway	
15*	Bülstringen	Magdeburg-Haldensleben	LP
16	Buna-Werke Schkopau	Halle-Frankfurt, A 38 motorway, B 91	Chemical products
17	Burg	Berlin-Magdeburg, Elbe-Havel Canal A 2 motorway, B 1	Military, SC Rail Technology CTL, Railway construction
18	Coswig (Anhalt)	Wittenberg-Dessau, River Elbe	CTL
19	Dessau-Roßlau Hbf	Magdeburg-Leipzig, Berlin-Leipzig, A 9 motorway	Semi-finished goods and finished products
20*	Dessau-Roßlau (Elbe)	River Elbe, A 9 motorway	Shipyards
21*	Dessau-Roßlau (Elbe) Gbf		Railway construction
22	Dessau-Roßlau-Rodleben		
23*	Dessau-Waggonbau		LP
24	Dodendorf	Magdeburg-Halberstadt, A 14 motorway	
25	Flechtingen	Magdeburg-Oebisfelde, Mittelland Canal	CTL
26	Forsthaus Eiche		
27	Gardelegen	Berlin-Hannover, B 71, B 188	
28	Genthin	Elbe-Havel Canal, A 2, B 1, B 107	
29	Großkorbetha	Halle-Frankfurt, A 38, A 9	
30	Halberstadt	Halberstadt-Halle, B 6n, B 81, B 31	CTL, Railway construction
31	Haldensleben	Magdeburg-Oebisfelde Mittelland Canal, B 71	
32*	Haldensleben Euroglas	Magdeburg-Oebisfelde	LP Euroglas
33	Halle-Güterbahnhof	A 9, A 14, A 38, A 143, River Saale	Customs post
34	Halle-Güterbahnhof Railport Nord		
35	Halle-Güterbahnhof Railport Süd		
36	Halle-Ammendorf		
37*	Halle-Diemitz		Goods-wagon service station
38	Halle-Trotha KV	Halle-Aschersleben	Combined transport
39	Hassel (Landkreis Stendal)	Hassel-Stendal	SC, military CTL
40	Hettstedt	Magdeburg-Erfurt, B 180	KML, iron and steel
41	Holzdorf (Elster)	Riesa-Falkenberg, B 187	SC, military CTL
42*	Ilberstedt	Bernburg-Halle, A 14, B 6n	LP Schröder Gas company
43	Ilseburg	Halberstadt- Braunschweig, B 6n	
44*	Ilseburg	Halberstadt- Braunschweig, B 6n	LP Grobblech GmbH
45	Karsdorf	Karsdorf-Naumburg	CTL
46	Königsborn	Magdeburg-Berlin-Dessau, B 184	
47	Könnern	Halle-Bernburg, A 14 motorway	
48	Könnern, Zuckerfabrik		
49	Köthen	Magdeburg-Halle-Leipzig, A 9 motorway	

No.	Freight transport station	Railway line/Interchange	Note
50	Landsberg b. Halle	Berlin-Halle, A 9 motorway	
51	Letzlingen		SC, military CTL
52	Leuna-Werke I	Halle-Frankfurt	
53	Leuna-Werke II	A14, A 38, A 9 motorways	
54	Lochau, Werkbahnhof		CTL
55	Lutherstadt-Wittenberg	Berlin-Halle-Leipzig	
56	Lutherst.-Wittb.-Piesteritz	B 2, B 187	Chemical products
57	Magdeburg-Buckau	Waterway Junction, River Elbe	
58	Magdeburg-Hafen	Mittelland Canal, Elbe-Havel Canal	NORDLAMM
59	Magdeburg-Hafen	Mittelland Canal, Elbe-Havel Canal	MUT, tank farm transshipment
60	Magdeburg-Hafen	Mittelland Canal, Elbe-Havel Canal	Isolating dam
61	Magdeburg-Rothensee	A 2, A 14 motorways	
62	Merseburg	Halle-Frankfurt, A 14, A 38, A 9, B 91	CTL, rail construction
63	Nachterstedt-Hoym	Halberstadt-Halle, B 6n	
64	Nauendorf (Saalkreis)	Halle-Aschersleben	CTL
65	Niedergörne	Stendal- Arneburg, River Elbe	
66	Oebisfelde	Berlin-Hannover	CTL, rail construction
67	Profen	Zeitz-Leipzig, B 2	Mineral fuels
68	Quedlinburg	Halberstadt-Magdeburg, B 6n	CTL, MDB
69*	Queis		LP
70	Querfurt	Querfurt-Merseburg, A 38, B 180, B 250	MEG
71	Röblingen am See	Halle-Eisleben, A 38, B 80	
72	Rosslau (Elbe)	Magdeburg-Dessau-Leipzig, River Elbe	Shipyards
73	Rosslau (Elbe) Gbf		Rail construction
74	Rosslau-Rottleben		
75*	Rothenburg (Saale)		Wire Factory LP
76	Rottleberode-Süd	Leipzig-Halle-Kassel	
77	Sachsendorf bei Calbe	Magdeburg-Halle	CTL
78	Salzwedel	Stendal Uelzen, B 71 B 248	Rail construction
79	Schönebeck (Elbe) Gbf	Magdeburg-Halle-Leipzig, River Elbe, A 14	
80	Schönebeck (Elbe) Port		
81	Schönhauser Damm	Berlin-Hannover	SC, military CTL
82	Schraplau	Halle- Eisleben, A 38 motorway	
83*	Staßfurt	Magdeburg-Aschersleben, A 14, B 6n	LP
84	Staßfurt Gbf		
85	Stendal	Berlin-Hannover, Magdeb.-Wittenb. B 188	
86	Tangerhütte	Magdeburg-Stendal	SC, military CTL
87	Teuchern	Zeitz-Weißenfels, A 9, B 91	
88	Teutschenthal	A 143, A 38 motorways	
89	Tröglitz	Zeitz-Altenburg	
90	Wahlitz MIBRAG		MEG, CTL, Coal
91	Wanzleben	Magdeburg-Halberstadt, B 180	Foods & feedstuffs
92*	Wanzleben Zuckerfabrik		LP
93	Zeitz	Halle-Leipzig, A 9 B 2 B 180	
94	Zerben	Berlin-Magdeburg, B 1	
95	Zielitz	Magdeburg-Hamburg	Potash works

Source: DB Schenker, Halle Production Centre

- * - Individual customer
- SC - Single carriage
- Gbf - Freight station
- CTL - Complete train load
- KML - Kreisbahn Mansfelder Land
- LP - Loading point/Customer-related - Not public
- MEG - Mitteldeutsche Eisenbahngesellschaft

2.2.3 Multimodal Transport

Multimodal transport is defined as goods transport with two or more modes of transportation, without changing the container. For such transport to be efficient it is essential that the interfaces between the transport operators function properly as an integral part of a logistic concept aimed at establishing complete transport chains. The state government of Saxony-Anhalt supports such efficient 'logistic interfaces' in centres of transportation. It is intended to subsidise logistic interfaces along the high-priority TEN routes as well as the Goods Transportation Corridor East which is being developed. European support programmes are to be used to this end.

The state of Saxony-Anhalt has well-developed trimodal terminals for multimodal transport (Table 3, p. 21). The planned extension of the KTSK near Schkopau from 2013 onwards will establish prerequisites such that traffic flows from the chemical industry and other branches of industry can be switched.

In the process of further developing the Halle-Leuna-Schkopau conurbation into a decentralised terminal hub in the middle of Germany, it is also being considered to build another, new terminal for multimodal transport with national and international orientation. Plans will be implemented as soon as the terminal's operating level is reached.



Abb. 3 KV - Terminal Halle/Saale

Table 3 Public terminals of ‚Combined Transport‘ (CT) in Saxony-Anhalt

Location	Transport Operator	Interchanges	Handling Technology/ Facilities/Services
Aken Port	Trimodal Rail/Road/Waterway	Köthen-Halle/Magdeburg, B 187 a, close to A 9 and A 14 motorways, Elbe-Containerlinie (ECL 2000), L 63 Aken-Dessau	Heavy lift crane Container crane 2 off - Reach stacker - 3 off - Loading track - Container depot & service - Storage yards - Hazardous-goods yard
Haldensleben In-Town Port	Trimodal Rail/Road/Waterway	Hannover-Magdeburg-Berlin, A 2, A 14, B 71, Börde Container Feeder Rhein-Umschlag KG	2 off - Gantry crane, 2 off - Reach stacker - Storage yards - Belt conveyor system - Container stuffing - Container special equipment
Halle-Trotha Port	Trimodal Rail/Road/Waterway	Halle-Bremerhaven/Hamburg, Halle-Leipzig-Dresden, A 9, A 14, A 143, B 6, B 100	3 off - Reach stacker - Storage yards - Container service - Hazardous-goods area - 20 off - Reefer location Cooling containers
Dessau-Roßlau Port	Trimodal Rail/Road/Waterway	Magdeburg-Bremen/Hamburg, Leipzig/Halle-Dresden, A 9, B 184, B 187, Elbe-Containerline (ECL 2000) Inland navigation line (ETS-Elbe) Elbe-Projektline (EPL)	Gantry crane - Container yard - Container service
Magdeburg Hansehafen Port	Trimodal Rail/Road/Waterway	Magdeburg-Stendal-Bremen/Hamburg, Magdeburg-Leipzig/Halle-Dresden, Hannover-Magdeburg-Berlin, A 2, A 14, B 1, B 71, B 81	Gantry crane - Storage yards - Hazardous-goods area - 500 MT Heavy-goods yard - Container service - Provision to connect roll-on/roll-off ramp - Supply of land-generated power to inland waterway vessels
Schkopau	Bimodal Rail/Road	Halle-Großkorbetha-Leipzig, A 9, A 38, A 143, B 91	Container full gantry crane 2 off - Reachstacker - 2 off - Loading track - Storage yards - Hazardous-goods area - Container service - Provision for cleaning of containers - Tilting platform in outdoor storage yard - Storage facilities

Source: Ministry of Regional Development and Transport of the State of Saxony-Anhalt

2.2.4 Airfreight Transport

Air cargo transport will increase Germany-wide until 2020 by 60%. The Leipzig/Halle Airport having a freight volume of 760 344 MT in the year 2011 is of the ten European key cargo airports and ranks high among the

most advanced airports in Europe, where more than 55 planes take off and land every night. On weekdays, at present there are regular services from Leipzig/Halle to over 50 destinations in Europe, Asia and the USA. The Airport has the potential to increase freight movements within the

next ten years to a volume of one million MT/year. In perspective, for distances up to 400 km, the airfreight coming from overseas is to be moved on trough rail cargo transport. The Airport's facilities include an animal export centre, a veterinary border inspection post as well as a hush house for engine tests. The airfreight transshipment station meets ideal requirements for movement of goods, designed to cope with all facets of advanced logistics. All in all, the logistics service provider, DHL has picked a location that is qualified to be successful in the global express business while considering both the increasing volume of consignments and growing competition. The DHL Airfreight Hub, in the long run, offers sufficient capacity for the volume of consignments which, as anticipated by experts, will further increase in European express delivery by air. A logistic 'business card', the hub adds to the economic attractiveness of the region as a whole. Companies from growth industries such as information technology and telecommunications, the automotive and the pharmaceutical industries benefit from this hub in the vicinity of their respective locations. Thanks to a 24-hour regimen, with flights taking off and landing throughout the year, companies from the region are getting the integrated services which they need for their often time-critical goods and documents. Persons currently employed at the location total roughly 3 300. Overall, 1 500 MT of freight are handled

per day on average. To this end, the sorting facility that is 6.5 km long and one of the largest in Europe copes with more than 100 000 express parcels and urgent documents per hour. Thus, Leipzig/Halle, as well as Cincinnati in the USA and Hongkong, is one of the key handling sites in the worldwide network of DHL Express.

Supplementary to DHL, Lufthansa Cargo is establishing an own freight handling operation in the World Cargo Centre at the Airport. In this connection, DHL Express and Lufthansa Cargo AG launched AeroLogic, a joint cargo airline, which has been operating from Leipzig/Halle with most recent long-range aircraft since 2009. This is an independent and the first intercontinentally operating carrier that has established business in the new German states. AeroLogic, according to its business model, will primarily have long-distance flight operations. Air Bridge Cargo is another air-freight carrier. The permanent licence for 24-hour airfreight transport operations, as approved by the Federal Administrative Court, is indispensable for development of the Leipzig/Halle hub. Competitiveness will be ensured only if and when the airports are developed in conformity with demand and operating hours are as needed. Requirements in this respect are laid down in the Freight Transport and Logistics Action Plan and in the federal government's airport concept.

Airport Development A/S is a private investor at the Magdeburg/Cochstedt

Commercial Airport; in 2010 they were granted a licence to develop this airport into a medium-size logistics centre. The Magdeburg/Cochstedt Airport has been granted a licence to operate a commercial airport with 24-hour regimen. Thus, passenger and freight aircraft whose take-off weight is in excess of 14 MT can depart from the airport. The airport operator of the Magdeburg/Cochstedt Airport will give increased attention to their second key line of business, cargo and logistics. A first milestone was reached through firmly deploying a Type Antonov 26 cargo aircraft. This plane permits transport business with up to 5.5 MT freight. Two cargo buildings with an area of 1 000 m² and 7 000 m², respectively, will be erected in future. In perspective, the state of Saxony-Anhalt is to make available an industrial estate sized 68 ha, allowing air transport-related logistics to be developed.

2.2.5 Freight Transport on the Rivers Elbe and Saale, on the Canals and in the Ports

Saxony-Anhalt has 580 km of federal waterways tied into the European waterway network. This includes the Elbe, the Saale, the Untere Havel waterway, the Mittelland Canal, and the Elbe-Havel Canal. The Elbe as an international waterway and the Canals form an integral part of the TEN. There are five ports which are important to the state: Magdeburg, Aken, and Dessau-Roßlau on the Elbe; Haldensleben on the Mittel-

land Canal, and Halle on the Saale. These are also interfaces of trimodal freight transport. Inland navigation is an essential and indispensable mode of transport in the state (Fig. 3, p. 20). Cargo handling in the ports and transshipment stations of the states has continuously increased in the past years. In 2011, this trend was confirmed, being 7.5 million MT (Table 1, p. 10 and Table 4, p. 24). Thus, compared with 2009, the volume of freight transport increased by 9.5%, construction of the Waterway Junction, VDE Project 17, being an essential factor. This structure establishes a link between the Mittelland Canal and the Elbe-Havel Canal that is independent of the River Elbe's water level. At the same time, this project has ensured some adjustment to modern inland navigation. Since the opening of the Waterway Junction for transport in October 2003, cargo handling in the area of the Mittelland Canal has markedly increased (Table 4, p. 24), with container, heavy-goods and project-load transport gaining added importance (Table 5, p. 24). Currently, federal authorities are investigating to see if construction of the Saale Lateral Canal near Tornitz would bring about a more important role for the River Saale in Saxony-Anhalt's waterway system. As a result of the contemplated canal construction, the Halle/Leipzig region would gain a link to the waterway network and become more attractive. Also an increase in the volume of goods transport would be experienced on the Elbe.

Table 4 Goods handling on inland waterways (in 1,000 MT)

	2006	2007	2008	2009	2010	2011
River Elbe	3 210	3 384	3 184	3 109	3 278	3 489
Mittelland Canal	3 755	3 696	4 386	4 052	3 903	4 050

Source: Land Statistical Office

Table 5 Container handling in ports (in 1,000 EUR)*

	2007	2008	2009	2010	2011
Handling Vessels					
Hansehafen Magdeburg Port	9 840	15 226	11 028	15 000	15 850
Aken Port	2 900	4 750	6 220	7 957	9 894
Haldensleben Port**	6 250	7 280	14 822	17 736	19 272
Total	18 990	27 256	32 070	40 693	45 016
Handling Rail/Trucks					
Aken Port	13 400	17 300	17 147	10 814	9 945
Halle Port	36 141	45 642	26 639	63 403	71 676
Total	49 541	62 942	54 600	63 403	81 621
Total of all transport operators	68 531	90 198	86 670	104 096	126 637

Source:

* Individual information provided by the ports

** New counting practice since 2009

2.3 In Focus

2.3.1 The Ports on the Middle Elbe as a Hinterland Hub for the North Sea and Baltic Ports

The trimodal mix of HGV, railway and inland waterway vessel offers best conditions for an intelligent combination and, thus, for an economical and, above all, environmentally compatible distribution of goods volumes, the keyword being Green Corridor. The ports of Magdeburg,

Aken and Dessau-Roßlau are linked to Hamburg and the Czech Republic via the Elbe, and fully tied into transport network through the Waterway Junction with connection to the Mittelland Canal and the Elbe-Havel Canal (Fig. 4, p. 25).

Furthermore, they can be directly accessed via the A 2, A 9 and A 14 motorways. Further connections via the railway tracks on the railway lines from Hannover to Berlin, to Hamburg and Rostock as well as into the conurbations of Halle/Leipzig and Dresden.



Fig. 4 Overview of waterway network

- Big-sized central place
- Medium-sized central place with part function of a big-sized central place
- Medium-sized central place
- Trimodal port location
- Significant loading point
- 50 km 'Catchment' area
- ederal waterway
- avigable canal

All the ports on the Middle Elbe as well as the ports and transshipment stations of Haldensleben, Bülstringen and Vahldorf on the Mittelland Canal complement each other in terms of their strengths. These locations were revamped in the past years, with substantial efforts made in complying with the standards of modern inland navigation and, in part, for container shipping, plus an increasing specialisation.

The port of Aken, for example (Fig. 5, p. 27), through the heavy-lift terminal featuring the highest stationary lifting capacity on the Elbe, has become a high-frequency trimodal interface for the exporting engineering and plant engineering companies of the Metropolitan Region of central Germany (Saxony-Anhalt, Saxony, and Thuringia).

The prospects of the port in Halle are due to its link to the central German region, already now resulting in a remarkable container transfer from the road onto the rail. It is not until after economical navigability of the Saale all the year round is ensured through construction of the Saale Lateral Canal near Tornitz in perspective that the port of Halle can fully draw on its remarkable potential.

The location of Haldensleben, in turn, benefits from being situated on the Mittelland Canal, and already now it is an important interface for container transfer.

The port of Magdeburg, given its central location and the outstanding infrastructural equipment and facilities, meets the requirements for it to become the centre of the hinterland hub for the seaports of Bremen, Bremerhaven, Hamburg, Lübeck, Rostock, and Szczecin.

Connections to the conurbations of Hamburg, Berlin, Hannover, Dresden, Halle/Leipzig, to the Ruhr district, as well as to the chemical site of Leuna have been continuously improved. From 2013 onwards, the low-water lock will be built to establish a link to the canal network that is independent of the water level. Thus, the requirement will be met such that cargo handling figures can be increased in future.

The Port of Magdeburg (Fig. 6, p. 27), since the completion of the Hanseatic Port freight transport centre in 2007, has a 40-ha area on the Rothensee junction canal where industrial companies and logistics service providers can establish business. This also includes of container terminal featuring an annual capacity of 33 000 containers.

The multimodal terminal comprises a 2 850 m² storage yard for hazardous goods, a 4 500 m² storage yard for containers/swap containers, a heavy-load yard sized 60x20 m on the quayside and designed for loads up to 500 MT. Moreover, there are a Ro-Ro ramp and a gantry crane lifting up to 50 MT above the water, the rail and the road.



Fig. 5 Aken inland port

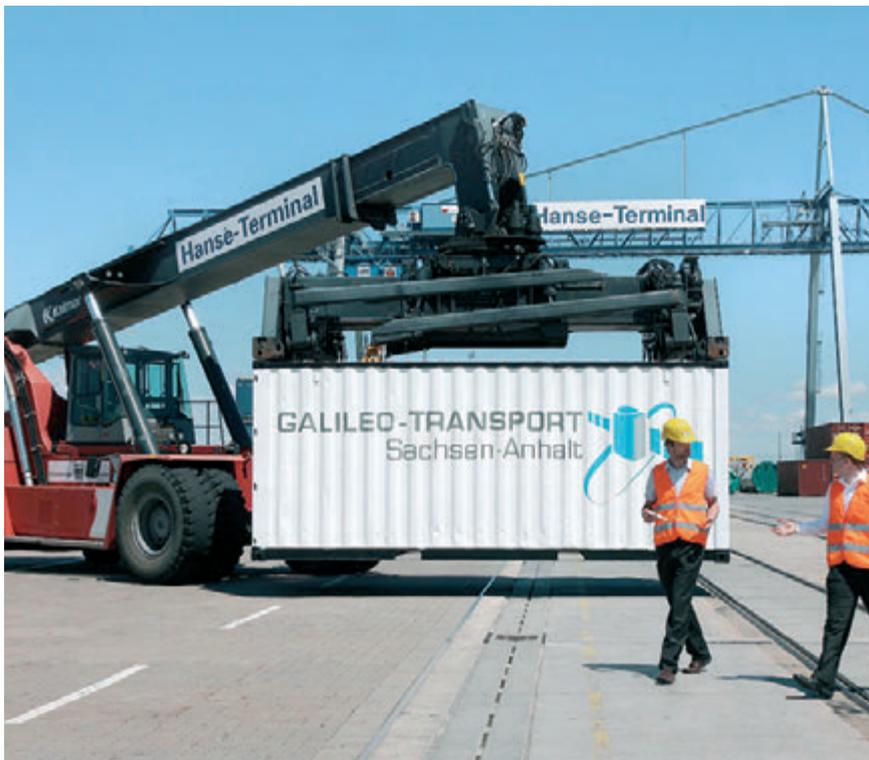


Fig. 6 Modern navigation satellite systems can markedly improve the efficiency of handling systems at logistics hubs. Supplementary to the development laboratory in Magdeburg's Port of Science, the technologies can be studied under real-life conditions on the logistics platform of the Galileo test bed.

2.3.2 The Leipzig/Halle Airfreight Hub

Saxony-Anhalt is benefiting from its location close to the Leipzig/Halle Intercontinental Airport (Fig. 7, p. 28/ Fig. 8, p. 29) which already now has supraregional importance as a logistics hub.

The location in the south of Saxony-Anhalt offers ideal conditions for this branch of industry.

These include:

- Five supraregional motorways,
- Construction of the A 72 motorway from Leipzig to Chemnitz,
- Several railway lines,
- Several multimodal terminals, and
- Areas where further processing companies can set up business.

Moreover, it holds a licence for day and night cargo flights. Due to areas available for development, Leipzig/Halle has marked locational advantages over national and European competitors, entailing a major potential for further growth. Specifically in airfreight transport, bundling of transport operations is of decisive importance so that the aircraft can be efficiently utilised. To this extent, the 'catchment area' of an airfreight hub needs to be clearly larger than that of land-based hubs, such as in HGV transport. Within a radius of 100 km, express freight is centred on the Leipzig/Halle intersection. The Leipzig/Halle Airport is one of the most advanced airports in Europe. It has a competitive infrastructure, its links to rail

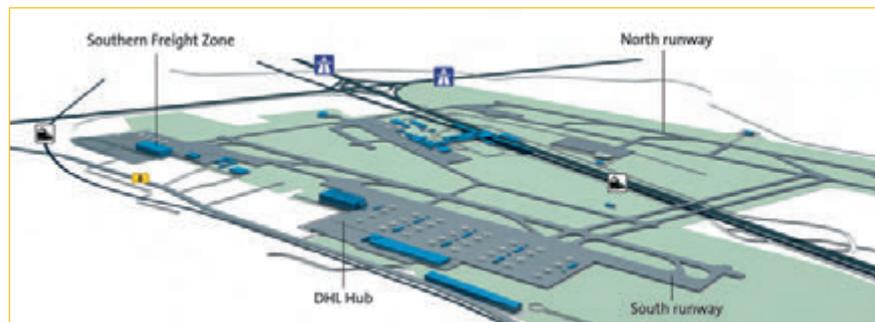


Fig. 7 Runways

In particular the fact that DHL has established business there has attracted national and international attention to the region of central Germany. Some 30% of the workforce are from Saxony-Anhalt alone. The airport has two parallel runways and a state-of-the-art tri-modal terminal which optimally combines air, rail and road.

and road being exemplary. The airfreight transshipment station is ideally suited for forward-looking intermodal transport of goods. At present, over 300 flights take off every week to reach more than 50 destinations in over 30 countries.

With its 2011 freight volume the Leipzig/Halle Airport ranks second among the German airports. From a European perspective, it is one of the Top Ten of the cargo airports. Furthermore, it is through reinvestments that the Halle (Saale) - Nordhausen - Kassel railway line has been upgraded to 100 km/h over its full length such that the ‚fast‘ logistics are made available.

2.4 Development of Saxony-Anhalt's Foreign Trade

The export volume of the state's economy reached € 14.72 billion in 2011 and, thus, about € 2,12 bn (16.8%) more than in the year before.

During the same period, the volume of imports increased by 21.3% to reach roughly € 14.78 billion. Thus, imports slightly outperformed the



Fig. 8 Leipzig/Halle Airport

Currently, the fact that there is no fast rail link in the directions of Frankfurt on Main and Frankfurt Airport as well as Mannheim is a weak point. Regional planning and regional development planning measures will need to be carried out to restrict housing estates in the relevant areas and thus preclude conflict.

exports for the first time. The single European market by far remained the key trading partner for exports from Saxony-Anhalt.

In 2011, some 70.5% (€ 10.38 bn) of the total exports were sold to the EU countries. Imports from the EU countries in the past year amounted to € 6.61 billion, accounting for 44.6% of total imports. Poland remained

the key country for exports within the EU, the export volume being about € 1.87 billion. This accounted for 12.7% of Saxony-Anhalt's total exports, with Italy (€ 1.09 bn; 7.4%) and France (€ 1.06 bn; 7.2%) ranking second and third, respectively.

Russia maintained the leading position among the countries from which Saxony-Anhalt imported goods, the import volume being € 5.45 billion and accounting for 36.7% of total imports. This comparatively high import share was attributable to extensive Russian petroleum and natural gas supplies.

Another important country in the EU from which to import in 2011 was Poland, the import volume being € 1.25 billion. This accounted for 8.4% of Saxony-Anhalt's total imports. Other significant countries from which this state imported goods were the Netherlands and Great Britain with the respective volumes of € 914 million and € 634 million. These accounted for 6.2% and 4.3% of Saxony-Anhalt's total imports, respectively. Exports to China totalled € 611.3 million, or 4.2%, putting China on position 9 in the ranking. Thus, China is the most important country in Asia where Saxony-Anhalt's exports go. Other Asian countries worth mentioning with reference to exports from this state are India (€ 131.3 million) and Saudi Arabia (€ 99.2 million).

Also, China from which goods worth € 918.7 million are imported, accounting for 6.2% of the total imports, is the key trade partner in Asia, and ranking third among the countries where

Saxony-Anhalt's imports come from, with India (€ 238.1 million) being next, which is roughly equivalent to 25% of the import volume from China.

The most significant country for exports on the American Continent is the USA, with exports totalling € 526.9 million (or 3.58%). Referring to imports, the key American country in 2011 again was the USA importing goods worth € 158.9 million. In Saxony-Anhalt's foreign trade, the relations to the African countries are still of minor relevance, exceptions being South Africa, Egypt



Fig. 9 Loading horses at the airport

and Tunisia with the respective volume of exports of € 52.5 million, € 46.6 million and € 22.8 million.

Foreign-Trade Goods Structure

Considering now the goods structure of exports, preliminary statistical data reveals that in 2011 finished products predominated with 36.7%, with primaries ranking next (32.0%). Semi-finished goods ranked third (13.6%).

Key Export Goods Subgroups:

Plastics (€ 1.5 bn), pharmaceutical products (€ 1.1 bn) and semi-finished products of copper and copper alloys (€ 948.2 million). Prevailing among the imports in 2011 were raw materials accounting for 39.3%. Finished products (26.6%) and primaries (14.6%) ranked next.

Key Import Goods Subgroups:

Petroleum/Natural gas (€ 5.7 bn), pharmaceutical products (€ 943.0 million) and chemical primaries (€ 836.9 million).



Table 6 Development of exports by selected industries of Saxony-Anhalt

Reporting year 2011	Sales abroad 1st - 4th quarters 2011				Export share	
	Absolute €m	Percent change over previous year	Percent total share	Percent Eurozone share of exports	1st Quarter in 2010 in %	2nd Quarter in 2011 in %
Production of Foods and Feedstuffs	935.9	10.2	8.6	53.9	14.8	15.4
Production of Wooden Goods, Basket Work and Wickerwork (furniture not included)	165.2	3.9	1.5	86.4	33.9	33.3
Production of Paper, and Paperboard and Goods made thereof	559.9	6.9	5.1	50.0	44.1	44.1
Production of Chemical Products	2 745.2	38.5	25.1	44.5	41.5	45.5
Production of Pharmaceutical Products	473.8	28.8	4.3	31.2	31.8	38.2
Production of Rubber and Plastic Goods	547.8	15.8	5.0	63.3	31.0	31.4
Production of Glass, Glassware, Ceramic Goods; Processing of Nonmetallic Minerals	260.5	-1.7	2.4	71.8	19.7	17.0
Making and Working of Metals	1 715.9	26.5	15.7	58.1	48.6	50.3
Manufacture of Metal Products	353.4	32.4	3.2	49.3	19.1	21.1
Manufacture of Computers, Electronic and Optical Products	571.1	-28.6	5.2	35.1	45.8	41.2
Manufacture of Electrical Equipment	84.7	36.6	0.7	51.7	21.8	21.8
Mechanical Engg	871.4	15.9	8.0	36.9	42.3	44.5
Manufacture of Motor Vehicles and Their Parts	163.9	127.7	1.5	79.2	17.3	24.7
Manufacture of Other Vehicles	46.7	-48.7	0.4	62.5	27.0	9.6
Furniture Manufacture	56.2	2.1	0.5	90.5	15.6	15.3
Repair and Installation of Machines and Equipment	54.8	1.6	0.5	83.4	7.9	8.8
Mining and Extraction of Nonmetallic Materials, Processing Industry	10 940.4	14.3	100	53.9	27.5	27.8

Source: Land Statistical Office
Own representation and calculations

2.5 Requirements of the Key Industries

2.5.1 Chemical Industry

Development of the chemical industry and the refineries in Saxony-Anhalt and central Germany has been a story of success. In the state, this field of industry accounts for 17.7% of the total industrial production, considering that employees in 67 companies total some 15 800. The turnover generated in 2011 was approx. € 6.2 billion. Thus, the chemical industry in terms of turnover ranks second among the processing industries. Trends have revealed increases in turnover and exports year on year. Comparison from 2010 to 2011 alone showed a 3.3% growth rate. The foreign share of turnover was roughly 45% (Table 6, p. 32). In 2010, the chemical companies of Saxony-Anhalt transacted 53% of the exports business with countries outside the eurozone (Eastern Europe and Asia), thus looking at promising perspectives for this branch of industry.

The key locations of the chemical industry are at Bernburg, Leuna, Schkopau, Bitterfeld-Wolfen, Zeitz and Piesteritz (Saxony-Anhalt) as well as at Böhlen (Saxony) and Schwarzheide (Brandenburg). The chemical industry is a significant line of business specifically for Saxony-Anhalt, and needs to be further developed and strengthened in future as well.

All in all, this branch of industry in the middle of Germany is pioneering in global structural change.

Referring to the chances and prospects for further development and acquisition of industrial estates as ensuing from the East-Enlargement of the EU, the transport infrastructure, the accessibility of the locations, the links to customers and suppliers, as well as favourable cost-of-transport structures are all governing factors. Additional capital investment would allow the transport volume to grow further. It is a strategic objective to improve the accessibility of future markets. To this end, the logistic structures should be designed while considering the current product streams as well as those anticipated for the future.

From the perspective of the chemical industry the following objectives are overriding:

- Meet prerequisites such that railways and inland navigation will gain more importance for transportation of chemicals in line with the recommendations of the Verband der Chemischen Industrie while giving due consideration to safety and the environment.
- Establish and link-up logistics centres for multimodal transport since transport hubs develop a great deal of attraction for investments. Therefore, development of the transport hubs in Eastern Germany is of great significance.

- In implementing the urgently required projects as set out in the BVWP 2003 Federal Transport Infrastructure Plan, further delays must not be allowed. In particular, this is true of the VDE Project No. 8.2 Erfurt–Halle/Leipzig Railway Link.
- Improved interlinking with the markets of Eastern Europe is a key requirement aimed at further strengthening the chemical sites in Saxony-Anhalt.
- The European pipeline networks should get approval as European modes of transport.

On the one hand, this is true of the links to Poland, and via Poland into the Baltic States and to Russia, Belarus and Ukraine, and the links into the Czech Republic and via the latter into the states in South Eastern Europe on the other. Multimodal transport systems via the Baltic ports lend themselves as an alternative. For the chemical sites around Halle and Bernburg, economical navigability of the Saale as far as Halle-Trotha all the year round offers a competitive advantage, especially since bringing transport onto the water is highly eco-friendly.

2.5.2 Engineering and Plant Engineering

Relying on a profiled science portfolio, innovative supplying firms, well-trained skilled personnel and an economic policy geared to the business needs, both engineering and plant engineering in Saxony-Anhalt have developed into main sources sources of economic power.

Engineering has been a tradition in Saxony-Anhalt for long. While being part of the core industry, its impact on business and life of others opens up positive directions for the state. Given the long history it has had in industry, it is widely accepted among the population and has brought about an outstanding manpower potential.

Since 2006, engineering in Saxony-Anhalt has experienced an uptrend in employment figures, turnover and exports. In 2010, the established businesses employed personnel totalling some 11 000, their turnover being more than € 1.8 billion. Moreover, compared with 2005, the 2010 employment figures on an annual average were about two thirds higher, with turnover increasing by about 55% and exports notching up even by almost two thirds. Thus, also in 2010 engineering ranked high among the peak export businesses of the state's industry. With new systems solutions and the systems competence prevailing in the state, customers have been attracted from the primary industry, metallurgy,

the pulp & paper industry, as well as power station building and chemical plant engineering from all over the world. Manufacture of wind energy plants, solar cells, lifting, hoisting and materials handling equipment, construction machinery and mining equipment is structure-governing for the industry in Saxony-Anhalt. Today, the state of Saxony-Anhalt is Germany's outstanding region for the manufacture of plants for alternative energy generation. Transport, especially that of large plant, calls for a highly capable transport infrastructure that suits the dimensions involved and, therefore, it needs to rely in particular on railways and waterways.

2.5.3 Car Components Industry

In past years, the industry supplying components to automobile manufacturing has developed into a highly regarded line of business in Saxony-Anhalt. This includes companies in the fields of light-alloy casting, special-purpose machine building and processing of plastics, as well as product-related service providers. The suppliers exclusively serve the final manufacturers of cars in other federal states. Components and systems are supplied to all renowned automobile manufacturers. In this context, companies like VW, BMW and Mercedes-Benz, when it comes to light-metal alloy engine blocks, steering and gearing components, interior fittings and plastic components, rely on the expertise accumu-

lated in the state of Saxony-Anhalt. Parts are manufactured in 260 companies employing a total workforce of more than 22 000. The activities of this line of business are combined by the MAHREG Automotive cluster. This industry, through its supplies, but also because of its transport needs, very much impacts other regions, especially the west and the south of Germany. Development of the Halle marshalling facility is, therefore, a factor important to rail transport. Considering that supplies are made not only by rail, but also on the road to a great extent, there is an urgent need to develop the infrastructure of federal highways. Hence, as well as closing the gap of the A 14, completing the bypasses of Halle is of major importance.

2.5.4 Food and Feedstuffs Industry

Production of food and feedstuffs is one of the structure-governing industries in Saxony-Anhalt. With shares of 17% of employees and 16.5% of turnover in the processing sector it takes a top position by comparison of industries. The turnover amounts to some € 5.74 billion. Also employment figures increased continuously to reach 17 700 persons in 2010, or 9.5% more than in 2005. It is true though that the food and feedstuffs industry produces mainly for regional markets, hence a high road transport volume. Tapping new markets abroad, therefore, is the professed aim. While total exports currently are as low as some 9%, the export quota

is one and a half times the figure recorded in 2005. Products of the industry worth mentioning, in addition to feed and semi-luxuries, include fertilisers, sugar beet and, increasingly, rapeseeds as well as further plants for energy generation. Typically during the harvesting season, this entails a very high, territorially limited transport volume on the state's roads. In order to counteract such peak periods, while a well-functioning infrastructure is necessary on the one hand, attention must be focused on switching to other transport modes. For example, loading grain onto inland waterway vessels is a potential alternative approach. In this context, the opportunities of grain transshipment at the transshipment stations of Vahldorf and Bülstringen on the Mittelland Canal need to be emphasised.

2.5.5 Energy Generation, Renewable Energy Sources

Saxony-Anhalt, in energy generation, has two faces. Traditional and conventional energy production preferably using lignite is an essential foothold. The raised and weighed tonnage in 2010 was in the area of 8.5 million MT. Mainly bimodal transport is used, with the major proportion carried on the rail. The forward-looking industry of renewable energies is the second face of the state. In Saxony-Anhalt, a large industry and research landscape has evolved around this subject.

The Solar Valley near Bitterfeld-Wolfen and Enercon in Magdeburg, the largest biomass processors based in Saxony-Anhalt, and the production capacities for bioethanol and biodiesel all give evidence of the developments. The density of industrial business in the field of photovoltaics in Thuringia, Saxony and Saxony-Anhalt is unique on a global scale.

This industry has organised operations in the Solar Valley Mitteldeutschland cluster.

Leading companies, research institutions as well as universities and colleges in Saxony, Saxony-Anhalt and Thuringia are all part of the cluster. This grouping is complemented by strategic partnerships with companies and research institutes outside the pool. The German photovoltaic industry in 2008 alone invested almost € 2.2 billion in setting up and increasing production capacities, investments being made mainly in the middle of Germany. Manufacture of wind power plant is a significant factor in addition to the photovoltaic industry. Related transports, as well as heavy load transportation on the road, are also performed by railways locally, and by vessel and on the rail supraregionally.

2.5.6 Wood-Based and Pulp & Paper Industries

Turnover in Saxony-Anhalt's wood, pulp and paper industry has continuously gone up. Until the year 2010, there was a marked uptrend. Turnover in 2010 was € 1.19 billion, a quar-

ter more than in 2009. The Stendal cellulose factory in the Altmark region and the area of Magdeburg have become preferred locations dedicated to the wood, pulp and paper industry. The latter is particularly dependent on the rail infrastructure that needs to be upgraded, as can typically be seen from the wood loading stations at Hettstedt and Rottleberode. For example, the Harz Regional Planning Group is currently investigating if new wood loading stations could be developed. In perspective, while railways and roads are necessary, a major importance will be attached to inland navigation for supraregional transports.

2.5.7 Mining and Extraction of Non-Metallic Minerals

In Saxony-Anhalt, non-metallic minerals represent an important emerging industry. Traditional near-surface mining has revealed a continuous potential for years. Mining, together with the industry for extracting near-surface materials, is a key partner for the building and construction trade. The turnover reported by the mining companies for 2010 totalled € 1.8 billion.

The average annual capacity of most non-metallic minerals businesses in Saxony-Anhalt is in the range from 10 000 to 100 000 MT. The very large companies whose capacity is in excess of 1 million MT are predominantly hard-rock and limestone-producing operations.



Fig. 10 Selected distribution centres

Selected distribution centres		
1	Hermes/ Otto, Haldensleben	OTTO
2	Toys 'R' Us, Harbke	TOYS 'R' US
3	Deutsche Post, Osterweddingen	DEUTSCHE POST
4	EDEKA, Osterweddingen	EDEKA
5	ALDI Nord, Könnern	ALDI
6	REWE Foodservice, Quedlinburg	REWE
7	Ernstings Family, Klieken	ERNSTINGS
8	Rossmann, Landsberg	ROSSMANN
9	Deutsche Post, Landsberg	DEUTSCHE POST
10	Zur Rose, Halle/Saale	ZUR ROSE
11	Kaufland, Unterkaka	KAUFLAND
12	Arvato, Quedlinburg	ARVATO

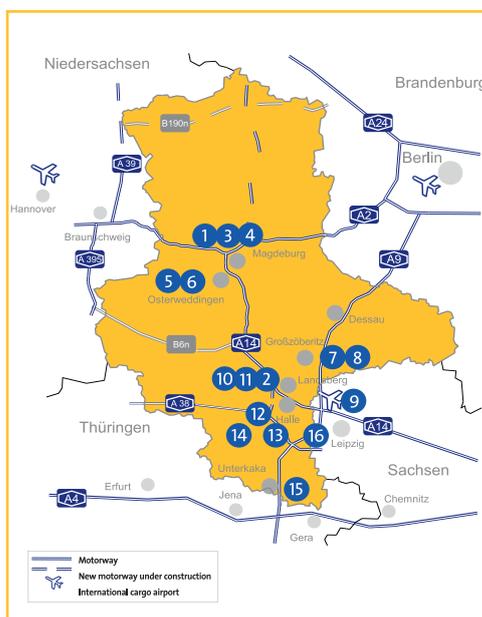


Fig. 11 Selected logistics and transport operators

Selected logistics service companies and freight carriers		
1,2	Dachser, MD, Landsberg	DACHSER
3	Schenker, Magdeburg	SCHENKER
4	Nagel Group, MD, Großkugel	NAGEL
5	Hellmann, Osterweddingen	HELLMANN
6	Wolter Koops, Osterweddingen	WOLTER KOOPS
7	Rosner Logistik, Großzöberitz	ROSNER
8,9	DHL, Großzöberitz	DHL
10	DHL, Landsberg, Leipzig	DHL
11	Fixemer, Landsberg	FIXEMER
12	Simon Hegele, Halle/Saale	SIMON HEGELE
13	Finstnerwalder, Halle/Saale	FINSTNERWALDER
14	Hoyer, Schkopau	HOYER
15	Offergeld, Unterkaka	OFFERGELD
16	Kühne + Nagel, Großlehna (Sachsen)	KÜHNE + NAGEL

The volumes of gravel, sand, limestone, crushed stone, chippings and clay as well as further development or production increases such as in the Dittfurt area suggest that there is a potential for railway transport.

2.5.8 Hubs

Transport hubs are the nerve centres of a modern mobile society. They bring about an effect of establishing business among branches of industry which use such a hub to process, finish, store or distribute goods. Companies working in the logistics field (Fig. 10 and 11 , p. 37) as well as the transport infrastructure including the ZBA and handling facilities of multimodal transport are key components of the hub of central Germany.

Their further development in the middle and south of the state needs to be expedited through improving consistently and with high priority the general logistic setting as well as the offerings in multimodal transport. The regions of Berlin/Brandenburg, Leipzig/Halle as well as Nuremberg/Middle Franconia are gaining increasing importance for the West-East transport, both as hinterland of the ARA Ports as well as the ports of Bremen/Bremerhaven and Hamburg, and more and more for the Adriatic ports.

Even though smaller, however becoming well-known at fast pace, the logistics region of Magdeburg will increasingly assume hinterland and linking functions between the large logistics regions.

With the region of central Germany around the Leipzig/Halle Airport becoming an international hub for passenger and freight transport, the trimodal port locations as well as bimodal sites in the vicinity of

important industrial plants of the region are undergoing developments to become hubs of varied quality characteristics. It is where many people meet in passenger and freight transport that exchange of information and knowledge too is experienced. Thus, interfaces such as airports and railway stations are more and more becoming knowledge and innovation hubs. The new Airport Cities are striking examples of such trends.



Fig. 12 Dachser at the Leipzig/Halle Airport



Fig. 13 Magdeburger Hafen GmbH





3. Conceptual Background



3.1. Commission Communication Entitled „Freight Transport Logistics Action Plan“

In October 2007 the European Commission adopted a package of measures designed to make freight transport efficient and sustainable. It comprises proposals for improving the logistics in the areas of port policies and railways development geared to freight transport. The initiatives have one thing in common: Further develop the modes of transport. These include: Optimise the freight transport management; facilitate establishing freight transport chains; simplify administrative practice, and improve the quality throughout the logistics chain. The key objectives include promoting the sustainability and reducing the energy demand as well as noise, pollutant and greenhouse gas emissions. The concept of ‚Green Corridors‘ represents one of the European Commission’s main elements for the Freight Transport Logistics Action Plan. This denotes freight transport corridors which excel in terms of having little impact

on people and nature, with focus on further developing railway lines and waterways.

3.2 High Ranking Logistics Group Initiated at the European Level

In June 2012, the European Commission set up a High-Ranking Logistics Group which, while combining top-level representatives of the European transport and logistics trades, pursues a strategic advisory function for common transport policy measures in the EU. In the coming years this Group, while discussing the future challenges for the European transport policy, will jointly develop recommendations for action adapted to improve the general setting and strengthen the competitiveness of the logistics sector. Under the direction of the European Commission’s Vice-President in charge of transport, this initiative addresses and consults logistics service providers, transport companies, port and terminal operators as well as research institutions, IT businesses, and employers and employees alike.

3.3 The Federal Government's Freight Transport and Logistics Action Plan

Supplementary to the EU's Freight Transport Logistics Action plan, the federal government adopted a goods transport and logistics master plan, in which freight transport and logistics are referred to as factors governing Germany's competitiveness on an international scale. The Federal Ministry of Transport, Building and Urban Development, when working out the master plan, in a dialogue with representatives from economy, industry, the carrying trade and freighters discussed comprehensive aspects of freight transport and logistics. The subjects addressed were infrastructure, technology, employment and training as well as environmental protection including carbon dioxide and pollutant emissions, and noise.

The performance of the key export and import hubs is to be enhanced, in efforts aiming at increasing the capacities to meet market requirements, develop accessways, and establishing the general regulatory setting.

3.4 Selected Logistics Initiatives of the Federal States

Exchange of experiences with logistics initiatives of other federal states is a continued process with Saxony-Anhalt much involved. The Central German region with Saxony and Thuringia is in focus.

From the perspectives of the varied logistics players involved, political borders do not make sense in developing

logistics. Further initiatives which are essential to Saxony-Anhalt as a hinterland region stem from the seaports of Hamburg and Bremen/Bremerhaven. Berlin/Brandenburg and Mecklenburg-West Pommern are crucially important to the development of cross-border transport chains into the East.

3.5 Elbe/Oder for Infrastructural Development

Some 37 million people, 8% of all EU citizens, live in the region on the rivers Elbe and Oder. Since the East-Enlargement of the EU, this region can become economically integrated. This case is also being pursued by the Elbe/Oder chamber union – a voluntary grouping of 32 Polish, Czech and German chambers of commerce and industry since the year 2000. The chambers of Halle-Dessau and Magdeburg have made an active contribution from scratch. There are still substantial structural, in particular infrastructural, problems to be solved. Bordering the River Elbe, Saxony-Anhalt is a significant part region. Further improvement of the traffic routes in this area will also add to the competitiveness of our state's businesses. The state supports the analyses and requirements of the Elbe/Oder chamber union for regional and supraregional positions, specifically the „Ökonomische Entwicklungsperspektiven in der Kammerunion Elbe/Oder“ and the programme of the Elbe/Oder chamber union - „Bridges over the Elbe and the Oder“.



4. Infrastructure and Accompanying Measures



4.1 Trans-European Transport Network and Pan-European Corridors

Status Quo

In the coming years, trade with the new EU member states is expected to increase significantly. To achieve the expected top growth rates, east-west connections need to be upgraded. The European Parliament and the EU Council have adopted common guidelines for setting up a Trans-European Transport Network (TEN) and identified projects to bring it to life.

In a Green Paper the EU Commission underlined the necessity to expand the TEN. However, recent proposals made by the Commission on funding these priority projects in the period from 2007 to 2013 can satisfy the demand only partially.

The fact that the “high-speed train/combined transport north-south (Berlin-Munich-Palermo) has been classified as a TEN priority project is worth highlighting. As an integral part of the project, the Erfurt-Halle/Leipzig line (VDE No. 8.2) is to be electrified and double-tracked. The Pan-European Corridors (PEC) (Fig. 14, p. 43) form the basis for linking the TEN with the countries of Central and Eastern Europe (CEE), thus, extending the large Western European transport axes.

The EU Commission, the states of the European Free Trade Area (EFTA), the European Conference of Ministers of Transport (ECMT), the United Nations Economic Commission for Europe (UNECE) and the international finance institutes determined and agreed on these axes together with the CEE countries (some of which have become EU member states in the meantime).



Fig. 14 Pan-European Corridors (Source: Honza.havlicek/cc-by-sa 3.0)

The following Pan-European Corridors (PEC) play a vital role for Saxony-Anhalt and Central Europe:

No. II Berlin – Warsaw – Minsk – Moscow – Nizhny Novgorod

No. III Berlin/Dresden – Wrocław – Katowice – Krakow – Lvov – Kiev

No. IV (Berlin –) Dresden/Nuremberg – Prague – Vienna/Bratislava – Budapest – Arad – Craiova – Sofia – Thessaloniki/ Plovdiv – Istanbul.

Connecting the Central European economic area by strengthening these “antennas“, i.e., the regional transport routes along the Pan-European Corridors, is of paramount importance.

Measure 1: Saxony-Anhalt’s position on revising the Trans-European Networks

In October 2011 the EU Commission submitted its proposal for a new TEN Directive. Although Saxony-Anhalt could not fully bring in its expectations regarding the so-called Elbe Corridor, the path adopted by



Fig. 15 Multimodal EU4SEA AXIS

the state was confirmed in general. The EU expressly affirmed the important role of the River Elbe as an inland waterway and fully integrated the river in the TEN Network.

Furthermore, Saxony-Anhalt also strives to get the multimodal Elbe corridor “Prague-Dresden-Leipzig-Halle-Magdeburg-Hamburg/Szczecin” recognised. The corridor comprises the most important transport axes in Saxony-Anhalt. North of Hamburg it links to the landside connection to the Fehmarn Belt Fixed Link. In the long run, this link between Scandinavia and South-East Europe holds great promise.

Measure 2: Investing in the Trans-European Transport Network

In the scope of the negotiations with the federal government and the railway operator Deutsche Bahn, Saxony-Anhalt will call for further

investments to be made into the Erfurt-Halle/Leipzig line, particularly with regard to the period of implementation.

Measure 3: Extending the European pipeline networks

Furthermore, Saxony-Anhalt is convinced that greater attention should be devoted to extending the European pipeline networks as an instrument to reduce the general traffic volume and harmful emissions.

To this end, the High Level Group on the Competitiveness of the European Chemical Industry has launched an initiative that affects the chemical sites in Saxony-Anhalt, Saxony, Thuringia and Brandenburg, in particular, since all are located in non-coastal areas.

4.2 Roads and Bridges

Status Quo

Roads absorb the main load of freight transport. Since 2007, the German Federal Ministry of Transport, Building and Urban Development (BMVBS) has followed the Outline Investment Plan for Transport Infrastructure adopted by the German government. Binding until 2015, this plan is based on the requirement plan for German federal trunk roads. For Saxony-Anhalt the plan identifies measures to satisfy urgent demand in the field of motorways and federal highways, amounting to a total of approximately € 2.9 billion. In addition to the federal trunk roads, the measures rooted in the “Transport Infrastructure Plan of Saxony-Anhalt, Part: Roads“ are to be implemented. Based on an analysis of deficiencies, the demand for building new federal roads and maintaining existing pavements and bridges crossing state roads was identified. As the existing road network is already quite dense, maintaining and reconstructing as well as upgrading state roads has priority over constructing new roads.

Increasing traffic density and time pressure put drivers under mounting stress. Excessive demands and fatigue resulting from excessive work hours and failure to observe rest periods jeopardise the safety of all road users. The EU social regulations adopted in 2007 address these

issues. Consequently, it is necessary to provide sufficient parking areas along motorways throughout Germany.

Measure 4: Implementing the German government’s IRP 2011 – 2015

Saxony-Anhalt has called on the German government to implement the demand plan for federal trunk roads and the outline investment plan binding until 2015 without any delay. Heavy transport feeder lines to inland ports must be available when executing new, reconstruction and extension measures.

Priority measures in the field of federal trunk roads include:

■ A 14 and B 190n

Closing the gap between the A 14 motorway Magdeburg-Wittenbergschwerin, supplemented by a new, efficient east-west segment of B 190n between the A 39 and A 24 motorways will link the Halle/Leipzig area with the North Sea and Baltic ports.

■ B 6n

This federal multi-lane highway with separate carriageways, which is currently under construction, will provide a fast link between Lower Saxony and the eastern part of Saxony-Anhalt. In the long-term, this road will be extended to the A 9 motorway and into Poland.

Measure 5: Efficient use of parking space for HGVs along motorways

For many years continued increase in freight transport on German motorways has resulted in overcrowded parking areas.

For this reason the BMVBS has carried out a survey to determine parking needs. For 2008, the survey revealed a shortage of more than 14 000 parking spaces for HGVs throughout Germany, with 740 such parking spaces missing in Saxony-Anhalt. The state has recognised the urgent need for action.

In order to mitigate the problem and create new parking space, an investigation was conducted throughout the state, including both non-managed parking spaces and managed services areas.

Based on these results, a programme was drawn up which identifies options to extend existing parking lots and where new services areas should be constructed.

In the meantime the road construction authority has built approximately 260 parking spots while private investors added some 150 parking spaces (at truck stops).

To inform HGV drivers about the current parking situation on the A 2 motorway going east to Berlin, the parking space situation for HGVs is monitored on three successive parking lots or such a detection system is currently being implemented.

To this end, different detection methods are applied:

- PWC Lorkberg (near Uhrleben): Individual parking space monitoring using earth magnetic field sensors (plus a video camera for calibration),
- TRA Börde 8 induction loops integrated into the entry and exit lanes,
- PWC Krähenberge 4 stationary video cameras with infrared floodlights.

Based on the approved regional draft plan, the total costs of these installations amount to € 1.65 million, which are scheduled to be completed in the 3rd quarter of 2012.

After 1990, all motorway services areas located in Saxony-Anhalt were rebuilt or newly built in compliance with binding regulations. Nonetheless, existing parking areas for HGVs are considerably overloaded. It is planned to solve this problem by expanding available services areas and providing telemetric detection and guidance equipment to inform HGV drivers in good time whether parking spaces are vacant or occupied, particularly on motorway services areas with service facilities. These services areas offer a large number of parking spaces for HGVs and catering for drivers. It is necessary, however, to assess the economic aspects of a potential implementation, considering relevant plan approval procedures in the long-term. The assessment also pertains to a system of "Safe Parking" offered in this connection together with other

services (e.g., HGV maintenance). A dynamic direction indicator with an integrated warning system alerting drivers to traffic and road congestions will be tested on the way to the Osterfeld services area on the A 9 motorway. In the case of ongoing projects, such as works to close the gap on the A 14, an increase in the number of parking spaces has already been considered during the planning phase by building dedicated large parking spaces for HGVs along either carriage-way. The communities concerned are requested to check if vacant spaces on industrial estates located within a reasonable distance from the motorways could be made available as parking lots for trucks.

Measure 6: Repair and maintenance of roads and bridges

Based on available budgetary funds, roads and bridges - the state is responsible for maintenance - need to be upgraded to a structural level qualified as good or sufficient in order to cope with the requirements of freight transport. With this requirement in mind, budgetary funds to be made available on an annual basis must be adjusted accordingly. Demand for road bridge construction is particularly high in southern Saxony-Anhalt.

4.3 Waterways and Ports

Status Quo

As regards Germany's waterways, the outline investment plan foresees

measures detailed in the German Unification Transport Project (VDN No. 17) - (Waterway connection Rügen – Magdeburg – Berlin, including construction of a new low-water lock in Magdeburg's port) as well as a project pertaining to the Tornitz/Salle lock canal with a capital expenditure demand of € 137 million.

Measure 7: Including investment projects on waterways in the IRP 2011 - 2015

The state has requested the federal government to complete canal construction projects, particularly VDE No. 17, to provide an east-west connection in the waterway network. Giving up the network structure in the east or downgrading it, is not a solution. For the River Elbe the principles of the maintenance concept must remain the criterion for action in the future. In addition, suitable measures should be taken to create more reliable conditions for navigation at well-known bottlenecks. In the medium term the conditions for three-layer container transport on the River Elbe, including south of Magdeburg, should be provided. In order to link the industrial centres located in Central Germany, navigability of the River Saale should be restored completely on a medium-term basis.

Data and facts:

The Tornitz Lateral Canal

Conditions for navigation on the River Saale between Calbe and Halle-Trotha Port, which is important to the state, are mainly good.

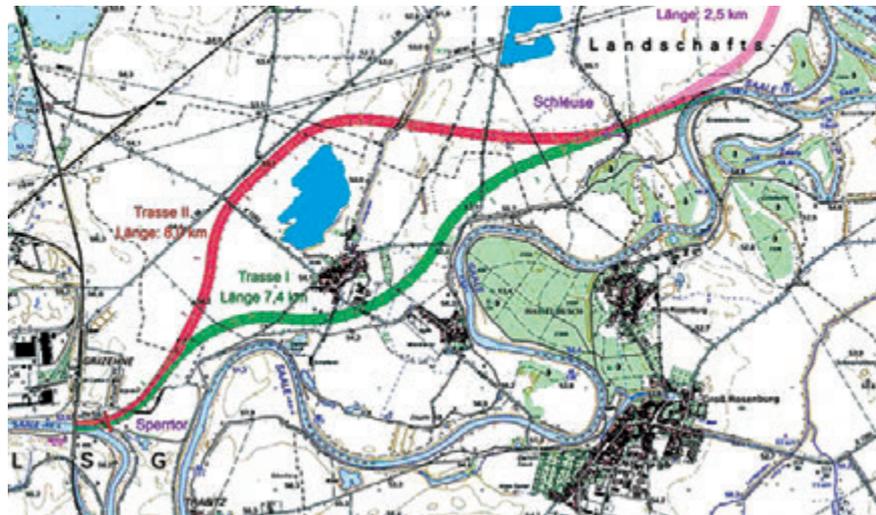


Fig. 16 Saale Lateral Canal

The planned Saale Lateral Canal will close the gap between the lock in Calbe on the River Saale and the Elbe River. In this area the River Saale strongly meanders which makes it hardly suitable for large transport vessels. Saxony-Anhalt's government requested the federal government in September 2011 to commission a new expert opinion on navigation on the River Saale. This study focuses on the importance of the Saale Canal.

Anchored in the BVWP 2003 as a "first priority project", the "Tornitz lock canal without weir", today the Saale Lateral Canal, aims at creating conditions which allow the best possible utilisation of the potential discharge depth. To this end, critical points for shipping and sensitive areas in terms of nature conservation, such as Hasselbusch and Johanniswerder, are bypassed.

Although the regional planning procedure for upgrading the River Saale was completed in October 2008,

a new route has been envisioned in the meantime as a consequence of changed framework conditions in the region and the fact that the planning project was suspended for some time. In the last few years, gravel extraction operations in the region have progressed. For this reason it seemed worthwhile to include the newly emerging and enlarged gravel pit lakes into the planning. The Saale Lateral Canal (Fig. 16, p. 48) will ensure that companies located in the Saale region and Halle-Trotha Port, which waited for improved shipping conditions for a long time, can soon be reached by vessel all year round.

In 2004, a study entitled "New assessment of upgrading the River Saale downstream of Calbe without upgrading the River Elbe" conducted on behalf of the then BMVBW estimated the potential for shifting transport to barges to at least 1.5 million MT per year. The federal government has not yet approved construc-

tion of the Saale Lateral Canal, but the project is currently examined in an efficiency audit. Based on a survey of major companies, performed by the Association for the Promotion of Shipping on the River Saale, the estimated volume related to the year 2015 – could amount to some 2.2 million MT annually. Cost increases in road transport have an impact on this figure. However, the measure would enhance the competitiveness of the companies concerned and increase the location's attractiveness.

Measure 8: Improving navigation conditions on the River Elbe

Ideally the River Elbe should have a fairway depth of at least 1.60 m in the Geesthacht-Dresden section and a minimum of 1.50 m in the stretch from Dresden to the state border with the Czech Republic on 345 days a year. This would particularly strengthen the hinterland connections of the German seaports as stipulated in the National Port Concept. However, this aim also necessitates that suitable maintenance and repair measures be taken to restore navigation conditions to the situation existing before the August 2002 floods and solve bottlenecks (between Dömitz and Hitzacker and the one near Coswig). Late in 2010 the BMVBS and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) agreed on a key issues paper on an overall concept for the River Elbe. The paper was submitted to the fe-

deral states in the middle of June 2011 to serve as a basis for discussion to draw up a comprehensive concept that fairly takes into account the diverse demands made on the River Elbe by various stakeholders, guarantees the use of the waterway for shipping purposes and further develops and strengthens the basis for the river's natural balance. However, this process can only be successful if the German government and the riparian states of the River Elbe work closely together.

The maintenance goal defined in the maintenance concept should be highlighted in the key issues paper on an overall concept for the river Elbe. Suitable measures to reach this goal, including water management related maintenance, should be identified. As a trans-European waterway and the most important water-bound connection to central-eastern Europe, the River Elbe must be preserved as a transport and water management asset. Future use of the River Elbe will also depend on the further development of the waterway system and should be taken into account when federal waterways will be newly classified. Cooperation between federal water management and shipping authorities and the riparian states of the River Elbe is proof of both a positive attitude and shared views on this overall concept.

Measure 9: Considering Saxony-Anhalt's inland ports in the National Port Concept

The measures included in the port concept of the federal government for the seaports and inland ports should contribute to improving the waterway transport system taking into account port management and logistics as well as the port-related industry. Planned port development and further upgrading of hinterland connections – referred to as debottlenecking – are to ensure that the

ports will be capable of fulfilling their function as hubs of the international exchange of goods and junctions of road transport and shipping in the future, too.

This also includes upgrading port-relevant arterial roads and traffic junctions and eliminating capacity bottlenecks in the ports. Using modern technology in ports strengthens the seaward and land-side connections of the inland ports and makes them fit for their future function as trimodal interfaces in



Fig. 17 Rothensee Lock - Mittelland Canal near Magdeburg

logistics networks and hinterland hubs for seaports. To reach this goal, it is essential that the federal states participate in these developments and closely co-operate with the federal government. For Saxony-Anhalt's inland ports to receive appropriate consideration in the National Port Concept, it is particularly important to focus on the potentials of ports as hinterland links to the North Sea and Baltic ports. It is of prime importance to link ports in terms of water and rail-bound logistics. Saxony-Anhalt makes every

effort to integrate and strengthen inland navigation and inland port modules in its waterway system.

Measure 10: Opening companies' river terminals to third parties

Industrial sites with river terminals that could be used by other logistics companies should open their facilities to third parties.



4.4 Railways and Junctions

Status Quo

Currently, Germany's rail freight transport volume is growing faster than road transport. To tap existing potentials, which have not been exhausted yet, siding tracks and junction rails must be repaired first. For the period from 2010 to 2020, the rail operator DB Netz AG forecast a market growth in rail freight transports by more than 35% compared with a 10% increase in the passenger transport sector. Such growth rates in rail freight transport clearly justify measures to improve the railway infrastructure.

Measure 11: Logistics centres on the eastern freight transport corridor

With a total of 22 measures, the eastern freight transport corridor is the number one priority of the "Rail Growth Programme" adopted in 2012. This corridor branches off the main line south of Hamburg and runs via Uelzen, Stendal, Magdeburg, Halle, Leipzig, Hof and Reichenbach to rejoin the main line near Nuremberg. The aim of this "bypass" is to relieve the excessively used main line and reroute goods flows via Central Germany. A high percentage of the investment resources is earmarked for upgrading the line between Uelzen und Stendal, also known as "America line", by providing double tracking and electrification. Upon completion, up

to 200 freight trains will run on this line daily. Saxony-Anhalt also endeavours to further develop logistics interfaces along this line.

Measure 12: Analysing the railway infrastructure to cope with the forecast rail freight transport

Demand for railway infrastructure is determined based on the specific development of individual (high-density) transport areas and the current development of port-hinterland traffic. Realistic information on how the freight transport volume will develop will serve to draw conclusions on the degree of utilisation of the transport routes and specific sections. As a result recommendations for action to improve rail freight transport in Saxony-Anhalt will be derived. In this connection electrification projects will also be identified. The block train lengths currently used or to be introduced in future on the basis of the "Freight Transport and Logistics Action Plan" should also be adopted in Saxony-Anhalt. This analysis is to be performed in harmony with the requirements of passenger transport.

Measure 13: Avoiding closure of railway lines, eliminating deficits in rail connections

The "Study of the rail infrastructure and the integral cycled timetable in the federal state of Saxony-Anhalt" commissioned in February 2006 by the railway operator DB Netz AG and NASA (a local private transport ope-

rator) revealed that supplementary infrastructure measures must be taken to ensure stable operations in rail-bound freight transport.

With the aim of further developing freight transport, any dismantling of passing and connecting tracks, bypass and side tracks as well as signalling equipment should only be permitted in cases when it is absolutely clear that they are no longer needed. Provided the federal government will privatise the railway operator DB AG, it should be guaranteed that state subsidies for infrastructure maintenance will be granted to both the private operator and non-federal owned railways (NE railways). For this reason, based on its decision of April 17, 2008, the Conference of the Ministers of Transport (VMK) has requested the federal government to assess whether it would be legally possible to use government funds to finance the infrastructure of NE railways. As regards the amount of funding, Saxony-Anhalt supports the position of the Association of German Transport Companies (VDV). Future railway reconstruction and new construction measures must take into account sufficient track lengths for rail freight transport. On principle, public-private partnership models should also be examined as an alternative to finance railway line rehabilitation.

Measure 14: Strengthening the rail freight sector in Central Germany

The state, Halle/Leipzig Airport, its partners and other companies are

eager to link the Leipzig/Halle area closer with other German logistics hubs such as Kassel and Frankfurt/Main as foreseen in VDE No. 8. The objective behind it is to take more express goods off the road and shift express freight transport, which experiences a strong growth in light of increasing express courier services, to rail. To reach this goal, rail defects in the tracks between Leipzig and Kassel on the stretch from Halle to Eichenberg have already been repaired.

As a result trains can now run on the entire line at a speed of 100 km/h. Depending on the route chosen, train speed will gradually be increased to 120 and eventually to 160 km/h. Saxony-Anhalt supports this measure hoping that it will be implemented before the end of 2013. In order to strengthen West-East transports and to maintain hinterland connections to the Hamburg and Bremen/Bremerhaven seaports, it is absolutely necessary to upgrade the rail freight transport infrastructure. Against this background rail freight transport connections between Magdeburg/Halle-Eilenburg-Falkenberg-Wegliniec and Bebra-Erfurt-Halle-Cottbus and to seaports, the railway lines running through Saxony-Anhalt towards Bavaria, the Czech Republic and Poland play an essential role.

In the medium term the state aims at maintaining regionally important freight transport on the Köthen-Aken and Berga-Kelbra-Stolberg lines.

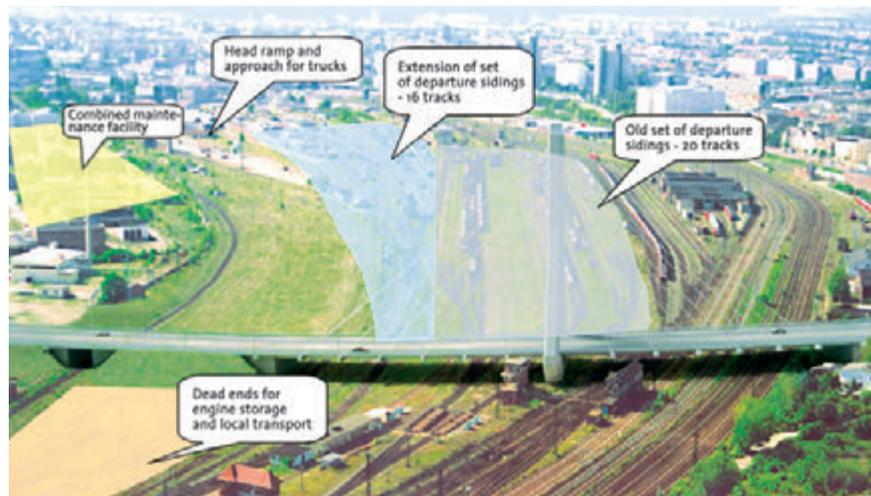


Fig. 18 Halle/Saale Shunting station

Measure 15: Maintenance and upgrading of important facilities and junctions, Drawing up a cost-benefit analysis as a basis for introducing innovative transshipment facilities

Upgrading the train marshalling and handling facility (ZBA) at Halle marshalling station (Fig. 18, p. 54) is of paramount importance. With more than € 100 million to be invested it forms the basis for long-term efficient single wagon handling. Saxony-Anhalt expects modernisation to commence in 2012. Partial commissioning of the facility is expected by 2015. As an integral part of the project, logistics companies will get access to the facility. At the same time the required link to a federal highway will be completed.

Moreover, it is essential to continue supporting measures to upgrade the Magdeburg railway junction with its important marshalling facility in Magdeburg-Rothensee because Magdeburg-Rothensee in particular

is an important link for Magdeburg's port and rail freight transport in Saxony-Anhalt. One should also keep in mind that the port plays an increasingly important role as a hinterland hub for Hamburg's seaport. Due to capacity bottlenecks at home, the port of Hamburg is very interested in quickly transporting containers to the hinterland. Innovative transshipment techniques can accelerate this process. Therefore, Saxony-Anhalt makes a special effort to convince DB AG to preserve and modernise Rothensee station.

Measure 16: Continuing state funding for private sidings

In order to improve rail freight transport and in particular to shift some goods transport from road to rail, the Federal Ministry of Transport, Building and Housing (BMVBW) adopted the "Directive concerning the funding of the new construction, upgrading and reactivation of private sidings"

(Sidings funding directive) in 2004 and extended it until August 31, 2012. The state government passed the “Directive concerning the funding for purchase, maintenance, construction and upgrading of railway infrastructure in the federal state of Saxony-Anhalt” in 2003 serving the same purpose. Following approval by the EU Commission, this directive was also extended until 2011. The German government funded four projects in Saxony-Anhalt while the state itself has subsidised 32 projects so far, including reconstruction of secondary lines and new construction of sidings, amounting to a total of € 7.1 million (Fig. 20, p. 57). As a result of these measures, approximately 2.2 million MT of goods could be shifted from road to rail. Rail transport could be guaranteed for almost another 2 million MT, in other words, the state succeeded in preventing a negative shift to road transport. Rehabilitation of a siding also helped a special vehicle manufacturer in the town of Wittenberg to survive because due to their dimensions the vehicles produced by this company (tankers and silo vehicles) can be transported cost-efficiently only by rail. Furthermore, the state’s intensive efforts helped get a share of € 1.7 million in subsidies from Germany’s economic stimulus package. These funds were spent on five projects implemented in the period from 2009 to 2011. Since the funding provided has borne fruit, the state government decided to continue its support after expiry of the state directive in 2011 by granting low-inte-

rest loans obtainable from the ERDF. Valid until 2020, a new programme entitled „ANSCHLUSS“ was launched and will be valid until 2020. As a novelty the funding now also includes stationary loading and unloading equipment as well as shunting locomotives with hybrid drive.

Irrespective of these measures, the German government has extended its funding directive beyond the year 2012, thus also guaranteeing further upgrading of the state’s rail freight infrastructure. To this end, eligibility criteria for funding should be verified with the aim of increasing acceptance.

Measure 17: The “Rail” network

For its location analysis of rail freight transport, Saxony-Anhalt takes advantage of the knowledge and expertise available within the companies and service providers working in the rail freight transport sector who submit their ideas and expectations about a future “Rail” network to the responsible persons in the state government.

Measure 18: Upgrading of passing tracks and crossings to standards

To the extent that the state can have a say in planning agreements, passing tracks and crossings in the seaport hinterland to the ports of Hamburg, Bremerhaven and the ARA ports (Amsterdam, Rotterdam and Antwerp) will be extended to a minimum length of 700 meters. Saxony-Anhalt has also addressed this need in bilateral talks with the rail operator DB AG.

Measure 19: Assessing whether a rail-bound timber loading place can be established in the High Harz Mountain Range as part of a regional logistics concept

The Harz Mountain Range ranks among Saxony-Anhalt's regions with the largest forest cover presenting an important raw material potential for the state's timber industry. In light of the Harz Mountains' sensitive habitat and its importance for the tourism industry, resulting timber transports should be as environmentally friendly as possible.

Besides the Rottleberode-Berga section located in the southern Harz

Mountains, it is above all the electrified line known as "Rübelandbahn" in the northern Harz Mountains (or alternatively in the Elbingerode-Blankenburg area) that satisfies the above requirement. As a pilot project supplementing a state-wide logistics concept, a regional logistics and goods transport concept for the Harz Mountains planning region will assess the potentials for establishing a timber loading place in the vicinity of "Rübelandbahn". This assessment will take place under the thematic section entitled "Logistics of raw material provision - Timber" of the regional concept.



Fig. 19 Rübelandbahn

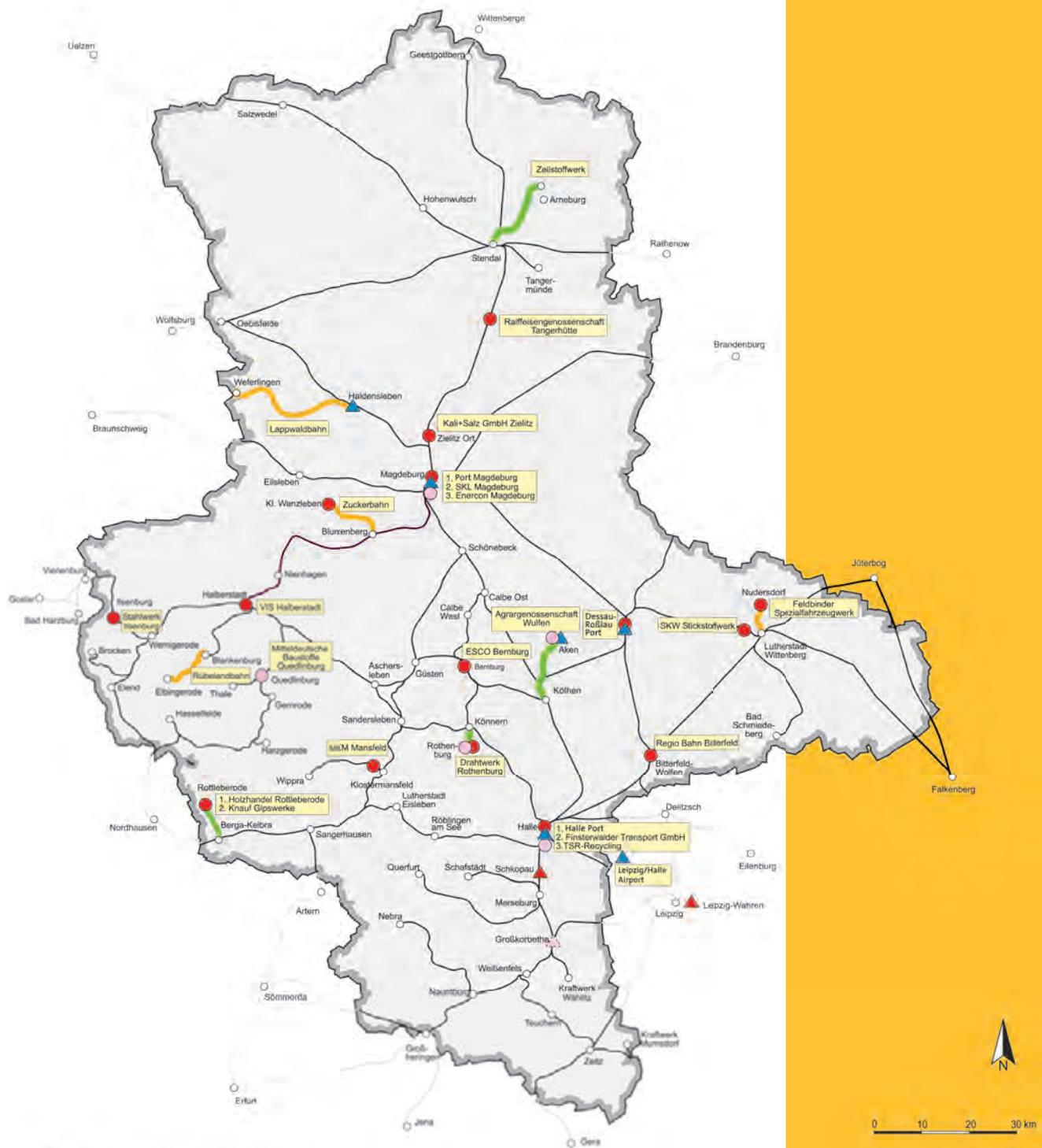


Fig. 20 Overview of development of railways infrastructure Rail cargo transport (as at December 31, 2011)

4.5 Aviation

Status Quo

By taking over the shares of the city of Halle in the airport operated by Leipzig/Halle GmbH, the state has strengthened its commitment to Mitteldeutsche Flughafen AG (MF AG). This means that the stipulations laid down in the state's airport concept and the Central German aviation concept remain valid.

Measure 20: Saxony-Anhalt's participation in airport upgrading investments

As in the past, the state will also have a stake in the further development of the airports operated by MF AG, particularly Leipzig/Halle Airport. In the past 20 years the state has contributed to investments in a pro-rata share. It is therefore fair to say that the state contributes to the further development of Leipzig/Halle Airport as an international air freight hub.

Measure 21: Development of Magdeburg-Cochstedt Airport

The technical, staffing and organisational prerequisites in compliance with binding aviation law have been created to process air freight cargo at Magdeburg-Cochstedt Airport

(Fig. 21, p. 58). The basic conditions stipulated by the Aviation Security Regulations are currently being implemented. In the middle of 2010, Magdeburg-Cochstedt Airport obtained the operating licence for flights according to Instrument Flight Rules allowing the airport to handle passenger and cargo aircraft with a takeoff weight greater 14 MT. Improving services both for passengers and aircraft will contribute considerably to strengthening both aviation and infrastructure in the region.

4.6 Combined Transport

Status Quo

Combined transport is a comprehensive approach to utilising the available infrastructure in a better and more balanced way. It also aims at avoiding bottlenecks in road freight transport and increasing the attractiveness of logistics sites that create added value. The upgraded or extended five trimodal ports, the bimodal new terminals built in Schkopau and the locally important terminals in Leuna and Bernburg provide an efficient network for combined transport in Saxony-Anhalt. Good prerequisites and the capacities required to cope with expected developments have



Fig. 21 Magdeburg/Cochstedt Airport

been created. Both the German government and the state support the policy to foster combined transport as an opportunity to shift transports from road to rail and waterways and to build new or upgrade existing transshipment facilities, provided relevant demand has been verified.

In Saxony-Anhalt the public inland ports of Haldensleben, Magdeburg, Aken, Dessau-Roßlau and Halle-Trotha have already been upgraded to trimodal terminals of combined transport. They have specialised their services to improve their specific potentials. At least one of these locations can be reached from any point in Saxony-Anhalt within less than 1.5 hours. A good example illustrating this development are the container trains introduced as a mode of combined transport that now run from Halle-Trotha port to the North Sea ports of Hamburg and Bremerhaven. In 2002 when the line started operating, container handling amounted to just a few TEU (twenty-foot equivalent units). By 2011 this number had increased to more than 71 600 TEU with no end in sight yet. In Halle-Trotha as at all other locations in Saxony-Anhalt, container trains must be adjusted to the standards required for consolidation. The responsible rail network operators have to create appropriate preconditions. The combined terminal near Schkopau offers excellent bimodal conditions for shifting transports of chemical products, such as polymer granules destined for Ludwigshafen, Duisburg and Munich, from road to rail. When the terminal's container handling capacity of approximately 23 800 TEU reached its limits back in 2004, construction of new facilities was indispensable.

The new installations were put into operation in December 2005. Since that time container handling has been continuously increased and reached about 100 000 TEU in 2011, i.e., four times the initial value. Further transshipment points of local importance, particularly for companies, are located in Leuna (Infra Leuna), Bernburg (Solvay) and Nessa (BMG Recycling GmbH Deuben).

Measure 22: The Central German logistics hub – Terminal network

Currently more than 95% of all chemicals are transported by road to markets in Eastern Europe. This also means that the chemical industry offers considerable potentials for shifting transports from road to rail. A study conducted as part of the ChemLog Project identified a potential for shifting transports from road to rail of approximately 3 million MT per year (approx. 10% of the entire transport volume) beginning in 2015. By 2025 about 4 million MT per year could be shifted from road to rail. However, the transshipment capacity of the Central German terminals is not big enough to cope with such future requirements. For this reason it is of paramount importance to upgrade existing and build new terminals for the chemical industry in southern Saxony-Anhalt in order to satisfy the long-term growing demand for transshipment capacity towards the East. The existing terminals located near the chemical sites and in their surroundings are currently well utilised. They are available for further upgrading and could be enlarged by new terminals. In the future, the train formation facility

in Halle will offer great potential for linking transports generated by the chemical sites in a special way. The chemical industry endeavours to meet the challenges of satisfying extra demand in the future by linking the logistics centres in Central Germany to form a “decentralised hub”. Keeping in mind the volume of all required commercial transports (with the chemical industry having a share of approx. 10%), the chemical industry assumes that the identified shifting potentials necessitate the construction of a new hub. Such a hub should consolidate and strengthen the Central German states’ role as a European hub, primarily in a West-East direction. Against this background, Hoyer, a transport and logistics company, and the Schkopau terminal, the port of Halle with its terminal and Leuna Chemical Park with its terminal all came together to analyse the opportunities for developing a terminal network interlinking the three locations. The three companies signed a declaration of intent to advance the further process of developing such a network and decide about specific forms of co-operation. The hub function of this decentralised network will be ensured by:

- Specialisation of logistics centres/terminals;
- Division of labour between the sites in the framework of an open comprehensive concept;
- Providing the required infrastructure between the sites;
- Management of terminal cooperation by the partners involved.

For the operators of combined transport terminals, hub formation must provide incentives to integrate the network of terminals into their transportation networks. Therefore it is vital to physically locate the terminal at a strategically favourable site ensuring short handling times and to integrate it into the network of international traffic arteries.

The concept is compatible with the guidelines of the German transport policy entitled “Freight Transport and Logistics Action Plan – Logistics Initiative for Germany” and the National Port Concept, as well as with the EU objectives in relation to TEN planning based on innovative multimodal logistic chains and linkage of existing assets in a sensible way. Furthermore, this guideline corresponds to the planned shift from road to rail addressed in Saxony-Anhalt’s logistics concept.

The ChemLog study addresses the shifting potential determined by the hub concept for the following reasons:

- Given the forecast growth in transit traffic and the risks involved in chemical transports, it is absolutely necessary to relieve the road network (cf. “Medium-term forecast of the development of transports in Germany” by BMVBS).
- The competitiveness of the Central German chemical industry depends on efficient transport chains.
- Positive ecological effects such as a reduction of CO₂ emissions, fine dust, noise and exhaust gases are produced.
- Synergy effects resulting from a division of labour and the specialisation of terminals.

- Other sectors can join in forming block trains from and to Eastern Europe, generating possible synergy effects.
- Better utilisation of existing facilities and targeted satisfaction of requirements in line with evolving demands for transports.
- Raising international visibility and attractiveness of the terminal network and consequently also of individual terminal sites.
- Sustainability of the invested public grants.

4.7 Company-Related Transport Infrastructure

Status Quo

Expanding logistics sites always goes hand in hand with the question of optimising transport infrastructure. When transregional interconnections are tight/dense, the choice of transport modes must be particularly consistent, both from the public sector's and the private entrepreneur's perspectives. To this end, entrepreneurial criteria such as economic aspects and speed coincide with regional planning issues and the desire to accomplish environmentally friendly modal shifting.

In addition to funds originally earmarked for infrastructure measures, in particular federal funding, subsidies provided as part of the Joint Task of the German government and the federal states for improving the regional economic structure should be taken into consideration for linking industrial and commercial sites to the transregional transport network.

Measure 23: Considering political objectives for funding important traffic facilities

When decisions must be made regarding the development of important traffic facilities, the relevant competent entity should weigh up economic, transport and environmental decision-making criteria.

Measure 24: Considering relevant industrial and commercial sites in the state development plan

In drawing up or continuing the state development plan, it should be kept in mind that relevant industrial and commercial sites, inter alia the priority sites for industrial and transport facilities, which are important for the state, must be properly linked in terms of infrastructure.

Measure 25: Supporting the establishment of modern industrial parks in terms of attracting logistics service providers with added value services

Compared with traditional transport and transshipment services, additional and added value services provided by the logistics sector are gaining importance. These services yield high returns and are not subject to falling margins typical of the carrying trade. Furthermore, by offering high value services, logistics service providers can increase their competitiveness making use of unique selling propositions. A study currently assesses whether the state should subsidise such added value service providers because of their sustainable nature.

5. Networking, Technology and Research



5.1 Linking of Local Networks to the Maritime Logistics Networks (Measure 26)

Status Quo

The Saxony-Anhalt logistics region is still insufficiently known, specifically among maritime logistics businesses, as is also true of its hinterland function for the large seaports.

The potential of the ports in Saxony-Anhalt, whilst they have established large capacities, is not yet fully utilised. Companies establishing operations at the trimodal terminals have been inadequate in numbers. This is where networking is to come in important, with special network coordinators in charge, and also getting industry organisations and associations involved.

Measure 27: Tuning and extending the logistics concept to the maritime partners

All opportunities are to be taken to put the contacts to the North Sea and Baltic ports on a broader basis. Specifically shipping companies, freighters, terminal operators, the relevant local seaport economy, and in Hamburg the Port Authority, are all to be incorporated. Joint exhibition stands of the state at relevant national and international specialised trade shows should be organised by Investitions- und Marketinggesellschaft Sachsen-Anhalt mbH as a preferred option. Considering that there are also mutual interests with respect to infrastructure as well as business and research co-operation there is a need for administrations as well as economy and science players to expedite such contacts. The Transport and Logistics research location which is in the process of establishing business will make an appropriate contribution.

Measure 28: Initiating a „Water“ network

In conjunction with the above Measure, it is to be suggested that a cross-border „Water“ network be created in which the river ports, with the advantages of their trimodal ties and links to the seaports, can develop synergies in transport (avoiding and/or switching traffic), in training and advanced training in the region as well as in the reliability of dispatch. Co-operation with the North Sea and Baltic ports as well as with logistics service providers and/or lines of business operating close to logistics is given project-related support, specifically under support programmes at the European level. Moreover, there is a need to focus on the strengths of the river ports such that they will be appropriately catered for in the federal ports concept.

5.2 Networking in Central Germany

Status Quo

The Leipzig/Halle Airfreight Hub developing has experienced globally operating logistics businesses already working from there or considering such a move. For the positive development to consolidate it is essential that quality appreciation be achieved and marketing be pursued for the location in a multi-state approach. To this end, there is need to upgrade existing, and create new, instruments.

Measure 29: Tuning and extending the logistics concept to the Region of Central Germany

It is intended, in an effort with the communities of the Metropolitan Region Saxon Triangle -Central Germany as well as with the states of Saxony and Thuringia, to define joint interests and measures in the logistics sphere. Particularly Saxony-Anhalt, through foresighted land reserves along the development axes, meets optimum requirements for further companies to establish business in the state. Magdeburg is to be included in the Metropolitan Region.

Measure 30: Supporting and strengthening the Central German Logistics Forum

The congress expands its perspective which originally was focused on the Leipzig/Halle Region, to also include the logistics scene of the region of Central Germany. Bundesvereinigung Logistik (federal logistics association) have been enlisted as organisers. The integration process of the varied specialised logistics networks is to be further promoted. The programme advisory council was expanded to include the chambers of commerce and industry of neighbouring regions, e. g. the chamber district of Magdeburg, as well as their renowned experts from universities, scientific institutes, and companies and networks.



Measure 31: Strengthening the Leipzig-Halle Logistics Network

Public authorities, the Halle/Leipzig Airport, as well as logistics businesses including railways, which handle and store goods there, need to intensify their co-operation in the fields of transport, training, advanced training, and reliability of dispatch. A network coordinator will bring together those involved as well as their ideas. The Leipzig-Halle Logistics Network is a first step in this direction.

Measure 32: European Chemical Logistics Advancement Project

As a result of the ChemLog co-operation project, a follow-up project entitled ChemLog Tracking and Tracing solutions for improvement of intermodal transport of dangerous goods in CEE was approved in May 2012 under the Central Europe Programme. Within the next two-and-a-half years, the project partners headed by the state of Saxony-Anhalt will deal with this subject, the work being coordinated by the Ministry of Science and Economic Affairs of Saxony-Anhalt. In addition, the Ministry of Regional Development and Transport, the Institute for Structural Policy and Economic Development, and the Otto von Guericke University of Magdeburg will all be involved in the project as German partners. European project partners are the Polish Chemistry Association, the Association of the Chemical Industry of the Czech Republic, the Region of Usti, the Uni-

versity of Applied Sciences Upper Austria, the Association of the Chemical and Pharmaceutical Industry of the Slovak Republic, the Province of Novara, the Hungarian Centre for Economic Development, and the University of Maribor in Slovenia.

The following are the project objectives:

General

- Assist in making intelligent use of ICT to improve intermodal transport of dangerous goods in CEE to strengthen the economic development and competitiveness of the chemical industry;
- Render support to switching traffic from the road onto railways and reduce climate gas emissions through improved intermodal transport;
- Improve the safety, reliability and efficiency of intermodal transport of dangerous goods.

Specific

- Use ICT for the development of efficient transport management and information systems for the transnational transport of dangerous goods by tracking and tracing, bundling of transports and interlinking intermodal hubs in CEE;

- Improve the constraints with respect to organisational, institutional and strategic solutions for tracking and tracing technologies while getting companies, logistic service providers and public bodies involved;
- Develop recommendations for open and common standards for tracking and tracing as a result of field tests, and assist with net working and implementing tracking and tracing technologies in CEE.

Within the scope of the „Analysis and Development of Tools“ work package, the first year will see an analysis of the supply chain carried out so as to identify the tracking and tracing demand of the chemical companies. Then, the technologies available (RFID, Galileo, GPS, etc.) will be assessed so as to adjust these to the requirements identified. On this basis, the partner will then jointly develop an ICT tool for tracking and tracing of dangerous goods.

In the project's second, four transnational pilot projects will be implemented for field application of the tracking and tracing tool. These pilot projects will be pursued along predefined transport corridors in CEE, which are of particular importance to chemical logistics. These are the PAN Corridor 2 from Central Germany via Poland as far as Russia, the TEN Corridor 2 along the Mediterranean from Italy via Slovenia as far as Hungary (as far as into Ukraine),

the Danube Corridor from Austria via Slovakia as far as Hungary, and the Transport Corridor from Germany via Prague as far as the Slovakian-Ukrainian border. The results of the pilot projects will be evaluated in the project's final semester so as to enhance use of tracking and tracing, while especially eliminating obstacles in cross-border transport.

Measure 33: Strengthening Applied Transport Research - Galileo Transport Saxony-Anhalt

The state's initiative „Applied Transport Research - Galileo Transport Saxony-Anhalt“ is geared to achieving two key goals: While innovative and intelligent concepts are to be pursued to qualify the transport systems for the future challenges, with focus on avoiding tailbacks through intelligent traffic control, competitive attractive public transport as well as matters of climate protection and energy efficiency, transfer of innovative concepts for marketable products is expected to yield a strong push for both established technology businesses and business start-ups.

Transport and logistics are the points of main effort on which Saxony-Anhalt is going to focus with respect to a Galileo core competence.

In this context, the following need to be emphasised as key topics and fields of action:

- Integrate trade and logistics into an intermodal transport management network (in the context of the transport research projects „MOSAIQUE“ and „Intermodal traffic information system for Central Germany“);
- Study interfaces for co-operative operation of systems of fleet and transport management;
- Test systems and applications (application software) for high-accuracy tracking and tracing of vehicles in urban areas;
- Develop and test systems for communication between goods, vehicle and infrastructure;
- Evaluate the interaction of vehicle-assisted telematic systems with autonomous radio-controlled goods tracking systems;
- Test and certify technical components for satellite tracking and communications.

Measure 34: Developing the Galileo test field Saxony-Anhalt

The development laboratory and test field for tracking, navigation and communications in transport and logistics (GALILEO TEST FIELD SAXONY-ANHALT) is the reference project of the

state's initiative „Applied Transport Research - Galileo Transport Saxony-Anhalt“. In implementing this initiative, using the GALILEO TEST FIELD SAXONY-ANHALT will purposefully support developments and innovations in the transport, mobility and logistics sector in which the potentials of the European satellite navigation system as well as further satellite and terrestrial tracking, navigation and communications systems are utilised. The research infrastructure of the GALILEO TEST FIELD spans the cities of Magdeburg and Halle (Saale). The core of the GALILEO TEST FIELD SAXONY-ANHALT, comprising a measuring hall and an associated open area, is physically located in Magdeburg's Port of Science.

It is through networking with telematics and logistics test fields in Magdeburg and Halle (Saale) that optimum conditions prevail for Saxony-Anhalt as a research and innovation region, given that the integration with the system environment of the particular application in both transport and logistics, which is absolutely needed for research and development processes, is ensured. Laboratory results can be tested here under ‚real‘ transport conditions in regional and almost realtime terms. From 2008 to 2011, the state of Saxony-Anhalt invested a total of € 2.9 million for establishing and expanding the test field, of which some € 1.1 million federal and state funds were made available under the Future Investments Act.

5.3 Promoting the Region and Locations on the Basis of New Technologies in the Spheres of Transport and Logistics

Status Quo

Trades in profit-earning operations are the segment that is experiencing the most rapid growth in transport. Therefore, it is especially in metropolitan areas and on key transit routes such as the A 2 motorway that the already highly loaded transport infrastructure will entail in part substantial restraints for both the economy and the population. There is little room for expanding the existing infrastructure. Drawing advantage of synergies along the transport chains and using state-of-the-art information and communications technology, as well as employing efficient materials handling approaches offer a potential for

establishing minimum-transport and intermodal logistics of trade and commercial transport. Increasingly globalised intermodal goods chains call for means of product identification and tracing, for localisation, state monitoring as well as for process and fleet control. It will be possible for transport management in general and logistics in particular to cope with the further increasing goods flows only if consistent use is made of new, interoperable and low-cost technologies which trace, control and monitor the entire logistic process.

Measure 35: Developing a container-barge systems for transport on the River Elbe

Given the particularities of navigation on the River Elbe, an objective is pursued to develop a flexible container transport system for the Elbe.



Fig. 22 Institut für Automation und Kommunikation e. V. (ifak) in the Magdeburg Science Port



Fig. 23 Otto von Guericke University of Magdeburg

A research and development project is to be given a push jointly with the states bordering the Elbe, Deutsche Binnenreederei AG, and the federal government. The system to be developed which, if practical, is to optimally meet all the requirements of continuous loading and unloading, both in the Port of Hamburg and in the ports alongside the Elbe, could rely on experience gathered with river push tugs. Essentially, these consist of a drive module and several standardised barges combined into a push tow.

Upgrading of the Elbe as a federal waterway – from Dresden to Geesthacht – with not less than 1.60 m fairway depth everywhere and on 345 days of the year, however, is an absolute requirement for developing the container barge system.

There is a need to investigate if the swap-container system developed in Saxony-Anhalt could be employed.

5.4 Subsidising Research and Development in the Spheres of Transport and Logistics

Status Quo

The state is co-operating with research institutes which have a national and an international reputation in the fields of traffic, transport telematics, transportation and logistics.

These include, in the logistics sphere: the Fraunhofer IFF and the Otto von Guericke University of Magdeburg; in traffic and transport telematics: the Magdeburg University too and the Magdeburg-Stendal University of Applied Sciences, and in geoinformatics: the Anhalt University of Applied

Sciences. In 2006, Fraunhofer IFF added to its research infrastructure an ultra-modern Virtual Training and Development Centre (VDTC) (Fig. 22, p. 67) in Magdeburg's Port of Science. Thus, together with the Galileo Test Field inaugurated on June 17, 2010, an environment has developed which provides excellent conditions for cooperation with young, innovative businesses and for spin-offs from the scientific institutes.

Measure 36: Developing the Port of Science into a competence centre for transport and logistics

Several research institutes with varied competences have already established business in the Port of Science. This trend is to receive support through implementation of the state's initiative „Applied Transport Research - Galileo Transport Saxony-Anhalt.

Under the initiative, a development laboratory and a test field for tracking, navigation and communications in transport and logistics (GALILEO TEST FIELD SAXONY-ANHALT) has been in operation in the Port of Science since 2010. In order to make Saxony-Anhalt as a research and development region attractive for existing companies and start-ups (Fig. 23, p. 68), funds totalling several million EUR, including under the Future Investments Act, have been made available. Businesses can continuously test their services and products for tracking, navigation and communications in the transport spheres under diverse conditions.

Measure 37: Continuing the multi-portfolio research funding

Subsidising in the fields of transport and logistics needs to be intensified. This cannot remain the task of a single portfolio as, in particular, there is also a need to achieve multi-portfolio objectives. To make research funding more continuous moneys are to be raised under the European Structural Fund as well as under EU and federal research programmes. In this respect, the state's activities would typically be devoted to supporting complementary financing. It is the goal to establish a research and competence in transport and logistics whose the power of attraction extends far beyond the state's borders.

Measure 38: Developing lightweight components for vehicle bodies and containers

This measure aims at developing innovative components made of plastics and thus reduce the weight of vehicles and containers. This is to contribute to lowering fuel consumption and, thus, reducing cost and emissions.

6. Education



Status Quo

Demand for labour in the German logistics sector is expected to grow. According to estimates, some 100,000 skilled workers in operative logistics, 10,000 qualified specialists (middle management) and 1,000 managers are needed in Germany every year.

The sector offers employment for low-skilled workers, skilled personnel and university graduates as well as excellent career opportunities because transport chains and inherent tasks and responsibilities are becoming increasingly more complex.

Nevertheless, in the field of road haulage the staffing situation is already difficult, especially qualified drivers for long-distance haulage are very hard to find. This shortage is likely to worsen in light of the demographic change if the sector does not react soon. However,

steep cost pressure and competition typically do not leave companies in Saxony-Anhalt much room to manoeuvre when it comes to making HGV driving more attractive by offering more family-friendly working hours and higher wages.

Other instruments seem to be much more promising, though, such as offering more apprenticeships, using modern HGVs to guarantee an ergonomic and safe place to work, offering drivers free further training and, first and foremost, boosting the image of road haulage that the media typically portrays negatively (causing pollution and traffic jams, etc.).

What really counts in the sector are so-called soft skills (social competence, communication skills, team spirit, conflict management skills). Where schools, employment agencies, vocational schools and trainee enterprises intersect, there is often a lack of transparency and



information about apprenticeships and skilled jobs. Schools need better career and business orientation programmes, assisted by career advisors and companies that take on trainees. Applicants and companies often lack information about available assistance and aid. Essentially, the key question is whether the education system is fit to meet the challenges of the logistics industry and if the demand for skilled labour can be satisfied.

6.1 School Education

Measure 39: Improving the performance of school leavers

The PISA assessments pointed out shortcomings in Germany's formal school education. Employers (not only in the logistics sector) share this opinion.

International studies show that there is a primary need to improve basic competences, such as reading skills, mathematical and scientific literacy. The Ministry of Education of the State of Saxony-Anhalt sees the need to promote quality in schools. To this end, it has engaged in a dialogue with the business world to agree on requirements for school leavers and on curriculum design. At the same time, teacher training needs to be expanded.

6.2 Training, Further Training and Qualification

Measure 40: Assessing, reviewing and, if necessary, adapting skilled occupations to national/international developments

There is a need to analyse and review the contents of training programmes for skilled occupations. More than ever, it is essential to offer training covering all modes of transport. Today skilled employees with a commercial/business degree in the transport sector also work in production, service and infrastructure planning, marketing and quality management. In light of the increasing importance of multimodal transport chains, limiting training programmes to individual modes of transport is neither competitive nor does it suffice to meet today's challenges.

During the current process of developing and assessing training ordinances, the state will inform both the federal government and social partners about necessary changes and modifications. The length of training programmes needs to be reviewed, too.

Measure 41: Continuously reviewing and adapting further training / qualification programmes

Further training and qualification programmes need to be further developed to meet emerging needs and adapted to national and inter-

national developments in the logistics sector – a process that must be assessed continuously.

If necessary, the state will continue to grant financial support to companies conducting qualification activities. As regards further education and training programmes that are regulated on the national level, Saxony-Anhalt will inform the federal government or the relevant authorities accordingly as part of the current process of developing and assessing such programmes. The state welcomes the new regulation procedures for training/business degree programmes for certified transport specialists, certified specialists in passenger transport and certified purchase and logistics specialists.

Measure 42: Further training campaign for needed skilled labour

In order to satisfy the growing demand for skilled labour, the further training campaign for skilled workers should be continued who will then be placed with transportation and logistics companies. The WeGebAU programme – a programme for further training of low-skilled workers and older employees in companies – contributes to preparing the available workforce for a changing working environment.

It is important that relevant businesses know about individual funding and support options. Together with the Federal Employment Agency, such companies can work out company-specific solutions.

Measure 43: Fostering training and advanced training in inland navigation

The growing fleet of vessels, the threat of ageing crews and the additional need for training, e.g. in handling hazardous freight and agricultural produce, as well as increasing quality requirements for security personnel employed in passenger transport, make it necessary to develop vocational training and advanced training programmes in inland navigation with a long-term perspective. Saxony-Anhalt is home to one of only two vocational schools for skippers/river-barge captains and training centres for inland navigation in Germany, located in Schönebeck.

The social partners, the state and the school authorities all cooperate to promote the profession and foster training and advanced training for inland skippers.

6.3 Academic Education

Measure 44: Establishing a chair in transport logistics / transport computer sciences and infrastructure

In Saxony-Anhalt and Central Germany, small and medium-sized businesses form the backbone of the logistics sector. As far as university graduates are concerned, the state sees a growing demand for engineers specialised in transport management, transport computer sciences, materials handling and conveying and distribution techno-

logy and IT specialists as well as a need for networking, increasing the transfer of knowledge and technology and image promotion. That is why experts consider it useful to establish a chair in transport logistics at the Institute of Logistics and Material Flow Technology and to offer equivalent study programmes at universities of applied sciences. (Fig. 24, p. 73). Such a chair should not only explore individual modes of transportation and aspects of combined transport but also study traffic control, traffic/transport management and concepts to safeguard mobility from a holistic perspective. This includes coordinating passenger and freight flows using innovative technologies, information

and communication systems. The new chair should be established by integrating the “Galileo research lab and test bed”.

Measure 45: Improving transparency and comparability of study programmes specialised in logistics

The vast range of topics and terms used in the various programmes of study that lead to a number of different degrees whose standing varies, hampers transparency and comparability. The contents and the weight attached to all relevant programmes of study need to be assessed with a view to harmonising the approach of individual training centres in the field of logistics throughout the state.



Fig. 24 Martin Luther University of Halle-Wittenberg

6.4 Other Activities

Measure 46: Activities for early career advice

The state of Saxony-Anhalt conducts a number of activities to guarantee the supply of future specialists. In order to involve all relevant players, affected by demographic change, in the debate and implementation process, an agreement to safeguard the supply of skilled labour was adopted in 2010. The underlying goal is, among others, to gear the education system to the needs connected with the supply and demand of skilled workers. Against this background, the following key requirements for action have been derived:

Career-oriented measures are adjusted to the current situation on the labour and training market. At the same time it is necessary to design career guidance as open as possible. Schools and responsible bodies increasingly try to involve businesses in career information activities and build networks between schools and regional businesses, keeping in mind the resources of medium-sized companies in terms of time and personnel in particular. In order to establish close ties between schools and the (local) business community, it is of paramount importance to consciously advance acknowledged standards of collaboration between schools and the business world.

Existing “school-business” working groups encourage exchange at a regional level.

To implement these plans, the state finances and supports a number of projects and measures for school leavers starting training, especially with regard to careers guidance. Examples include the BRAFO Project (early and sound careers guidance) or “Productive Learning”.

All secondary and comprehensive schools as well as special schools for children with learning difficulties implement the BRAFO Project for 7th-graders. This additional offer is a mandatory project offered to prepare students early to make a career choice.

Even before they receive career advice from the Employment Agency, students get an opportunity to discover and explore their individual skills and competences and match these with a desired career.

Offered by a training provider, students have a chance to experience work in selected career fields on four days, getting to know responsibilities and requirements of various jobs and professions.

The results of this practical experience are evaluated together, if necessary also with their parents. Afterwards, students put down further steps of their career planning process in a document. It is also possible to arrange internships with companies during school vacations.

The main objective of all these support programmes and measures is to strengthen the self-efficacy expectations of young people or to foster

mature career choice decisions that have a major impact on a successful transition from school to work life. Other important aspects of careers guidance include developing educational concepts, getting relevant non-school actors on board and expanding networking and co-operation structures.

Measure 47: Reviewing regulations on the free movement of people

As an option for solving existing and future labour shortages, e.g. as regards professional HGV drivers, Germany is not the only country debating easing restrictions of the free movement of workers, although one should keep in mind that there is already a shortage of drivers in the new EU member states.



Fig. 24.1 High-rise warehouse

7. Environmental and Climate Protection



Status Quo

Mobility means flexibility and freedom. At the same time, mobility - while tapping energy resources - is a burden on the transport infrastructure.

Typically, road traffic is invariably a significant source of emissions of the greenhouse gas adversely affecting the climate, and as a result of transport in Germany carbon dioxide emissions more than doubled during the period from 1960 and 2009, with road traffic in 2009 accounting for more than 80% of emissions in the transport field.

Comparison of modes of transport, for CO₂ pollutant emissions alone illustrates that HGVs emitting 99.4 g/tkm compared with 29 g/tkm of railways and 33.8 g/tkm of inland waterway vessels, have by far the most unfavourable ecobalance in this respect. Featuring the highest levels

in each case, this is also true of the air pollutant emissions for NO_x and PM.

This in mind, shifting goods transports from the road to the rail or inland waterways is not only useful; it actually is an essential contribution to efforts made to reach the European and national climate protection targets. From this perspective, environmental awareness is not only on the rise; more and more customers expect that the businesses of all trades and industries assume responsibility and show commitment for the environment. Thus, both resource-conserving management and eco-balanced solutions while becoming key factors in economic business, ensure that - in the long term - companies and jobs can be profitable and sustainable in global competition.

In this regard, the EU Commission's White Paper has stipulated a goal of shifting 30% of road haulage

over 300 km to railway or vessel transport until 2030. Moreover, the European Parliament in their resolution passed on March 15, 2012 support the Roadmap for moving to a competitive low-carbon economy in 2050, foreseeing a reduction of 40% reduction of CO₂ emissions by 2030, with the contemplated reduction figure by 2050 being as high as 80%.

In the wake of the energy revolution too, Germany's climate protection targets are exacting, with emissions by 2020 compared with 1990 intended to be reduced by 40%.

Saxony-Anhalt's government, through their „Energy Concept“ for the period from 2007 to 2020 and the „Climate Protection Programme 2020“, formulated main elements of action with respect to climate protection and, by attending to the „Green Logistics“ subject, addressed another, new activity centre.

This emphasises the increasing importance attached to logistics in traffic and transport. In future, the state government will even need to make greater efforts to close the gap between making traffic and transport more energy-efficient while resource shortages are growing, and increases in efficiency. Within the scope of this exacting target, there is also need to successfully focus on the development and provision of eco-friendly means of transport that are gentle on the climate.

7.1 Use of Minimum-Polluting and Safer Modes of Transport

Measure 48: Favouring emission trading in aviation and emission-dependent landing charges, and strengthening the multimodal freight transport

Estimates available suggest that the proportion which international air traffic contributes to the greenhouse effect worldwide is roughly 3.5%. It is in particular the specific engine emissions of CO₂ and NO_x as gaseous pollutants or trace gases which artificially boost the greenhouse effect.

As a result, climate is adversely affected, specifically in the upper airspace where aircraft fly. This situation - despite ‚streamlining‘ of aircraft - is aggravated by air transport growth rates as well as capacity increases at a great many international commercial airports.

Therefore, in efforts adapted to curb and reduce greenhouse gas emissions, it is logical to include international aviation in the emission trading system with effect from 2012. The basis for assessment reflects the greenhouse ‚effectiveness‘ to its full extent. A relevant federal initiative needs to be further expedited, it being desirable that emission trading be introduced on a global scale and without timing so as to preclude competitive advantages. The federal government intends to introduce in the medium term emission-dependent landing charges to improve the



local air quality at airports – and as a supporting measure to reduce the overall impact of aviation on climate. The system for these landing charges will be revenue-neutral, and be intended to reward the use of eco-friendly, clean aircraft. A three-year test phase commenced in 2008 in voluntary levy of such charges. Saxony-Anhalt will make an effort to encourage expansion of the voluntary self-trial.

The environmental protection concept can be catered for at the airports of MF AG by taking action as below: Consistent and intensive use of the trimodal approach will reduce the number of flights. Freight will be switched to other modes including the rail. Electric traction of trains helps avoid emission to the greatest extent practical.

Thus, landing charges could be reduced for Airlines which also use the rail in combined transport.

Measure 49: Strengthening railways and including inland navigation as a safe mode of transport for dangerous goods; Making a cost-benefit analysis

The proportion of modes of transport involved in dangerous-goods transports is some 65% on the road, about 20% on the rail, while amounting to 15% on waterways. More than 90% of accidents in dangerous-goods transportation have occurred on the road. The percentage of vehicles found to be non-compliant in checks conducted in 2005 was 24% for HGVs

and as low as 9% for railways. This demonstrates that rail and inland navigation are good and safe alternatives for transportation of dangerous goods. There is a need to draw more advantage of this finding. Subsidising of measures such as construction or upgrading or siding tracks, plant-owned and branch lines, especially in the regional area, is a requirement which, if and when met, can serve to switch dangerous-goods transports to railways. A cost-benefit analysis is to be conducted to investigate to which extent dangerous-goods transports can be moved onto the rail through a „Rolling Federal Motorway“ concept requiring a development grant, or through the „CargoBeamer“.

Measure 50: Introducing emission-dependent track charges

Despite a proven high energy efficiency and - compared with other modes of transport - lower CO₂ emissions, there is a need to further reduce pollutant emissions in rail transport too. That is why introducing an emission-dependent TPS offers economical incentives. It should be harmonised Europe-wide.

The TPS has the potential of lowering the energy consumption, while also reducing emissions and noise. A legal expertise rendered by order of the Federal Environment Office proves that emission-dependent track charges are possible in Germany on legal grounds. Combining subsidising of the conversion of rail-bound vehicles with the introduction of emission-

dependent track charges is considered to be the most practical and effective approach. While the BMVBS is currently providing support for the conversion there is just one company benefiting from the moneys given. The introduction of emission-dependent track charges should be followed up. Similar to the experience gathered in the motor car industry, there would be a development surge which no company could resist.

Measure 51: Modernising the propulsion systems in inland navigation

While much progress has been seen in the development of particularly minimum-polluting drive systems for road and rail transport, such an experience is still wanted for inland waterway transport. As contemplated by the Directive of the BMVBS on grants to cover procurement of lower-emission Diesel engines propelling inland waterway vessels (last amended on December 11, 2007) minimum-polluting propulsion systems are gradually being put to service in inland navigation. It is intended to support and expedite the implementation and, where appropriate, wider distribution.

7.2 Noise Control

Status Quo

Noise, while substantially restricting people's quality of life, has an inherent health risk. Traffic noise is now ranking among the grave environmental pro-

blems, with HGVs and freight trains in particular being considered the key sources of noise. For planning projects, e.g., for airport development, the noise pollution expected is treated as being one of the highest-risk factors. Emission-dependent landing charges have already been introduced in aviation. Therefore, noise control needs to be improved, in particular through preventive measures, and must be geared to the sustainability model. These include noise abatement at the source as well as passive noise prevention.

Measure 52: Reducing noise in Road Transport and Rail Transport

In a noise abatement effort at federal highways in Saxony-Anhalt, both noise precautionary measures (in construction and improvement of roads) and noise remediation measures (on existing roads) are pursued. Since 2006, federal funds made available for noise remediation nationwide since 1978 have been doubled to reach € 50 million per year. In part, noise remediation necessary is also accomplished in the course of improvement measures. To this end, preference is given to active noise control (erection of noise barriers and noise abatement walls and/or laying of noise-reducing road surfaces) as, often, undeveloped areas in the residential environment are also included in such measures. As, in 2010, the triggering levels for noise remediation were lowered by 3 dB (A) citizens are now better protected from noise. Based

on the current limits, it is anticipated that from 2015 there will be no essential need for remediation nationwide. In rail transport, noise prevention plays an essential role that is substantiated by the „Leise Bahn“ (minimum-noise railways) research project. In this context, preventive measures increasingly come to the fore. Selected examples include high-speed track grinding, reducing noise emissions on the train bogies and on the permanent way, or use of composite brake-shoe inserts to reduce noise on goods wagons.

Measure 53: Tailoring the noise abatement programmes at the Leipzig/Halle Airports to needs

The Leipzig/Halle Airport boasts an exacting noise abatement programme. It is determined on the basis of the results if differences have occurred between the transport volume predicted in 2004 and the actual transport volume; if so, measures of passive noise prevention would have to be adjusted to needs. In conformity with what was stipulated in the zoning approval for construction of the new runway South including the apron as passed on November 4, 2004, the first of the annual review calculations for the night protection area was made in the spring of 2009, and these need to be conducted every year until 2016.

7.3 Traffic Control

Measure 54: Using modular commercial vehicles

Transport of goods can be made more efficient by increasing both volume and weight, especially since large transport units are more economical for forwarders than small ones. Given the forecast increases in road haulage and the fact that the road network cannot become larger to the same extent as the transport volume, there is a need for making better use of the roads and grant legal approval for new technical solutions.

Therefore, the discussion addressing the use of modular commercial vehicles, the so-called gicaliners, i.e. vehicles that are 25.25 m long and have a gross weight of 60 MT, is right. For the sake of road safety as well as sustainable infrastructure policy for road and rail, Germany has currently not in place a recommendation for general licensing of modular commercial vehicles. Given that all modes of transport are needed so as to cope with further increasing volume of freight transport, with the road invariably carrying the highest goods volume, innovations for HGV transport are absolutely necessary.

Measure 55: Continuing and upgrading the Saxony-Anhalt Blocked Roads Information System

Developed by the Ifak Institute, the Saxony-Anhalt Blocked Roads Information System (Fig. 25, p. 81) is a management system for transport space restrictions in the state. It is based on a system in use since 2003; it employs a management programme for blocks which is used across the state by the lower traffic authorities. The block data is mapped on the basis of existing geoinformation data. Conflicts experienced so far in defining blocks and diversions in the traffic authorities are identified and avoided. The State Portal of Saxony-Anhalt will be the platform where information is presented.

The citizens advice service has been altered to suit the technical state of the art for web presentations. The database is used for numerous e-Government projects.

Measure 56: Improving the transport management

In the MOSAIQUE research and development project conducted in transport management, a contribution has been made to solving the soaring traffic problems in the Region of Central Germany, specifically in the area of Halle/Leipzig. The MOSAIQUE outcome will be adopted statewide in 2012 under the „Intermodal traffic information system for Central Germany“ project, thus establishing the requirements

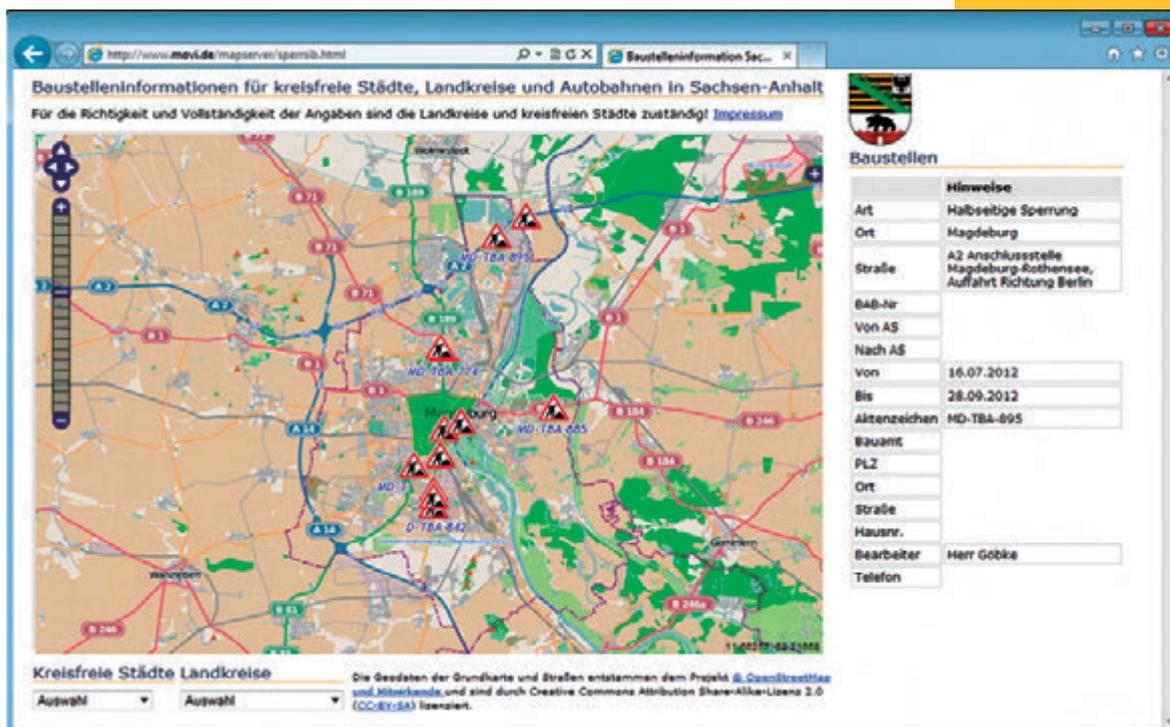


Fig. 25 Saxony-Anhalt Blocked Roads Information System

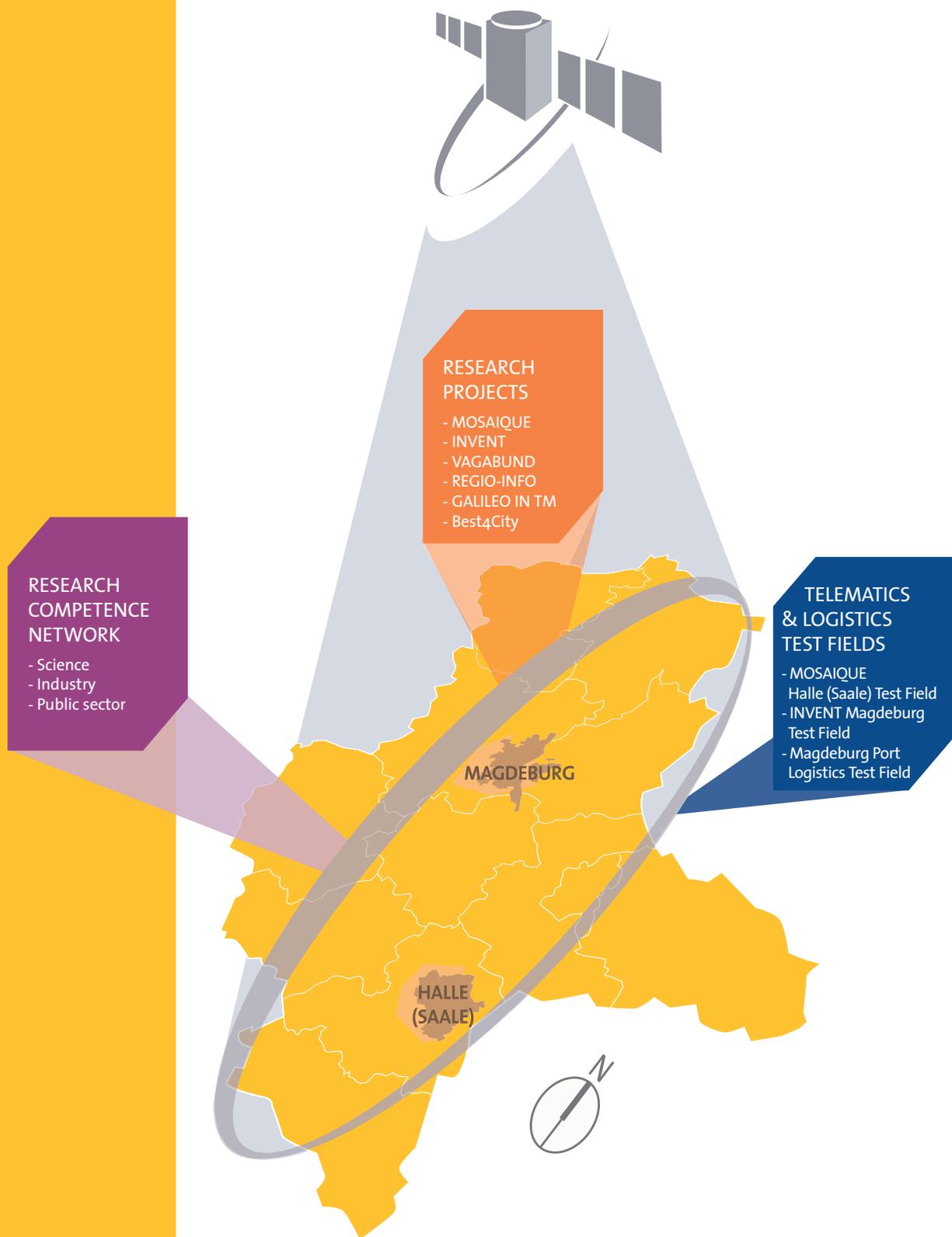


Fig. 26 The three key modules of the Saxony-Anhalt Galileo Transport Strategy

for a new quality standard in organising traffic on the basis of continuously recording state-wide the traffic quality in the network of motorways, federal highways and Landesstraßen as well as in the cities of Saxony-Anhalt.

This approach to recording the traffic situation and road conditions also forms the basis for establishing the intermodal mobility portal of Saxony-Anhalt which in future is going to offer to people and companies via the internet and mobile applications intermodal travel information, real-time traffic information and traffic announcements as well as relevant services while particularly taking electric mobility into account. The state made available for this purpose some € 3,5 million through the Economic Stimulus Package II.

Measure 57: Improving the urban traffic situation - „Logistics in Cities and Towns“ concept (LOS!)

The concept will be developed under the FoPS Programme and receive funds from the state. It is the objective to encourage large HGVs which carry only small goods volumes into town, will no longer drive into town and instead drop their loads at transshipment terminals close to the town centre, where such goods will be collected and prepared for fine distribution in a bundled mode. Such bundling aims at achieving as-needed and efficient supply to, and

removal from, cities and towns by using small HGVs (vehicle class up to 3,5 MT). This programme will add to vehicle utilisation, with traffic noise and other environmental impact diminishing.

Such transshipment stations (mini distribution centres) for transfer into swap containers that still need to be designed can be set up in appropriate areas.

Such transshipment stations can be readily incorporated into existing transshipment facilities such as tri-modal port terminals, without any major effort. This concept is intended to be implemented for the first time as a courier, express and parcel service provider establishes business. An investigation into establishing such a mini distribution centre at the location of Magdeburg is in hand.

Measure 58: Intelligent transportation systems

Logistics and freight transport, while requiring current traffic data, benefit from a highly capable intermodal transport management. An ITS architecture establishes the required technical and organisational prerequisites. For coordinated introduction and use of ITS in road traffic and public transport of the state, the state government will present in 2012 an ITS Action Plan Saxony-Anhalt as a dedicated plan of regional development.

This includes important fields of action such as enhancing the perfor-

mance of transport infrastructure and road safety, organisational bundling, research and development, as well as advanced training and qualification of all persons involved in the transport management.

The plan also meets the requirements for targeted further development of the establishment of an ITS overall system in the state which was started, amongst others, through the state's initiative „Applied Transport Research - Galileo Transport Saxony-Anhalt“ (Fig. 26, p. 82).

The Saxony-Anhalt Blocked Roads Information System, the Intermodal Traffic Information System for Central Germany, or integration into the Mobility Data Marketplace of the BAST are typical successful projects carried out to ensure an integrated information chain in order to preclude tailbacks, make roads safer, and offer intermodal information services for people and businesses.

7.4 Establishing Sustainable Logistics Gentle on Resources

Measure 59: Developing and establishing sustainable logistics properties or industrial estates that are gentle on resources

When providing funding for logistics service providers to establish business it is desirable to take into account the great significance renewable energies have in Saxony-Anhalt. Thus a logistics estate should be developed which, while being both sustainable and gentle on resources,

generates its power from renewable energy resources and on site where practical. In materials handling technology, use should be made of innovative technologies that are gentle on resources, the fuel cell being an example.

Measure 60: Developing and establishing a CO₂ emission inventory

In an effort adapted to efficaciously and sustainably reduce induced emissions especially in transport logistics, it needs to be studied if an emission inventory could be developed which allows traffic flows to be put on a balance sheet to be drawn up while using a ratio system. This would enable priorities to be inferred for controlling emissions. Moreover, a control instrument could be developed for the flow of traffic. This would typically allow a dynamic, load-dependent low-emission zone to be created.

Measure 61: Use of technology in small and medium-sized firms

State-of-the-art communications and control systems when used in freight transport permit optimum planning, control and coordination of flows of goods or optimisation of complete transport chains and their economical design. In turn, more efficient use of vehicles, thus, entails an optimum utilisation of the transport infrastructure, while reducing environmental impact as a result of empty tours. Furthermore, the

companies will benefit from a greater overall competitiveness. High up-front cost, however, entails a substantial financial strain; this was evident from the trade's lines of argument concerning the procuring of the digital tachograph. Specifically in small and medium-sized businesses, the financial situation is not encouraging a purchase of such an instrument. Creating a financial basis and guaranteed financing arrangements are to provide an incentive for procuring and using the modern systems.

7.5 Assisting the Transport Economy in Drawing on the EU's Marco Polo Support Programme

The Marco Polo transport programme, currently Marco Polo 2, has been existing since 2003 and will terminate on December 31, 2013.

All projects under the programme must be completed by 2015. The budget for Marco Polo 2 totals € 450 million. This budget is intended to provide funding for some 35 projects. Businesses, but also groups of businesses, can be beneficiaries.

The following are key actions of the Programme:

- Shift transport from the road onto the rail and waterways;
- Catalytic measures for switching transport (overcoming structural market barriers, innovative measures);

- Training measures with trainees in the fields of switching transport / avoiding traffic;

- Motorways of the Sea;

- Avoiding traffic, e.g., through changes in the transport logistics.

All measures must be of a transnational arrangement.

Potential businesses are very reluctant in drawing on the Marco Polo Programme, even though they are familiar with it. The reasons why businesses unavail of grants vary greatly.

In this context, the complex application procedure or the high thresholds for shifted or avoided road transports play an essential role. Therefore the state of Saxony-Anhalt seeks to render assistance to entrepreneurs or groups of entrepreneurs.



8. The Logistics Initiative



In an effort to further upgrade the tasks of the trimodal hub in the European ports' hinterland for the international seaports of Hamburg, Bremen/ Bremerhaven and Rotterdam, Saxony-Anhalt's Ministry of Science and Economic Affairs and Ministry of Regional Development and Transport have set up Logistics Initiative Saxony-Anhalt. The tasks addressed include bunching-up of economy, science and research; shaping of Saxony-Anhalt as a Logistics region by way of co-operation with the growth initiatives and industry clusters in the state, and extensive innovation transfer so as to strengthen the businesses. Under the Logistics Initiative and while considering the logistics industry in Saxony-Anhalt and drawing advantage of potential synergies for existing firms, and whenever gaps need to be closed in value chains within the line of business, the Initiative can consult the state's Logistics Advisory Body

which consists of 15 experts from Saxony-Anhalt's logistics industry.

In the past two years, the Logistics Initiative has further developed to become a marketing platform for the logistics sector of the state of Saxony-Anhalt. Investors, producing entrepreneurs and freighters as well as logistics service providers network with one another under this scheme. The advanced infrastructure of the state provides for the businesses of all transport modes the framework setting necessary for efficient logistics.

The Logistics Initiative is used to bunch up ideas, requirements and interests of the firms, allowing growth-impeding factors to be purposefully identified and eliminated. This includes qualifying and placing skilled labour, and offering areas, estates and a transport infrastructure that suits logistics. For firms interested in locating, are

offered one-stop establishment management.

Supporting innovations and new technologies with the aim of strengthening the location and creating new jobs is another focal activity. To this end, workshops, working groups and meetings are organised regularly.

Thus, the Logistics Initiative takes a commitment not only for the interests of the logistics service providers, but in particular also for the users of logistic services. In addition to traditional services such as transport, transshipment and storage, these are contract logistics solutions, value-added services and control solutions for procurement and distribution networks. Apart from the question as to the correct service partner, it is locational advantages such as goods of the location, transport infrastructure, manpower potential, offerings for advanced training as well as research and innovative power in the region which are relevant when capital expenditure decisions need to be taken.

Measure 62 INPOSA:

IMG Investitions- und Marketinggesellschaft Sachsen-Anhalt mbH, as well as functioning as site consultants for personal advice, offer investors an online search with INPOSA, the Invest-in-Saxony-Anhalt portal. Once the desired size of area as well as the modes of trans-

port needed are entered available industrial and trade estates are displayed. The INPOSA Mediacenter with the globally unique, integrated 3D-configurator is available for selected locations.

Measure 63 Internet portal:

In order to systematically improve the knowledge in the region about developments relevant to the sector the internet portal of the Logistics Initiative at

www.logistik-sachsen-anhalt.de is periodically updated by providing news and lists of events, workshop dates, and information about exhibitions and shows. Furthermore, the Logistics Initiative Saxony-Anhalt are present at many specialised fairs such as „transportlogistic Munich“ and „transportlogistic China“, the German Logistics Congress in Berlin, the Central German Logistics Forum, the „Day for Action in Logistics“, as well as when national and international journalists travel to break news are masterpieces of logistics in Saxony-Anhalt. All these pave the way for further measures designed to strengthen Saxony-Anhalt as a science and economy location.

Dialogues with the logistics firms, intensifying the international presentation of the logistics sites, as well as internal marketing of the Logistics Initiative will be part of the in-depth action plans of the coming years.



9. Logistics Advisory Body to the Ministry of Regional Development and Transport of the Land of Saxony-Anhalt



Fig. 27 Schkopau Plant railway station

In the wake of globalisation, the logistics industry - as outlined - shows uninterrupted growth. Saxony-Anhalt, given the improved modern transport infrastructure as well as the existing potential of skilled manpower, is experiencing an extremely positive development in this sphere. In order to further strengthen the competitiveness and to enhance the attractiveness of the region of Saxony-Anhalt, in a move supplementary to the state's logistics concept, a state logistics advisory body has been appointed to the Ministry of Regional Development and Transport of the Land of Saxony-Anhalt.

The logistics advisory body is to ensure continuous exchange of information and a lively dialogue between Saxony-Anhalt's state government and both economy and science. Moreover, the body is to give advice to the state government on all questions relating to the logistics field, and function as a multiplier.



Members of Logistics Advisory Body

Jobst Paul	Deutsche Bahn AG
Antje Bauer	IHK Halle-Dessau
Karl-Heinz Ehrhardt	Magdeburger Hafen GmbH
Bernd Enders	Kühne+Nagel (AG & Co.) KG
Andreas Josefowicz	Zellstoff Stendal Transport GmbH
Dierk Näther	Flughafen Leipzig/Halle GmbH
Mirko Kauffeldt	Dachser GmbH & Co. KG
Michael Koch	Mitteldeutsche Eisenbahn GmbH
Sven Köcke	Finsterwalder Transport und Logistik GmbH
Stefan Kunze	Hafen Hamburg Marketing e.V.
N.N.	DHL-Hub Leipzig GmbH
Holger Seidel	Fraunhofer Institut für Fabrikbetrieb und -automatisierung
Stanislaw Wittkowski	Deutsche Binnenreederei AG
Prof. Dr.-Ing. Hartmut Zadek	Institut für Logistik und Materialflusstechnik
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10. List of Abbreviations, Title to Figures and Maps

List of Abbreviations

ARA Ports	The Ports of Amsterdam, Rotterdam and Antwerp
BAST	Federal Highway Research Institute
Bimodal	Combination of two dissimilar transport operators in transport execution
BMU	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BMVBS	Federal Ministry of Transport, Building and Urban Development
BMVBW	Federal Ministry of Transport, Building and Housing
BVWP 2003	Federal Transport Network Plan 2003
CO ₂	Carbon dioxide
DHL	Service provider for all express, courier and logistics services
DB AG	Deutsche Bahn AG
dB	decibel
ECRN	European Chemical Regions Network
EU	European Union
EUCOM	European Commission
EVU	Railway Transport Company
FoPS Programme	Urban Transport Research Programme - Initiative dedicated to improving traffic conditions in municipalities and also rural areas
Fraunhofer IFF	Fraunhofer Institute for Factory Operation and Automation
g	Gram
GPS	Global Positioning System
GALILEO	European satellite navigation system
ha	Hectare
ICT	Information and Communication Technology
IHK	Chamber of Commerce and Industry
Ifak	Institut für Automation und Kommunikation
INPOSA	Investorenportal Sachsen-Anhalt (invest-in-saxony-anhalt.com)
INTERREG	Interregional cooperation of regions within the EU
Intermodal	Multi-link transport chain with at least two dissimilar transport operators
IRP	Outline Investment Plan
IVS	Intelligent transportation systems
km	Kilometre
km/h	Kilometres per hour
KTSK	Kombi Terminal Schkopau GmbH
KV-Terminal	Combined transport terminal
HGV	Heavy goods vehicle
m ²	Square metre
MF AG	Mitteldeutsche Flughafen AG
MIDAS	Central German logistics development, test, transfer and marketing platform giving particular consideration to Galileo-assisted telematics services
bn	billion
MLV	Ministry of Regional Development and Transport of the Land of Saxony-Anhalt
CEE	Central and Eastern Europe
MOSAIQUE	Transport research project (Initiative in the middle of Germany to establish a strategic, intermodal, qualitative and efficient cross user transport management network)
MW	Ministry of Science and Economic Affairs of Saxony-Anhalt
NASA	Nahverkehrsservice Sachsen-Anhalt GmbH
NF Railways	Non-federal railways
NO _x	Nitrogen oxides
NST	Nomenclature for transport statistics
PT	Public transport
PET	Pan-European Transport Corridor
RFID	Radio-frequency identification

Ro-Ro ramp	Roll-on/Roll-off ramp (vehicles can access decks of modern cargo vessels directly through bow, side or stern hatches)
SANASA Initiative	Saxony-Anhalt Satellite Navigation Initiative
SATNAV Initiative	Federal Satellite Navigation Initiative
TEN	Trans-European Networks
TEU	Twenty-foot equivalent unit (unit of cargo capacity for containers)
MT	Metric tonne
tkm	Tonne kilometre
TPS	Train Path Pricing System
Tracking and Tracing	Electronic system to track and trace consignments
Trimodal	Junctions of three dissimilar transport operators
VDE	German Unification Transport Project
VDTC	Virtual Development and Training Centre
VDV	Association of German Transport Companies
VMK	Conference of the Ministers of Transport
ZBA	Train marshalling and handling facility

Title to Figures

Ministry of Regional Development and Transport of the Land of Saxony-Anhalt	Preface 5 (right), 42, 43, 44, 63, 81, 86, 88
Hafenbetrieb Aken GmbH	6 (top left), 27 (top)
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