



Foto: Volker Emersleben

Operations at DB Netz: the network control centre

Integrate. Dovetail. Connect.

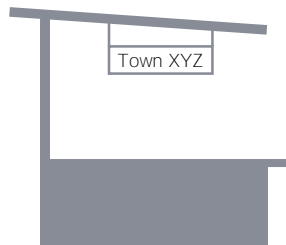
DB Netz AG | I.NPB 3(N) | 18 September 2017



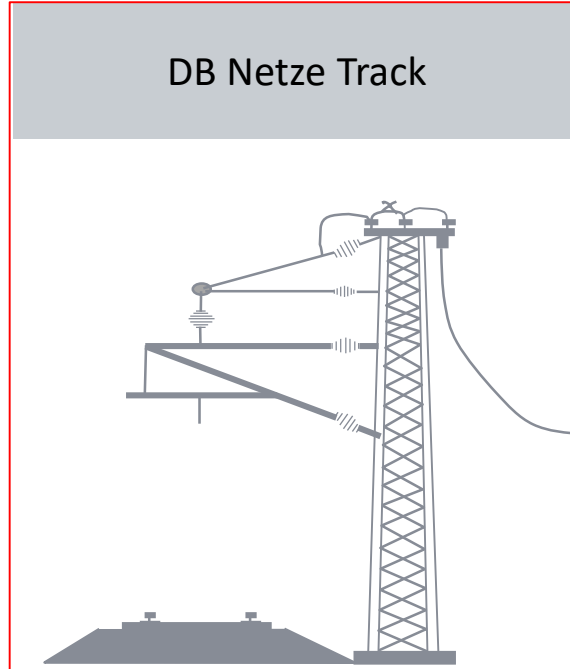
DB Netze Track is one of three infrastructure companies in the Infrastructure Division of the DB Group

DB Netze Stations

- Offers a portfolio of station stops
- Rents out commercial premises
- Provides other station-related services

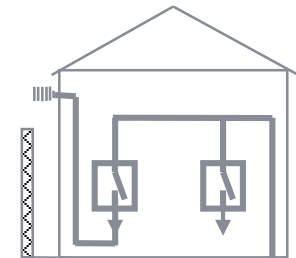


DB Netze Track



DB Netze Energy

- Sources and delivers traction power
- Designs and delivers energy infrastructure
- Provides other energy-related services



- Offers a variety of train path categories (express, fast, regular-interval, etc.) for passenger and freight transport
- Operates, performs maintenance on and upgrades the German rail network
- Markets and operates rail transport facilities (storage sidings, marshalling yards and transshipment terminals)

- Provides infrastructure links to third parties, such as multimodal terminals and other infrastructure companies
- Offers ancillary services such as statistical analysis, pilot services and provision of performance data

DB Netze Track operates the largest rail network in Europe



60,500 km of track

66,500 switches and crossings

2,800 signal boxes and interlockings

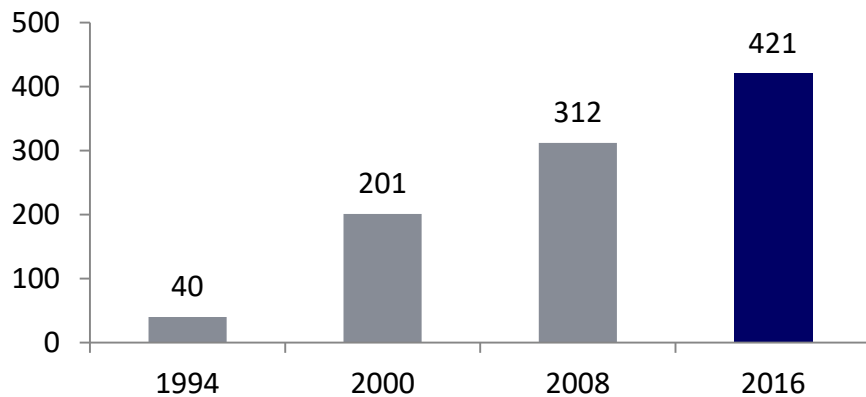
25,000 bridges and viaducts

700 tunnels

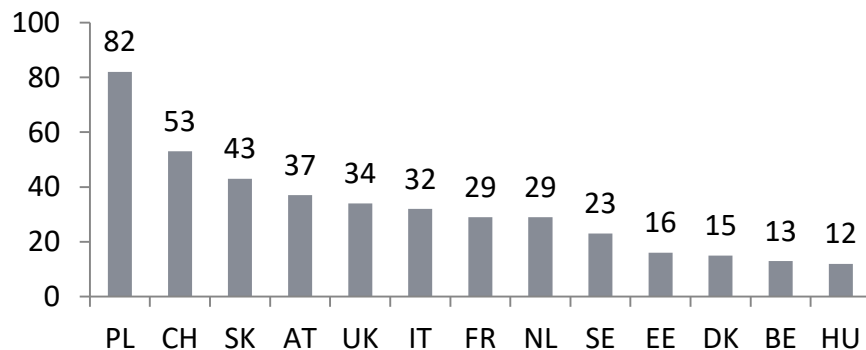
13,800 level crossings

DB Netze Track guarantees all licensed rail companies open access to its rail network

Number of rail companies using the DB network



Number of rail companies by European country (2015)



- In 2016, **421 rail companies** used the DB rail network; **404** of these were **companies not owned by the German government**
- The number of rail companies has increased sharply **since the German Rail Reform in 1994**, with **competition** on the German rail network growing steadily
- The DB Netz **Network Statement** stipulates the **basic terms and conditions** for network usage
- In 2016, **non-DB companies** accounted for roughly **one-third** of the **traffic volume** offered on the DB network
- Deutsche Bahn is a pioneer in market liberalisation, as a comparison with the rest of Europe shows

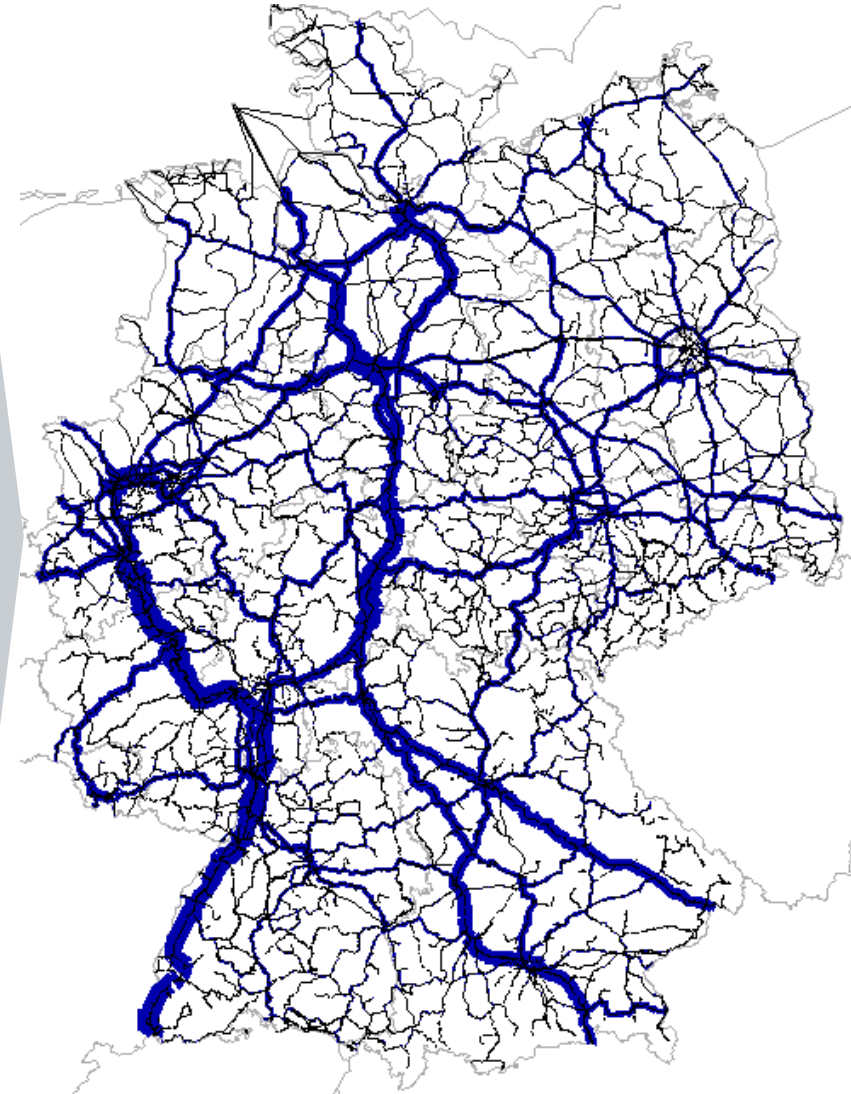
Ensuring high operating quality is a daily challenge – and quality is dependent on a variety of factors

- There are a number of **aspects specific to the German network** which pose a **daily challenge** for rail operations:
 - High **concentration** of traffic on a few **main corridors** and **hubs**
 - High percentage of **mixed traffic**, high number of **regular-interval services** and high degree of **timetable integration**

- There are several **key factors** in **DB Netze Track's area of responsibility**:
 - The timetable
 - The availability of infrastructure and facilities (control-command and signalling, and traction power)

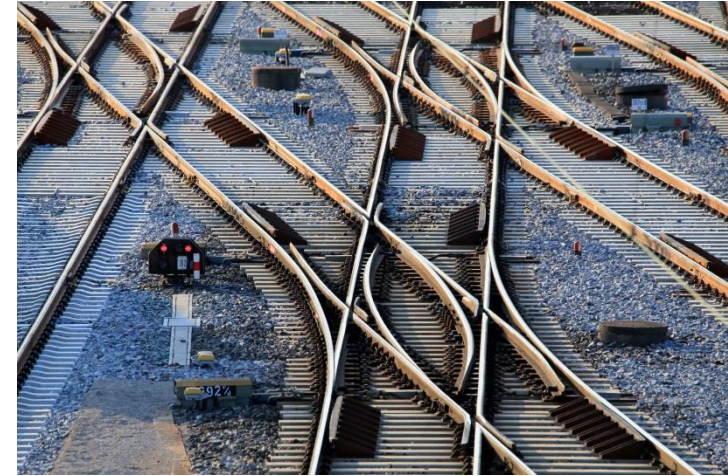
- There are also factors in the **operators' area of responsibility**:
 - Rolling stock operations planning and availability
 - Staff scheduling and availability

- Rail operations are affected by **external** factors as well:
 - Extreme **weather** (e.g. thunderstorms, gales or heavy rain)
 - **Accidents** involving injury or death
 - **Criminal interference** with rail traffic (e.g. arson attacks or bomb threats)



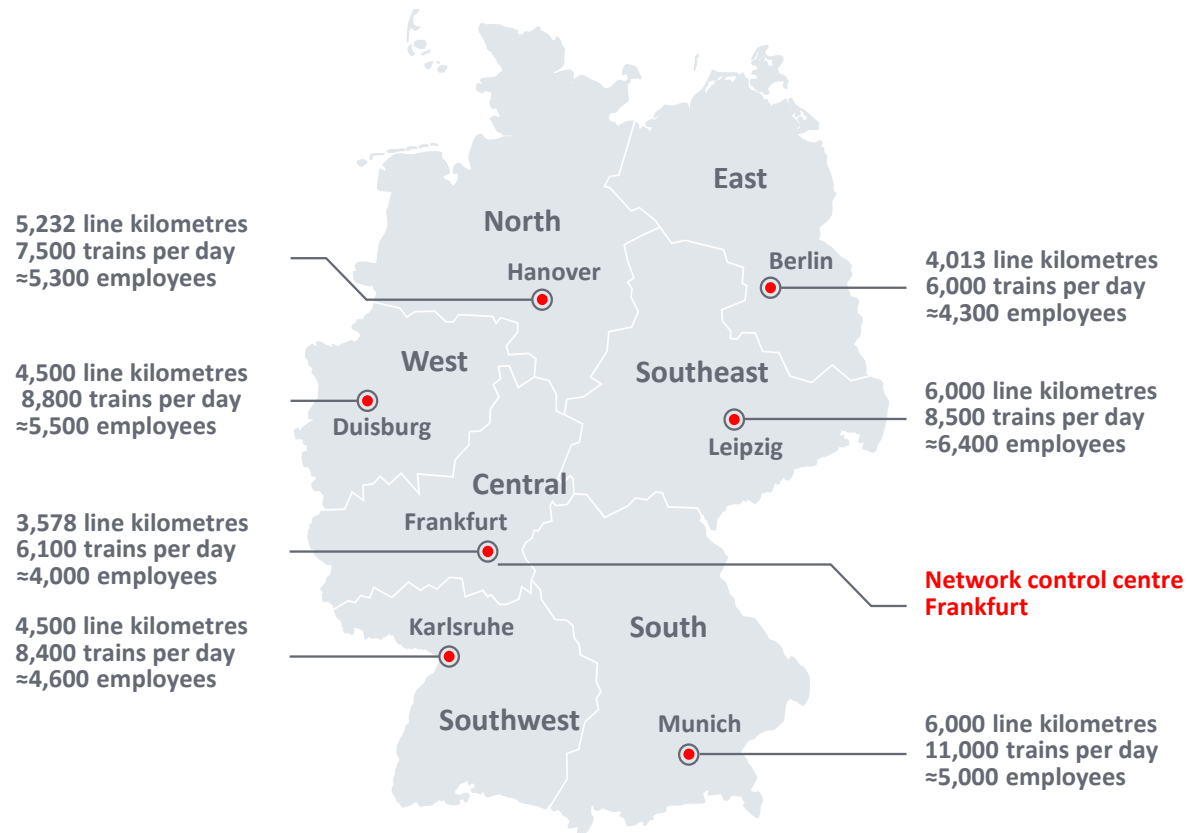
Rail operations are subject to the highest quality and safety standards

- The operations team controls traffic on the rail network of DB Netze Track
- Several processes are involved in operations control:
 - **Planning of operations** (regulations, policies and operational process design)
 - **Execution of operations** ("production"), involving the following processes:
 - **Control** (actual operation of trains)
 - **Dispatching** (ensuring efficient infrastructure use in terms of punctuality and capacity)
 - **Coordination** (managing rail operations at the interface between infrastructure companies and operators)
 - **Analysis of operating processes**
- The operations team is also responsible for on-site **emergency management** when incidents occur:
 - Providing an emergency manager who can advise non-DB emergency response workers
 - Providing assistance when trains have to be evacuated



DB Netze Track employs 42,000 people, who work each and every day to ensure smooth rail operations

- DB Netze Track has **seven regional units** and one **head quarter**
- There are a total of **eight operations centres** in the regional units; each operations centre controls and coordinates traffic in its **region**
- A **network control centre** coordinates **national traffic** and helps manage **disruptions which affect more than one region**



There have been consistent improvements to the organisation of operations management and operations in Germany over the years

The organisation of operations management is closely linked to improvements in signalling technology:

1917: Establishment of chief operations control

1928: First traffic control units

1940: Central operations control

From 1950:
Chief operations control centres established in both East and West Germany

1980: First computer-aided train monitoring

1990: Work begins to assess possible consolidation of operations control organisation

1997: Network control centre established

Network control centre anniversary; dispatch system modernisation project

1905: First standardised mechanical signal box



1930: First standardised electromechanical signal box

1950:
First relay signal box



1985: First electronic signal box

The performance analysis team is responsible for analysing operations on a continuous basis

■ Performance analysis team:

- **Team leader:** Sascha Vielmetter
(+49 (0) 69 265-19768)
- **Seven employees**
- Responsible for **analysing and reporting on punctuality and delays**



- The **performance analysis** team constantly evaluates and analyses data on German and international **operating processes** and **performance**
 - The operations control system forms the basis for data used in quality and performance statistics
 - The system is used to prepare reports for over 400 internal and external recipients on a regular basis
- By **revealing weaknesses** in the rail system, the **analyses** and **reports facilitate company management** at the operational level
- Some **200 reports** and **10,000 standardised** statistics in total are prepared **each month**
- Experts are also available to answer **ad hoc queries** frequently submitted on the current operational situation

The Freight Operations Management strives for improving the quality of freight operations

■ Freight Operations Management:

– Team leader:

Tobias Behringer (+49 (0) 69 265-19767)

– Four employees

– Responsible for **Performance and Traffic Management for freight trains**



- The DB Netz AG has a key role in the international Freight Traffic.
Six out of the nine European Rail Freight Corridors run through Germany.
- Team serves as a point of contact for more than 150 Railway Undertakings (RUs) for operational questions and requests
- Enhances the networking in the field of European Operations (cooperation with Infrastructure Managers (IMs) and RUs
- Multiple actions to improve quality and operations on the corridors, e.g. guidelines for the dispatching, cross-border management
- Derives key performance indicators for a further improvement of the quality in the Freight Traffic
- Defines requirements for international IT System in the area of quality and operations

The Team Network Operations **strives for improving the quality of freight operations**

■ **Team Network Operations:**

– **Team leader:**

Torsten Weißhaupt (+49 (0) 69 265-19771)

- Responsible for coordination of long distance passenger and freight trains



- The team coordinates daily up to 1.500 long-distance trains and over 1.000 national/international freight trains 24/7.
- It is in control of the national incident-management
- Operates the application of the Emergency Cranes and the rescue trains.
- Cooperation with Traffic Control Center of the RUs, the Infrastructure Manager of the neighbouring countries as well as the regional traffic control centers.
- Steers the Quality Management of the train dispatching
- Provides information to the Management for major incidents – at a short notice and up-to-date.
- Supervision of the local “PlanStart-Teams” (Project to improve Starting Punctuality of long distance passenger trains at the most important stations)

Thank you for your attention !