

**DIE BAHNINDUSTRIE.**

VDB VERBAND DER BAHNINDUSTRIE IN DEUTSCHLAND E.V.



## *The Railway Industry in Germany*

With excellent and economic railway systems for more sustainable traffic on railway tracks





## *The Railway Industry in Germany*

With excellent and economic railway systems for more sustainable traffic on railway tracks



## *Contents*

*Mobility in a changing world*

*Railway technology in Germany – Complete range of leading technology*

*Excellence – High-technology and service that motivate*

*Economic viability – Efficiency that convinces*

*Sustainability – Environment and climate friendly mobility*

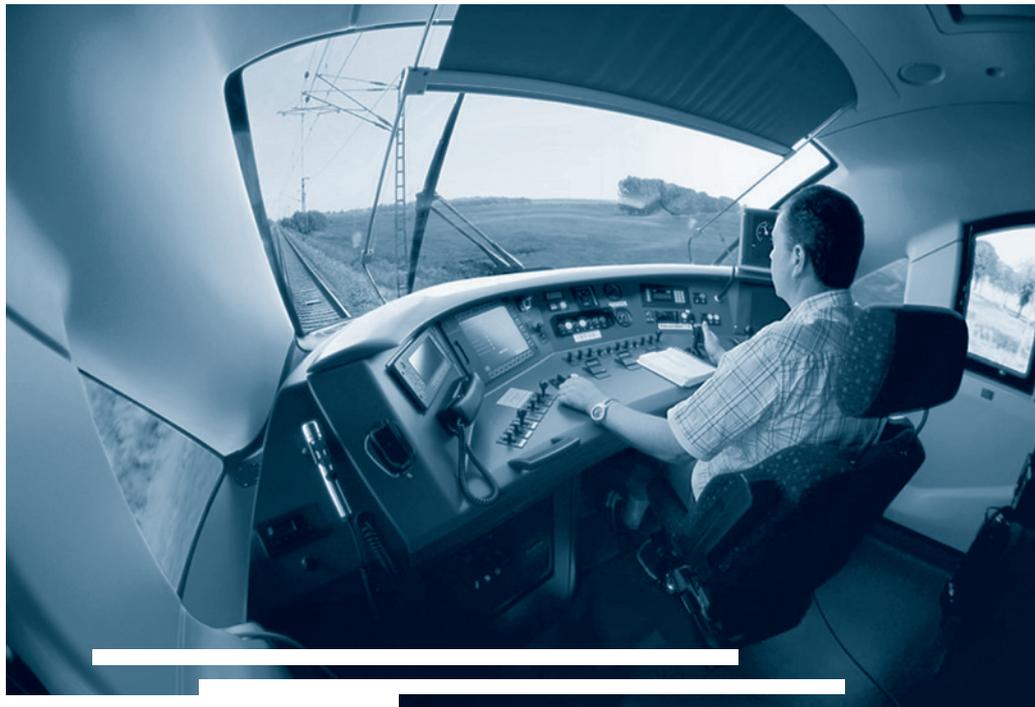
*United in our quest for increased use of the railways as a means of transport –*

*The German Railway Industry Association (VDB)*

*Committed to railways: The VDB in the political arena*

*Organisational structure of the VDB*

*Objectives and tasks of the VDB*



“Economic cooperation thrives better the more we know about the way our partners live, think and speak.”

Richard von Weizsäcker, Former President of Germany

“The railways are the largest productive deed, not just of the 19th century, but ... of all history ...”

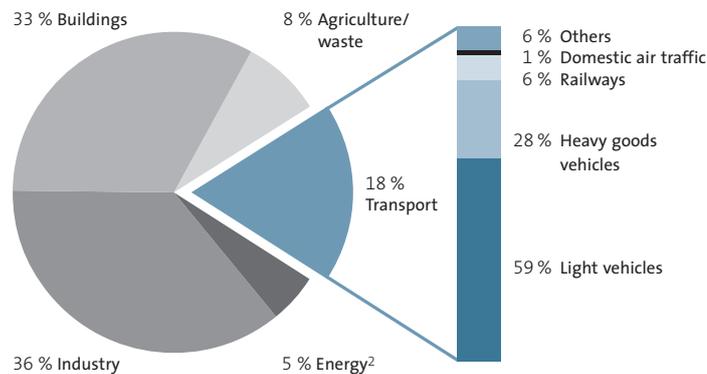
Werner Sombart (1863–1941), Sociologist and state economist



## Mobility in a changing world

### Mobility

Being mobile is a basic human need. Mobility enables participation in an active and self-determined lifestyle. Mobility allows people to discover the world, exchange views and to determine the extent of their own living space individually. Mobility is the prerequisite for the exchange of goods, i.e. the medium of the flow of goods across the globe as a basis of economic growth and welfare. Mobility connects countries. This applies in particular to Germany as a transportation hub in the heart of Europe, which results in many opportunities as well as big challenges to the present and future planning of mobility.



Railway traffic only accounts for one percent of the total annual greenhouse gas emissions in Germany. On the other hand, road traffic emitted about 16 % (about 159 million t CO<sub>2</sub>e) in the year 2004.

Source: McKinsey 2007, VDB 2007

100 % = 1.025 Mt CO<sub>2</sub>e<sup>1</sup>

<sup>1</sup> CO<sub>2</sub>e = CO<sub>2</sub> equivalents

<sup>2</sup> Indirect emissions are allocated to the respective energy consumers in each sector.



### *The challenge*

Mobility has to be measured in terms of how to overcome the present and future challenges our earth poses:

Catchword *climate protection*: Greenhouse gas emissions must be clearly reduced to keep the consequences of climate change at a minimum for humans and for nature. The transportation sector must make a contribution to this end. Today, railways are already an environment and climate friendly pioneer in this area.

Catchword *mega cities*: The percentage of the world's population living in urban centres is rapidly increasing. By 2030, 80 per cent of the world's population will already be living in cities. In spite of this, people should remain mobile, even in densely populated cities with millions of inhabitants and the metropolis should continue to be a space we can live in. Numerous technical innovations in railway traffic already ensure that millions of people have a means of transport – fast and comfortable, free of barriers and safe.

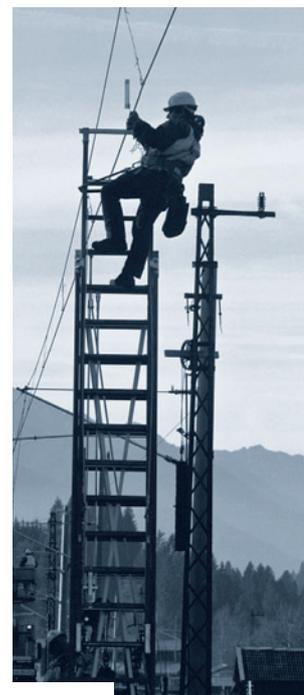
Catchword *space*: The more people live in cities, the more cramped and valuable is our surrounding space. Means of traffic that use up little space therefore provide ample solutions for urban development suited to the future. Metro lines running underground, city railways running over ground as well as trams and regional trains mean that railway traffic is by far the most economical means of transport in terms of surface area.



## *Railway technology from Germany – Complete range of leading technology*

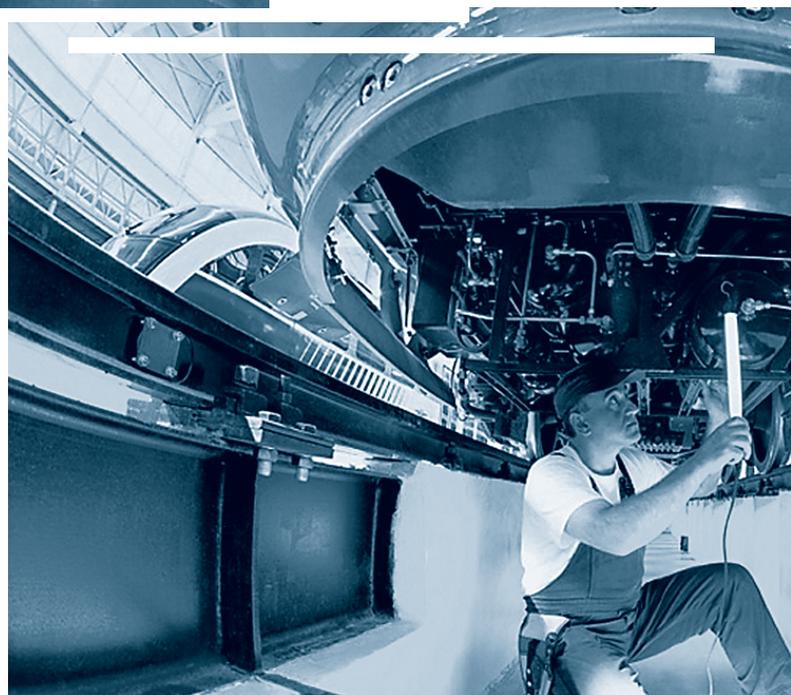
Railway technology manufacturers in Germany assume a high degree of responsibility. They work on the development of further climate friendly and energy saving technologies at full speed. The railway industry in Germany is made up of more than 130 companies, including large system houses for the development and production of complete railway systems for passenger and goods traffic as well as a broad basis of medium sized companies that supply specialised and innovative railway technology components and subsystems. In addition to this are competent service providers such as engineering, testing and leasing companies.

Germany is one of the few countries in the world where all these companies that manufacture the full range of railway technology accessories and complete railway systems are based. They manufacture high speed trains, multiple-unit train coach, touring cars and double deck coaches, locomotives, underground and over ground trains, trams as well as goods waggons. Apart from all this, they also manufacture all necessary fittings, such as air conditioners, doors and brake systems. Along with rolling material, railway industry companies also produce components and systems for railway infrastructure, from track superstructure to overhead lines up to the so called “rail intelligence”, guiding and safety technology. This includes the entire product range for the new standard for all of Europe in railway traffic across countries, the *European Rail Traffic Management System (ERTMS)*, and much more.



Railway technology manufacturers in Germany supply railway transportation companies on all five continents. Their customers include both large national railway companies and operators of public passenger transport systems as well as a large number of private transportation companies. The system houses of the railway industry are leaders in technology and in the market in the railway industry worldwide. Each one of them is in a position to implement a ready-to-use railway system. They work hand in hand with the medium sized supplier industry, which has developed into one of the most productive and most innovative industries in Germany in the past few years. It includes far more than 100 highly specialised companies of different sizes. Everything one needs to manufacture railway systems in Germany is available from German technology leaders. Three properties distinguish the development of railway technology manufacturers in Germany: excellence, economic viability and sustainability.

A complete range at a global leading level – railway technology from Germany: High-speed trains, locomotives, regional trains, carriages, metros, commuter trains and trams, fully automated metros, equipment for track superstructure, carriageway systems and electrification, command and control technology, electrical and mechanical vehicle equipment, information and communication technology, services covering tracks and trains, telematic systems for inter-modal networking of different modes of transport, turnkey systems as well as diverse railway technology components that have meanwhile also been successfully implemented by other branches of the industry.



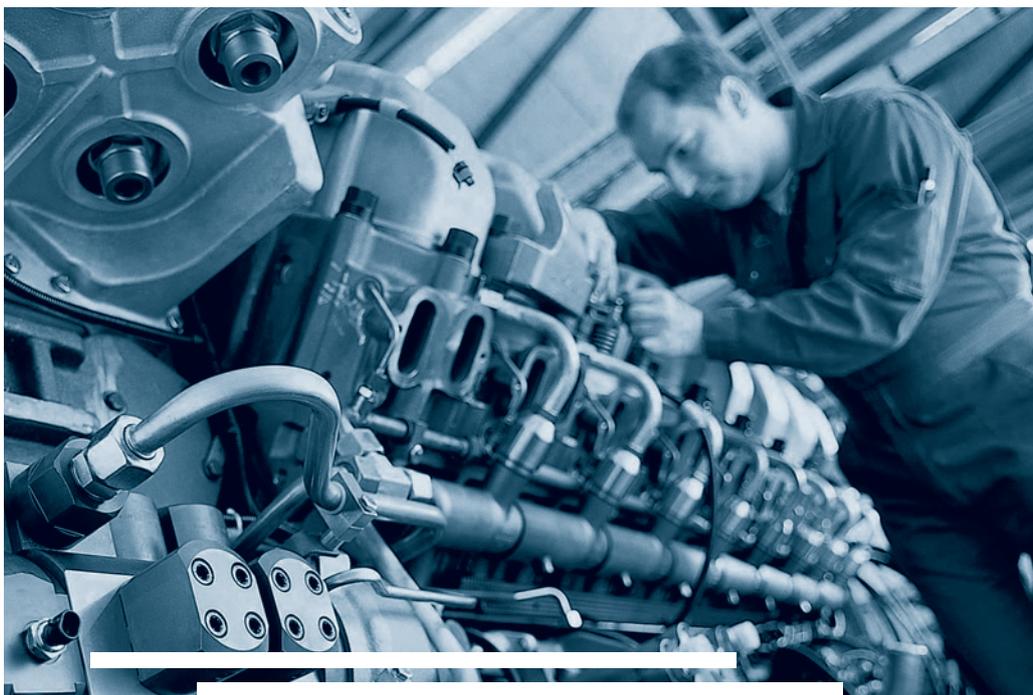
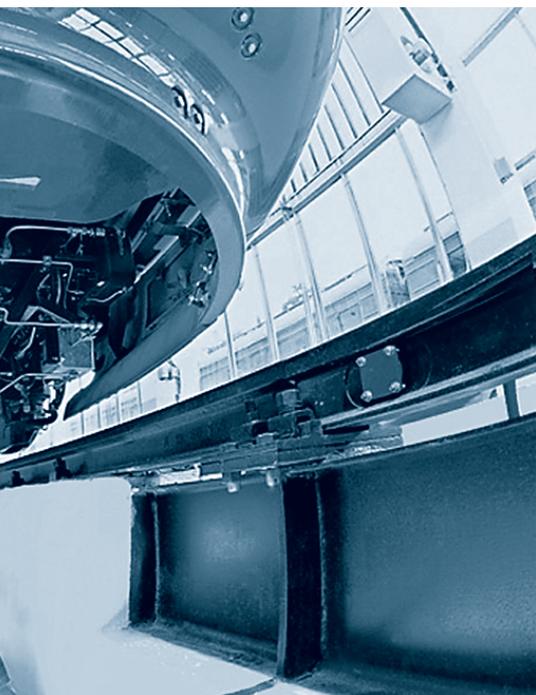
## *Excellence – High-technology and service that motivate*

### *Engineering as art*

Excellent work fulfils the demand for outstanding quality. This becomes evident in precision, reliability and technological maturity. These aspects of German railway technology are excellent in the true sense of the word. It is engineering as art on the basis of age old experience and a continuously developing knowledge. Sophisticated *German Engineering* is combined with technology leadership that paves the way for the future. Each individual component is produced to meet the high level of technology and goes through extensive checks. The responsible combination of supervisory and approving bodies such as the *Eisenbahn-Bundesamt* (Federal Railway Authority) or *Benannte Stelle Interoperabilität* (Notified Body Interoperability, Railway-CERT) has become a synonym for the safety and reliability of German railway technology. It is the irreversible claim of railway technology manufacturers in Germany to fulfil this anew every day.

### *Service*

Extensive and precise maintenance and repair work is indispensable for permanent, smooth and safe operation on railway tracks. Railway technology manufacturers in Germany offer this one-stop service to railway companies throughout the world for their railway systems. Thus, further technical developments can be adapted to individual operational conditions and at the same time, form the basis for innovations tried out in practice.



### *Innovation*

Technological innovation, progressive solutions and the development of improved technical processes form a continuous and natural basis for the introduction of new products for German railway technology manufacturers. Innovations in railway technology now pursue highly successful strategies in the reduction of energy and greenhouse gases, in noise reduction and the decrease of life cycle costs. The range of innovations extends from the light construction method with carbon dioxide fibre parts for metros through the re-feeding of brake energy and its interim storage using innovative capacitor technology. In locomotive construction, a good example is the development of an innovative hybrid cargo locomotive. Engine manufacturers have successfully been working on new engine generations for use in diesel locomotives and railcars, which also correspond to the strict exhaust gas limit values of the future. Exhaust gas recirculation as an internal engine measure counts just as much as a technological solution here as the post treatment of exhaust gas. Companies develop new electronic control centres and a wide range of highly modern infrastructural equipment. The so called “slab track” is part of the innovations in track superstructure, a completely scrap-free railway track. Fully automatic driving systems already allow the future to become a reality today in some cities. The enormous efforts in reducing track noise now concentrate on the source of noise, wheel-track contact. There are many developments for this purpose in the portfolio of the railway technology manufacturer such as wheel sound absorbers and rail sound absorbers – ensuring that railway traffic only moves at a whisper in future.





## *Economic viability – Efficiency that convinces*

Railway traffic is efficient and highly productive, saves energy and is an attractive means of transport. The technical components and total systems of railway technology manufacturers categorically follow the principle of economic viability in their design, keeping the highest possible efficiency in mind. They have a long life, are easy to maintain and highly functional. They therefore only incur reasonable life cycle costs to transport companies. The demand for efficiency that is placed on technological details and continuously advanced can also be found in the railway operation: the transfer of freight goods to railways contributes to the decrease of costs per item during transport and to relieving roads and the environment of a burden. Efficiency also means routes without jams and high speed, i.e. safety and reliability, high degrees of utilisation of routes and a large transport volume. The economical use of resources forms the indispensable basis of efficiency, through which economic viability and climate protection go hand in hand.



## *Sustainability – Environment and climate friendly mobility*

Trains are environment and climate friendly means of transport that require little spaces. Cautious handling of resources, saving fossil energy suppliers such as natural gas and coal, avoidance of CO<sub>2</sub> emissions to protect and maintain nature, environment and climate are now the responsibility of society as a whole and of all of us.

With annual emissions of about one gigatonne of greenhouse gases a year, Germany counts as one of the biggest emitters worldwide. The transport sector in Germany contributes considerably to greenhouse gas emissions with a share of one fifth. However, railways cause only about one per cent of all greenhouse gases emitted in Germany. In goods traffic, transferring transportation from the road to the railways by only one per cent prevents 500,000 tonnes of CO<sub>2</sub> emissions annually.



There is also great potential for environmental relief in the area of passenger traffic. 28 million passengers use buses and trains every day. Without short-distance public transport, the country would have to tolerate more than 18 million additional car journeys every day. The performance of public transportation in Germany saves 15 million tonnes of carbon dioxide every year. That is as much as the city of Hamburg emits annually.

The consequences of climate change result in a gloomy outlook. The risk of floods, storm surges, heat or cold waves and storms is increasing all over the world. In view of these extreme phenomena, we must aim at adopting measures that stop climate change. This can be achieved by a drastic reduction in carbon dioxide emissions. Only this can reduce the number of future natural catastrophes and ensure the quality of life for the people on this earth.

Railway traffic and railway technology manufacturers in Germany assume responsibility for this. They make an important contribution to the environment and climate protection through innovative technologies.



## *United in our quest for increased use of the railways as a means of transport – The German Railway Industry Association (VDB)*

German railway manufacturers are organised under the umbrella of the German Railway Industry Association (VDB). Its members include the big system houses as well as all important medium sized enterprises in the industry with more than 130 member companies. The VDB represents the interests of its members towards politics and the media, ministries and authorities as well as railway transport companies and institutions and has been doing so for more than 130 years.

The VDB is organised into 19 topical groups and working groups which appoint experts to the member companies. In their regular meetings the association develops contributions to further development of the now already environment and climate friendly railway technology with representatives of the companies. The Deutsche Bahn AG (German Railways) is the largest domestic customer of the German railway industry. Apart from that there are also numerous privately and publicly financed short and long distance transport operators in Germany, Europe and the world that successfully use railway technology *Made in Germany*.

Therefore, one of the concerns of the association is the promotion of fair business conditions between system houses and suppliers. Through dialogue between industrial representatives and railway operators, the association continuously promotes relations



with customers. This also includes improvements in the ability of the railway industry to compete through technical cooperation in the pre-competitive phase and improvements in business processes.

Moreover, special support is provided to medium sized member companies in their export activities, also through promotion by the Federal Ministry of Economics and Technology. The VDB regularly initiates business trips and participation in trade fairs abroad, which has allowed medium-sized railway technology manufacturers to establish business contacts on almost all continents in the past decade.

The German Railway Industry Association (VDB) dates back to the Verband der Deutschen Lokomotivfabriken (Association of German Locomotive Factories) founded in 1877. In January 1991 the Verbände der Deutschen Lokomotivindustrie (VDL) und der Waggonindustrie e.V. (VdW, Associations of the German Locomotive Industry and Rail Car Industry) merge into the Verband der Deutschen Bahnindustrie e.V. (VDB). In October 1999 VDB gets a new association name. It is now called "Verband der Bahnindustrie in Deutschland (VDB) e.V.". In spite of being concentrated in the industry, the number of locations of companies in the VDB organisation is on the rise. In December 2002, the association relocates its headquarters from Frankfurt am Main to Berlin based on a unanimous decision by the members' meeting. To date, VDB works from the German capital as the political centre of the country.



## *Committed to the railways: The VDB in the political arena*

Germany is a country of trains and railways. The Federal Republic of Germany has a performance oriented, efficient and climate friendly mobility resource on a railway network of over 36,000 km, which has grown successfully in a period of more than 175 years. A modern railway infrastructure is indispensable for Germany to benefit from the numerous advantages of this transportation system now and in the future. The German Railway Industry Association (VDB) emphasises this point to politicians regularly. This is not an end in itself, aimed at going against the forces of society – it is an insight into common sense and responsibility towards government and society. The anchoring of priority for railways in German and European transport policies is thus a central guiding principle for the German Railway Industry Association (VDB).

In view of the high requirements of environmental and climate protection as well as the protection of resources, the role of the railways is more important than ever. Responsible governance, which gives importance to planning transport so that it suits future needs and is efficient, cannot deny its commitment to the railways. Commitment to the railways requires a wide extent of political commitment. Germany needs investment programmes to promote innovation for future railway technologies in a more intense manner than has been done till now. It is only in this way that Germany can ensure its top position in this area in the long run. But the speedy introduction of modern railway technology must also be supported by the government more than it has been in the past.

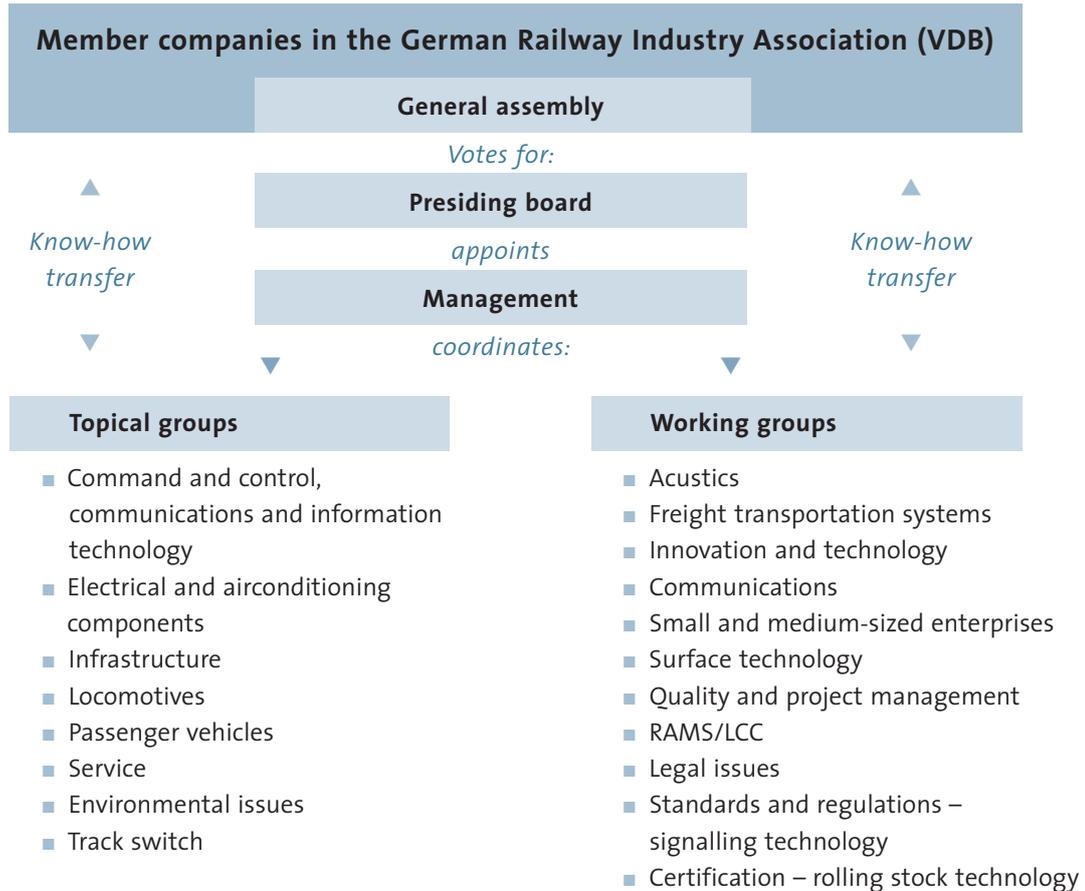


Commitment to the railways also means introducing more financial incentives from road transportation to railway transportation, so that traffic on the roads continues to flow and the climate finds relief. We must accelerate development of European railway corridors in Germany to intensify international travel on railways. Competition in means of transport can only unfold its progressive forces if it is designed in a fair manner at the right time. Commitment to the railways also means ensuring continuous and sufficient investment in Germany's own railway network – for present and future generations.

An important prerequisite for the growth of railway transport is the liberalisation and the controlled deregulation of European railway transport markets. No Thatcherism, but meaningful reduction in bureaucracy and trade barriers, which enables growth, innovation and modern proposals for mobility for humans and goods. This also includes the objective of a “Schengen on Rails”, i.e. the mutual approval of trains in cross border transport between EU member countries, also known as *Cross Acceptance*. The technical harmonisation of the European railway area is also connected to political concerns for German railway technology manufacturers: The development of the *Technische Spezifikationen für Interoperabilität (Technical Specifications for the Interoperability, TSI)* and the standards in Germany and Europe must therefore be designed in such a manner that their use leads to improvements in quality and increase in competitiveness for manufacturers.



## Organisational structure of the VDB



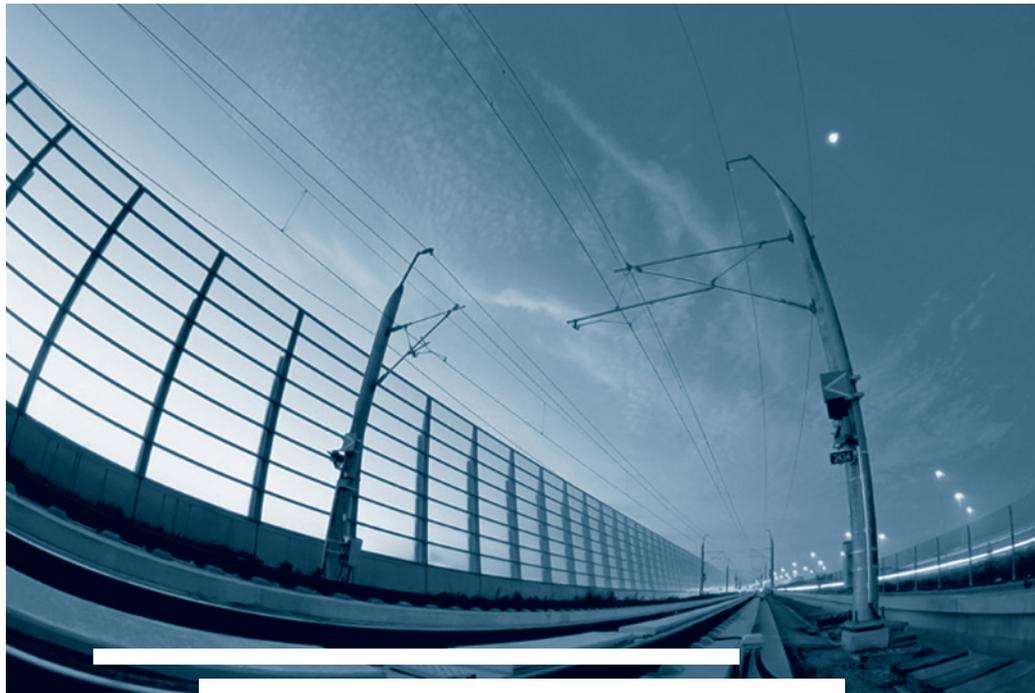


## *Objectives and tasks of the VDB*

- Representing the interests of the railway industry in German and European transportation and economic policy/intensification of the industry profile in public
- Promotion of the liberalization and controlled deregulation of the railway transportation market as a guarantee for economic growth in Europe
- Improvements and further development of approval practices for railway technology in Germany and Europe (*Cross Acceptance*)
- Initiation and coordination of development and innovation initiatives for railway vehicles and railway infrastructure
- Cooperation in the development of standards and Technical Specifications Interoperability (TSI) in Germany and Europe with the objective of reducing industrial costs and improving technical quality
- Intensification of the railway industry's ability to compete through technical cooperation in the pre-competitive phase and through improvements in business processes
- Promotion of fair business relations, on the one hand to railway operators as customers of railway technology manufacturers, on the other hand between system companies at all levels for mutual benefit
- Support in obtaining and developing export business for member companies

ou can find an updated overview of the member companies of the German Railway Industry Association (VDB) as well as a lot of additional information on the railway market and rail traffic on the website [www.bahnindustrie.info](http://www.bahnindustrie.info)





© VDB

Editorial department: Sascha Nicolai, VDB

Status: June 2010

Photo credits (from left to right for each page)

Cover: Ulrich Miethe | DB AG, Lothar Mantel

P. 2-3: Siemens AG Mobility | Bombardier Transportation

P. 4-5: Siemens AG Mobility (all photos)

P. 6-7: Siemens AG Mobility | Stadler Pankow | Bombardier Transportation | Grafik VDB

P. 8-9: Siemens AG Mobility | Bombardier Transportation | Bombardier Transportation | DB AG, Maximilian Lautenschläger

P. 10-11: Bombardier Transportation | Siemens AG Mobility | mtu Friedrichshafen

P. 12-13: Alstom Transport Deutschland GmbH | Anne Kreuz Fotografie

P. 14-15: Ulrich Miethe | Siemens AG Mobility | Alstom Transport Deutschland GmbH

P. 16-17: Ulrich Miethe (all photos)

P. 18-19: Anne Kreuz Fotografie | Bombardier Transportation | Bombardier Transportation

P. 20-21: Anne Kreuz Fotografie (all photos)

P. 22-23: Siemens AG Mobility (all photos)

Back cover: Balfour Beatty Rail, Harald Schön | Ulrich Miethe

Design and layout: Booth Design Unit

Image processing: Dietsche & Gebhardt

Print: Printing Company Conrad Berlin



Verband der Bahnindustrie  
in Deutschland (VDB) e.V.  
German Railway Industry Association  
Jägerstraße 65 | 10117 Berlin-Mitte  
Phone + 49 (0)30 - 20 62 89 - 0  
Fax + 49 (0)30 - 20 62 89 - 50  
info@bahnindustrie.info  
www.bahnindustrie.info