

10th NEWSLETTER

EDITORIAL



The InnoTrans 2006 in Berlin is more than ever international platform for railway technology. It has become established as the world-wide leading rail technology fair and thus

is the visible competence prove of the region BerlinBrandenburg for both – as a leading supplier and an important market for rail system technology.

With the essential involvement in recently concluded and ongoing important European R&D projects, such as European Driver's Desk (EUDD), ModularTrain, the Network of Excellence EURNEX and the newly started EUDDplus, the region BerlinBrandenburg acquires key capabilities for the European rail system of the future. Basis for the improvement of the railway's competitiveness towards the other modes of transport is the Europeanisation of this sector. A prerequisite for the success of this process is the involvement of all relevant stakeholders by continuing the proven consensus building approach within common projects.

One tangible result of this successful teamwork is the 1:1 industrial mock-up of the standardised driver cabin (EUCAB) and the passenger coach – both developed within MODTRAIN. You are invited to discover this major attraction at the common BerlinBrandenburg exhibition space on the InnoTrans 2006, Hall 3.2b, Stand 201.



Wolfgang H. Steinicke
Managing Director
FAV Berlin/TSB

CONTINUALLY IMPROVING COMPETITIVENESS IN THE RAIL SECTOR: A CHALLENGE SHARED BY RAIL OPERATORS, INDUSTRY AND RESEARCH CENTRES

Statements by Hartmut Mehdorn, CEO, Deutsche Bahn AG

In the competitive transport sector only companies that develop their own attractive cost structures and pass these benefits on to their customers can succeed in the long run. This applies to railway carriers in general, since they are in competition with road, air and water-based transport. For Deutsche Bahn AG this means: achieving optimum cost-effectiveness by increasing productivity. With this goal in mind, a service company can only economise on human resources to a limited extent. This makes it all the more important to find effective alternatives for the complex - as well as expensive - technology of the rail network, namely solutions which in the long term reduce the high costs of purchasing and running the many technical systems involved.

Our current figures show we are on the right track. In the first half of 2006, passenger transport grew by more than 5% and railway freight by over 11%; over the same period we also doubled our operating results, with a sharp rise in productivity. In this way, we have grown at a faster rate than the German freight and transport market as a whole, but have also seen stronger growth than any other carrier.

However, there is still a lot of scope to make rail technology even more efficient and more competitive - and



Source: DB AG/Lautenschläger
Hartmut Mehdorn, CEO,
Deutsche Bahn AG

this is also an opportunity for the future. Success can only be achieved through teamwork between the rail operators, industry and research centres.

A so-called 'win-win' situation for customers and contractors alike must be our priority. This means, in essence, creating a virtuous circle of "more efficient technology - greater competitiveness - more customers - more transport - an increased demand for new railway systems".

Research can also play an important role in this process by coming up with practical and relevant solutions. One project of this kind is MODTRAIN. In this project the rail operators DB, SNCF and Trenitalia, in close cooperation with UIC rail operators and research centres, developed specifications which have

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enabled the rail industry to standardise vehicle interfaces extensively - a modular approach which will bring down costs as well as counteracting supply market monopolies.

A particular challenge for rail operators, industry and research centres, remains the fact that increased productivity through improved technology can frequently only be envisaged at a European level, since there is a great deal of growth potential for European rail routes. The technological diversity of the European railway system is an expensive luxury which puts it at a competitive disadvantage. Everybody wants the railways to be more international: politicians, rail operators, industry and not least of all our customers - for tourist traffic as well as freight. Yet one obstacle after the other lies strewn on the long and difficult path of standardisation. Our experiences over the last few years, for example the international adoption of the Type 185 and the ICE 3M, have shown how inscrutable international licensing procedures are. The current situation in Europe is still characterised by delaying tactics, in order to keep national structures in place for as long as possible.

The situation is different in both aviation and road transport: safety regulations

are set out in binding international guidelines which apply to all. The industry knows what it needs to manufacture to meet these safety conditions. Interoperability must be our primary goal. That's why we have long been part of international committees working on the 'Technical Specifications for Interoperability' (TSIs). One of Deutsche Bahn AG's vital objectives is the creation of a standard, straightforward European approval procedure for railway vehicles.



First ICE at Berlin Hauptbahnhof Source: DB AG/Lautenschläger

Deutsche Bahn, research centres and the rail industry have used their experiences of previous and on-going approval procedures in order to learn from them, identify key criteria, standardise procedures and speed up future ap-

provals. The railways should not waste any more time, since the market will not wait for them. They must become internationally competitive and acquire the capability which makes aviation and road transport so strong: to cross borders without any difficulties.

This is the idea behind the Innotrans in Berlin - an international showcase for the future of rail transport. It offers rail operators, research centres and industry

an ideal forum for exchanging ideas. What's more, Berlin in the meantime has also become a European railway capital: Deutsche Bahn AG, various other rail operators, and many research centres and rail industry companies are based here - in the centre of Europe. Public

awareness was raised even further by the opening in May this year of the new Berlin rail concept with its highly symbolic main train station and north-south tunnel.

A GLOBAL PERSPECTIVE ON POSITIONING EUROPEAN RAILWAYS - A NON-EUROPEAN EXPERT RECOMENDATION



At WCRR2006 in Montréal, the writer reported two factors that offer essential insight into railway positioning. First, Societal Orientation, resting on high-speed, high-tech, intense service, evokes the Western European passenger-dominated model. Second, Territorial Orientation, resting on line-haul freight, with strong private participation and liberal competition among technologically-aware railways, evokes heavy North American trains conveying bulk commodities or valuable goods over long distances.

These factors are mutually exclusive: They explain passenger railway sustainability in populous, compact countries, e.g. Japan; freight railway sustainability in extensive, moderately populated countries, e.g. in North

America; and freight- and passenger railway unsustainability in thinly-populated, compact countries, e.g. New Zealand. As globalization advances, Europe's railways face enormous challenges and huge market potential. Renowned for high-speed passenger rail, Europe's freight rail market share is small. Air travel caps passenger rail potential at ± 1000 km journeys, but heavy double-stacked container trains support competitive intermodal logistics over several thousand kilometres. While European railways' Societal Orientation is enviable, exploiting their undeveloped Territorial Orientation would unlock rich prospects.

Positioning fault-lines are already evident: Strategic high-speed passenger- and heavy freight infrastructure parameters (respectively steep gradients, minimal curvature; and easy gradients, moderate curvature), as well as

operational- and technical preferences, are at odds. As dedicated freight rail corridors gain credence, Territorial Orientation - competition on parallel routes, heavy haul technologies, innovative ownership options, and recognition of extended territory - should top Europe's railway agenda.



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The section Rail Vehicles is lead by Prof. Dr.-Ing. Markus Hecht at the Technical University Berlin. It is part of the Institute of Sea and Land Transport Systems. 25 ladies and gentlemen, most of them scientific personnel, work in the field of research and education. Research is done in the field of the mechanical part of all kinds of guided transport:

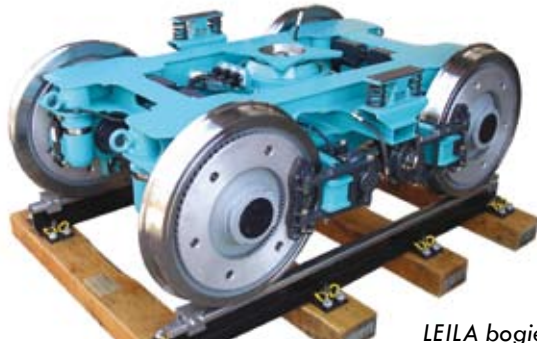
- High speed,
- freight traffic,
- maglev,
- regional trains and
- trams.

The education of students covers all relevant fields of rail traffic, especially design principles and dynamics of railway vehicles, propulsion and brake technologies and maglev technology. The traditional diploma-education is replaced by a new bachelor study course which starts next semester in October. A master study course will follow. Parallel to the education of students, at present ten scientific assistants are working in four main topics listed below. Topics of work are research in new vehicle systems, support in vehicle specifications for railway operators, trouble shooting and accident investi-

gations, optimisation of passenger flows on platforms and in vehicles.

■ Dynamics of rail vehicles

On behalf of the German ministry of education and research the railway section of the TU Berlin develops a quieter and lighter freight bogie as leader of a consortium of industry and



LEILA bogie

university partners. Further topics are dynamic simulations, dynamic optimisation by measurement of rail/ wheel profiles and experimental tribology investigations.

■ Passive safety of rail vehicles

Main focuses of these topics are longitudinal optimisation of subway trains, crash simulations and recommendations for construction and existing wagons as well as recommendations for occupants safety by simulation.

■ Acoustics of rail vehicles

methods of the acoustic research are modal analysis's for passenger coach cars, identification of problematic sound sources by acoustic analysis, calculation of acoustic diagnosis and sound design. Not only new vehicles are regarded but also retrofit of existing ones is made.

■ Telematic for freight transport

with special focus on derailment detection and diagnosis of transported goods condition. Actual research aspects are introduction of derailment detection into practice and development of software strategies to implement sensors dates into customers software.

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PORTRAIT OF A COMPANY NETWORK MEMBER - SIEMENS

SIEMENS

Siemens AG has a long and tense relationship since decades to the academic bodies in Berlin/Brandenburg. Actually there are 172 cooperations documented covering a very broad range from leading edge technology (e.g. nanotechnology) to well known applications (e.g. definition of the parameters of electrical machines). For a technology driven company it is essential to work closely together with the academic world for several reasons:

- to observe the leading edge sciences for knowing future developments;
- to get advice with actual problems where no internal knowledge is available;
- and last but not least to recruit personal with special knowledge

For Siemens Transportation Systems special knowledge is needed e.g. for wheel/track forces, train dynamics, bogie technologies but also for noise suppression, safety aspects and life cycle cost analysis.

Most of this knowledge is available in the Berlin/Brandenburg region e.g. at TU Berlin, Fakultät für Verkehrs- und Maschinensysteme, (Fakultät V).



Siemens/ÖBB's 1216 050 - the world's fastest locomotive after a 357 km/h world record run, will be used as demonstrator platform in EUDDplus.

In sum there are actually 32 cooperations between Siemens Transportation Systems and academic bodies documented.

A relatively new one is the relationship with FAV Berlin. FAV does a lot of coordination in partially European funded projects like European Drivers Desk (EUDD), Modular Train (MOD-Train) where Siemens Transportation

Systems is involved as well as EURNEX, a project to improve the exchange between European Universities dealing with railway aspects.

We wish FAV further growth and are looking forward to intensify our contacts to them.

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BOMBARDIER

Serving a diversified customer base around the world, Bombardier Transportation is the global leader in the rail equipment manufacturing and servicing industry. Its wide range of products includes passenger rail vehicles and total transit systems. It also manufactures locomotives, bogies, propulsion & controls and provides rail control solutions. Bombardier Transportation is a unit of Bombardier Inc., a global corporation based in Canada, world-leading manufacturer of innovative transportation solutions, from regional aircraft and business jets to rail transportation equipment. The headquarters of Bombardier Transportation is located in Berlin.



Source: Bombardier

A new train of the HG series for BVG (Berlin public transport)

In the last years Bombardier Transportation and FAV have developed a close partnership and are today collaborating with customers, suppliers and research institutes in several European research projects to draw up and prove innovations and to define the future standards in railways.

We have asked Dr. Martin Schön, responsible for the R&D and Innovation Management in the Division Mainline & Metros about his vision regarding future cooperation with the Research and Company Network in Berlin / Brandenburg.

■ Dr. Schön, how do you assess the situation today?

"To drive innovation the cooperation with Suppliers and Research Institutes is very important for us. Bombardier Transportation has reduced the vertical

range of manufacture significantly and we cannot perform extensive research on our own. The cooperation today is satisfactory, but I see further potential. Berlin / Brandenburg as well as other regions are looking for attractive transport systems which are highly cost-effective and easy to operate and for that we have to find advanced solutions."

■ What do you mean with that, what is your approach?

"Today we already cooperate with several universities and institutes on a very high level. This is mainly in the fields of mechanics and dynamics, active and passive safety, acoustics, aerodynamics and thermodynamics as well as industrial design, ergonomics, human factors and environmental improvements. It

has shown that his cooperation is beneficial for both sides. We get high end results and the research institutes touch ground. Our contacts in Berlin and Brandenburg are the Technical Universities in Berlin and Cottbus as well as several art schools and

specialized institutes. All of them have high expertise and for sure there are topics which can bring added value to railways. The critical issue is to surface the right ideas and to assure exclusivity to Bombardier."

■ Do you also cooperate with companies in the region in the fields of R&D?

"Yes, we do, but today this is not very distinct. But since Berlin / Brandenburg is developed as an Innovation Region with growing Networks of Competence this region is generating and attracting more and more innovative companies and Bombardier Transportation will have a close look on that. Today we are sourcing worldwide, but developing innovations is something else."

■ How will Bombardier Transportation perform R&D in the future?

"Bombardier will look for partnerships whenever this is promising. And we will define adequate business models with the selected partners. With this approach we feel confident to fulfil or even exceed the ambitious expectations of our customers."

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UPCOMING EVENTS

30.11.2006 TSB/BMWiT/Prognos Conference, www.prognos.com

08.-12.10.2006 ITS World Congress, London, Presentation of COOPERS, www.itsworldcongress.com

21.-25.01.2007 Transport Research Board 2007, Washington, D.C. www.trb.org

09.-11.05.2007 ORP 2007 Santiago, Chile; www.prevencionintegral.com/orpconference/2007



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