

Editorial

The InnoTrans that bi-annually takes place in Berlin is the world-wide leading trade fair for railway technologies. From 23rd to 26th September 2008, some 80.000 rail experts are expected to visit more than 1.200 exhibitors from 40 countries.

Interoperability is still a challenge for the rail system, in particular in Europe. A series of R&D projects, supported by the European Union, provide important elements to commonly develop new technological solutions, to standardise modules and thus to minimise costs. Two of these projects – MODTRAIN and Railenergy – that profit from essential contributions by organisations based in Berlin-Brandenburg, are described on the following pages. In hall 3.2 the project will present its results with seminars and lectures. Not to forget EURNEX – the well established European Rail Research Network of Excellence – visible at the TSB-FAV Innotrans booth this time.

The InnoTrans is a shop window for new products and services to optimise the rail system. It is also a forum to present the competence of more than 100 companies and research institutes located in the German capital region. We would like to invite you to visit the TSB-FAV InnoTrans stand to learn more about these capabilities.



Thomas Meissner
Managing Director
TSB-FAV

Innotrans

"Connecting Railways" at InnoTrans 2008



A one-stop shop for your business at the InnoTrans 2008 – International Trade Fair for Transport Technology – 23rd – 26th September, 2008

Europe Enterprise Network – Business Support at Your Doorstep in Berlin-Brandenburg

Since the beginning of the year 2008 the TSB Innovation Agency Berlin GmbH is a member of the Enterprise Europe Network. The network is an initiative of the European Commission's Directorate-General for Enterprise and Industry. It is a key instrument of the Competitiveness and Innovation Framework Programme (CIP), which focuses on supporting small and medium enterprises (SMEs) in their growth and innovation activities.

The Enterprise Europe Network is present in more than 40 countries, with around 4 000 experienced staff in 600 local partner organisations providing expert advice and services to EU businesses. In the German capital region Berlin-Brandenburg 20 experts in European issues from five institutions are involved: Berlin Partner GmbH, Brandenburg Economic Development

Board GmbH, Chamber of Commerce and Industry East Brandenburg, TSB Innovation Agency Berlin GmbH, VDI/VDE-IT.

Brokerage Event "Connecting Railways" at InnoTrans 2008

Representatives from businesses, universities and research institutes offering or requesting innovative solutions, investigating new collaborations and searching for adequate project partners will get a great opportunity to discuss their ideas face-to-face. The bilateral meetings with international experts of interest will pre-arranged to the InnoTrans.

For more information and registration visit www.fav.de/innotrans or contact:

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Next Generation Trains and Locomotives for smooth Operation across Europe

Overview

Innovative Modular Vehicle Concept for an Integrated European Railway System – MODTRAIN

The European Commission developed the Interoperability Directives which

proven-components in design.

The MODTRAIN project addressed four principal areas of the train architecture reflected by the subproject structure as shown in the figure below.

According to the thematic areas affected, MODLINK had been arranged into the working areas EUCAB, EUPAX, and EUCOUPLER:

EUCAB

The EUCAB working area was targeting the European-wide harmonisation of the train driver's workplace. This involved simulator tests of a full functional drivers desk demonstrator.

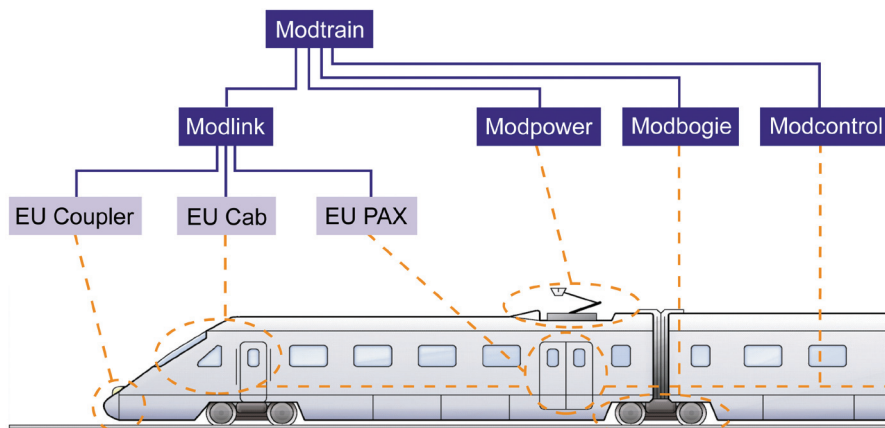
EUPAX

The international harmonisation of the HMI for passengers and train staff was the subject of the EUPAX working area – including improved access for persons with reduced mobility (PRM).

EUCOUPLER

The main objective of the EUCOUPLER working area was to specify the interoperable data link between trains and locomotives. It represented an important milestone towards the vision of "open coupling" – the seamless connection between trains from different operators all over Europe.

The methodology of MODLINK followed the overall MODTRAIN process: Based on the MODTRAIN-wide elaboration of the Functional Breakdown Structure (FBS) as well as Operational Requirement Specs the MODLINK-relevant items had been identified for further investigation, development, implementation, testing and standardisation.



set essential requirements so as to ensure safe and uninterrupted rail traffic on the Trans-European Transport Network.

Motivated by the potential gain in competitiveness, the supply industry and railway operators launched several research projects, i.a. MODTRAIN, considered as one of the biggest and most successful.

The Concept.....

Coordinated by UNIFE, the association of the European rail industry, MODTRAIN focussed on defining and proving the necessary functional, electrical and mechanical interfaces and validation procedures to deliver the range of interchangeable modules, which will form the basis for the next generation of intercity trains and universal locomotives.

The concept of modularity aimed at economic advantages for both railway suppliers and operators, such as reduced manufacturing costs and enhanced economies of scale, increased productivity of new rolling stock as well as improved reliability founded on a rise in proportion of service and

- ▶ **MODLINK:** The man-machine and train-to-train interfaces, led by TSB-FAV Berlin and Bombardier
- ▶ **MODPOWER:** The on-board power system, led by Siemens
- ▶ **MODCONTROL:** The train control and monitoring system, led by Alstom
- ▶ **MODBOGIE:** The running gear, led by AnsaldoBreda

MODLINK.....

MODLINK was responsible for elaborating, testing, specifying and standardising the interoperable human-machine-interfaces (HMI) for train drivers, train staff and passengers. In addition, MODLINK involved the train-to-train data interface. Co-chaired by Bombardier Transportation, FAV Berlin and UIC, MODLINK represented the biggest sub project of MODTRAIN with a budget of about 11.5 million Euro.



Due to the different origins, conditions and R&D approaches, the MODLINK

working areas followed individual processes. In each case an iterative interaction between industry, operators and scientists constituted the process from scientific investigations up to the conclusion about test results and proposals for European standardisation.

Some deliverables of the MODTRAIN project concerning are now in the

pipeline of the European Standardisation Organisations (CEN / CENELEC) to become future European norms. Beyond the mandatory requirements set with the Technical Specifications for Interoperability (TSI), MODTRAIN proves that voluntary harmonisation is feasible and is contributing to the objectives of greener, safer and faster trains for Europe.



www.modtrain.com

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Energy efficiency in rail transport

Overview

Railenergy – Innovative Integrated Energy Efficiency Solutions for Railway Rolling Stock, Rail Infrastructure and Train Operation.

Efficiency of energy use has been put forward as one of the priorities by the EU making ambitious efforts in the transport sector. In terms of energy efficiency railways have inherent advantages over other modes of transport. Indeed, with either conventional or up-to-date technologies, rail uses significantly less energy and causes lower emissions than individual road transport, and it is three to five times more efficient than private cars.

Moreover, rail uses electricity as main source of power and, as such, can be easily adapted for the use of renewable energy sources. However, these advantages have not been sufficiently improved in the last decades.

Railways are currently being attacked by groups of interests claiming that:

- ▶ The Emission of CO2 per passenger per km is not as low as most people think,
- ▶ Railways are costly to operate and
- ▶ Recent technological advances in energy efficiency both automotive and aeronautics sectors are reducing the gap on emissions.

New Concepts.....

There are strong incentives on the part

of the sector to reduce energy consumption costs. This reason brought together 28 consortium partner, including many of the most important railway integrators and suppliers, the major railway operators and infrastructure managers. They set up the Railenergy Integrated Research Project to develop a holistic framework approach, integrated solutions and



new concepts for system-wide energy efficiency improvements under specific technical, operational, political and socio-economic constraints.

The project target is to achieve a six percent reduction in the specific energy consumption of the rail system in 2020, assuming that traffic volumes

double in comparison with current figures.

The key task of TSB-FAV within Railenergy is to develop a consistent picture of rail energy consumption. In particular TSB-FAV will elaborate three rail energy scenarios:

- ▶ A trend driven scenario 2020 („business as usual“)
- ▶ A scenario describing a probable development in 2020 (“Coordinated Efficiency Efforts“)
- ▶ A normative transport policy driven scenario (“Sector-wide Integration“) with doubling of passenger transport and tripling of rail freight transport

TSB-FAV performs this task in close cooperation with the Institute for Futures Studies and Technology Assessment (IZT) in Berlin as well as with partners in Denmark, Sweden and Portugal.



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SME and international cooperation in railway research

Summary

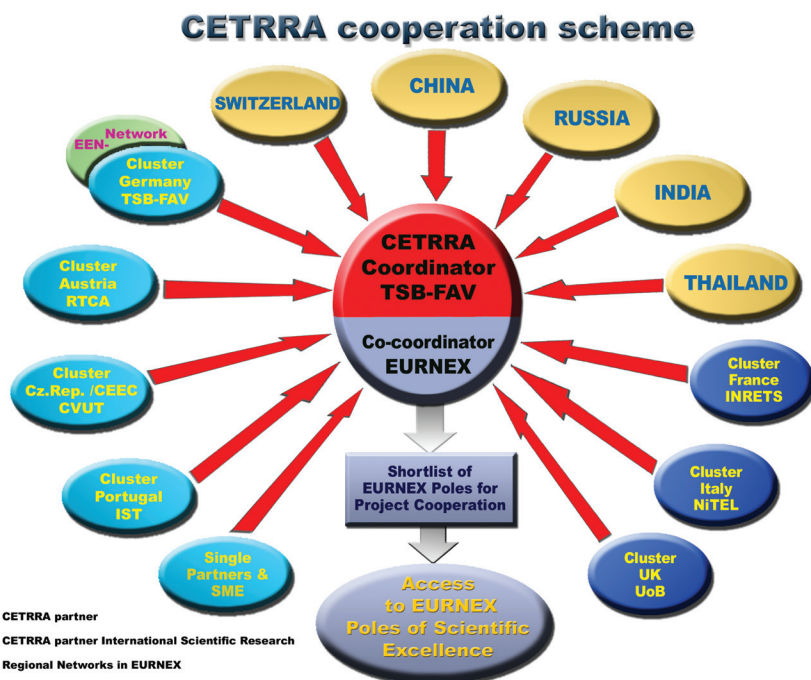
The EC funded project CETRRA is contributing to the European Research Area (ERA). CETRRA strengthens the competitiveness of the European surface transport sector by providing research competencies of EURNEX to European Small and Medium Size Enterprises (SMEs). CETRRA project cooperation with research excellencies from non EU countries stimulates research that is of mutual interest and strengthens European as well as non European research excellencies.

CETRRA is supported by EURNEX, the European Rail Research Network of Excellence, the first research cluster of excellence to underpin the ERA in

Driven by operators and industries and supported by the European Commission EURNEX provides multidisciplinary R&D organised in scientific poles of excellence, pursuing

- ▶ Integration and knowledge sharing throughout EU27
- ▶ Providing local based services in the EU member states representing the summarized knowledge of the European rail research community
- ▶ Fostering innovative, practical solutions to increase competitiveness of rail transport stakeholders and overall system

The main benefits for the integration



the rail sector.

The legal entity EURNEX involves 48 transport research institutes from 20 European countries. Its high level Advisory Board it is strongly linked with industries, infrastructure managers and operators.

of non EU researchers in CETRRA supported by EURNEX are:

- ▶ scientific exchange on an international level,
- ▶ training of junior scientists and researchers using the EURNEX assets,
- ▶ identification of research areas of the future.

At InnoTrans Fair 2008 in Berlin CETRRA brings together SME with EURNEX Scientific Poles of Excellence in the frame of the EEN match making event "connecting railways".

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Layout

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Following Events

INNOTRANS 2008,
23rd - 26th September
FAV Stand: Hall 3.2 Stand 220
www.fav.de/events