CZECH TECHNOLOGICAL PLATFORM
“INTEROPERABILITY OF THE RAILWAY INFRASTRUCTURE”

Presented by: Otto Plášek and Leoš Horníček
The association has been established as a corporate body on 4th January 2008.

The main objective is to join the scientific and technical potential of universities, research and project institutes together with the production potential of construction and production companies for the implementation of the following objectives and the subject of activities:

- Support of innovations and the increase of competitiveness of the members of the association.
- Support of the implementation of research and development projects with the requirements of the technical interoperability specifications of the Trans-European railway system in the sub-systems of infrastructure, energy, control command and signalling and interface among subsystems.
- Acquiring of financial support for the implementation of projects.
- The involvement of the members of the Association into international (European) activities related to the development process of new European legislation for construction, production and maintenance as well as related tests and the evaluation of the production of the European railway industry.
Czech Technological Platform
Interoperability of the Railway Infrastructure

- Association of 22 members:
  - Universities, technical college:
    - Czech Technical University in Prague;
    - Brno University of Technology;
    - University of Pardubice;
    - Technical college Decin.
  - Research institutes:
    - Railway Research Institute (VUZ);
    - VÚKV (Research Institute for rolling stock).
  - Technical and test institutes:
    - Technical and Test Institute for Construction Prague (TZÚS).
  - Design, contractor and industrial companies:
    - track;
    - control command and signalling;
    - energy;
    - interface among systems.
  - Associated member:
    - RIA (SŽDC)
Organizational Structure of TP

- Management Board
  - Full Members
  - RIA
- Audit Commission
- Bureau Board
  - Chairman
  - Executive Director
- Evaluators Board
- Board for Science and Research
- Implementation Teams of Operational Programmes
  - Expert Group Infrastructure
  - Expert Group Energy
  - Expert Group Command, Control and Signalling
  - Expert Group Interface

- Preparation and management of projects and expert activities
  - National programmes
  - European programmes
TP Member’s Participation in national programmes

a) **Operational programmes** in the period 2007 – 2013 with financial support from the Structural Funds of the European Union:
   - Operational Programme Enterprise and Innovations (OP EI)
     - Ministry of Industry and Trade of the Czech Republic
   - Operational Program Education for Competitiveness (OP EC)
     - Ministry of Education, Youth and Sports of the Czech Republic

b) **Czech Science Foundation** (GACR)
   - Science and research:
     - “Development and testing fiber-concrete characteristics fulfilling present requirements for transport tunnel lining” (CVUT – Czech Technical University in Prague), duration 01/2010 – 12/2012

c) **Programme ALFA of the Technology Agency of the Czech Republic** (TACR)
   - programme supporting projects of applied research and experimental development and stimulating increased intensity and effectiveness of R&D cooperation between businesses and research organizations
Programme of support **COOPERATION** – Technological platforms

- the Technology Platform “Interoperability of Railway Infrastructure” represents one of implemented project,

Programme of support **POTENCIAL**

- Railway Research Institute (VUZ) – innovation of Test Centre in Velim:
  - Phase I – Modernization of electric power supply station (finished 2010)
  - Phase II – Reconstruction of overhead line at the Large Test Circuit (finished 2010)
  - Phase III (2010-2013):
    - completion of modernization of the Large Test Circuit substructure (finished in June 2011);
    - improvement of halls for rolling stock test preparation to ensure better condition for customers there;
    - Modernization of signalling and communication system.

Programme of support **TRAINING CENTRES**

- VUZ realized a new Training Centre for Interoperability of European Railway System (in operation from the beginning of January 2011) with its capacity 20 seats.
Training Centre for Interoperability of European Railway System

- Situated in the Test Centre in Velim, Railway Research Institute;
- Capacity 20 persons
Operational Programme Education for Competitiveness (OP EC)

Call 2.4 **Partnership and networks**
- “Support of trainee-ships (short term attachments) and special activities at the tertiary education area innovation” (POSTA)
  - University of Pardubice, started in 03/2011 with its duration up to 02/2014, 100% sponsorship by the State.

Call 2.3 **Human resources in research and development**
- submitted project “Interoperability of Railway Infrastructure in the Competence Network” (IRICoN)
  - TP network at the national and European level concerning to railway interoperability and with a constitution of “mirror groups”;
  - Brno University of Technology, supposed start in 01/2012 with duration up to 12/2014, 100% sponsorship by the State.
Interoperability of Railway Infrastructure in the Competence Network (IRICoN)

 DG MOVE  
 DG RTD  
 RISC  
 ERRAC

 ERRAC Road Map

 NBRail  
 ERA

 Conformity Survey Group

 CER  
 UNIFE

 Infrastructure Energy CCS INF/RST/NOI

 Infrastructure Energy CCS INF/RST/NOI

 International Cooperation Coordination

 MG 1 CCS
 MG 3 Energy
 MG 4 INF
 MG 6 INFR
 MG 5 RoMa

 European Training ERTMS
 Training Centre for IRI (VUZ)

 MG 2 CSG

 Czech Technological Platform IRI

 National Level Mirror Groups

 European Level

 MG 1 CSG
 MG 3 Energy
 MG 4 INF
 MG 6 INFR
 MG 5 RoMa

 Training Centre for IRI (VUZ)

 European Training ERTMS

 Czech Technological Platform IRI

 MG 2 CSG

 Interoperability of Railway Infrastructure in the Competence Network (IRICoN)
Project of Czech Science Foundation

Development and testing fiber-concrete characteristics fulfilling present requirements for transport tunnel lining:

- Parameters of fiber concrete segments will be compared with the parameters of commonly reinforced segments. The project results should clearly show the advantages and disadvantages of new material. It is expected an immediate use at RIA.

- Expected benefit: reduction of steel consumption, simple production, fire resistance.
Programme ALFA of the TACR (examples) the subsystem “Infrastructure”

Improvement of track quality in switches and crossings due to the increased flexibility

- 01/2011 – 12/2016;
- DT výhybkárna a strojírna, a.s. / Czech Technical University in Prague / Brno University of Technology.

Sleepers and bearers with under sleeper pads

- 01/2011 – 12/2014;
- Brno University of Technology / ZPSV, a.s.
Programme ALFA of the TACR
the subsystem "Interface / RST / NOI"

Project NOVIBRAIL (NOise emission and VIBration in RAILway system),

- project leaded by VUZ with cooperation of University of Pardubice and VUKV (Research Institute for Rolling Stock),
- duration 01/2011- 12/2013,
- main aims:
  - to evaluate effectiveness of present protections against railway noise and vibration;
  - to analyse noise emission at the determinate railway track sections;
  - to analyse influence of the ground vibration propagating in ground and its connection with noise emissions;
  - to analyse influence of rail acoustic roughness to noise emissions radiation of rolling stock;
  - to evaluate relations between the technical specification for interoperability (TSI) relating to the subsystems "rolling stock - noise" and "infrastructure" of the trans-European conventional rail system;
  - to evaluate possibility of use a simulation of rolling stock noise quality;
  - to evaluate possibility, design and verify a technology for rust scale off from running rail surface;
  - to prepare an economical costs analysis for vehicles homologation with influence of TSI, ENs, ISO and other standards.
TP Member’s Participation in European programmes

FP6: RailEnergy (VUZ), Europac (VUZ), RailCom (VUZ), INNOTRACK (CVUT, RIA)

FP7:
- Call 1:
  - INESS (AZD)
- Call 2:
  - ERRAC Road Map
    - TP delegates its representatives into three WPs as experts:
      - WP4 – Mr. Vladimír Kampik (AZD);
      - WP5 – Mr. Mojmir Nejezchleb (ZPSV);
      - WP6 – Mr. Petr Kavan (VUZ).
- Call 4:
  - EUREMCO (VUZ);
  - MAINLINE (SKANSKA);
  - D-Rail (VUZ).

FP8: Ministry of Education, Youth and Sports involved TP proposal to the railway part into “Outline of the approach of the Czech Republic to the preparation of the 8th Framework Programme”
Czech Technological Platform and UIC-IRRB

- TP will support the reflection of conclusions of the new White Paper on Transport Policy into national objectives – i.e. strengthening of the position of rail transport in traffic system.
- The Czech Technological Platform is an efficient means for the realization of its objectives and it has been awarded the support of top state institutes of the Czech Republic in the field of railway transport.
- TP is by the European organizations considered as a “pilot project” uniting research and development with real business needs and business opportunities in the field of railway industry and civil engineering.
- TP is ready to cooperate with UIC-IRRB and offers its highly professional capacities of Expert Groups, the Evaluators Board and constituted networks.
Thank you for your attention

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