

## Work progress and achievements during the period

### Achievements

From origin of the project CETRRA takes advantage of the outstanding competence provided by EURNEX, which makes high-quality research capacities of the European market readily available, especially those of Small and Medium Size Enterprises (SMEs). Further on the training of junior scientists and researchers using the collective EURNEX assets, identifying research areas that are of mutual interest and solving problems in the international railway sector with European know how are among the project's goals. Furthermore, cooperation with experts from non-EU countries will stimulate and strengthen the European as well as non-European research institutions.

From the many events with CETRRA partners just two will be highlighted in this presentation:

1. The CETRRA first Integration Conference at the InnoTrans Fair (September 24, 2008) was the start of the common CETRRA member activities with EURNEX for building up partnership and the matching of the attending 13 CETRRA partners with 9 of the 10 EURNEX Scientific Poles of Excellence.
2. The participation CETRRA Final Integration Conference at the InnoTrans Fair (September 23, 2010) was dedicated to keep partners connected after the project. CETRRA project partners have the chance to further join a match-making processes which is based on the analysis of the competencies-database questionnaire that had been provided by the project members. According to partner's capabilities and competencies they can meet and discuss on collaboration possibilities. Within further steps the common development of research topics of mutual interest will be organised and developed.

EURNEX had a leading role in CETRRA. CETRRA is a combination of two EC topics of Framework Programme 7's first call promoting international cooperation as well as collaboration between researchers and SME's. The provision of corporate services of EURNEX is a key asset for the project CETRRA. The EURNEX portfolio in CETRRA contains the use of the EURNEX developed network structure as well as the EURNEX proven new culture of cooperation to integrate the research and even the technology transfer landscape & Knowledge sharing with scientific institutions from other regions. Main tasks for EURNEX e.V. in CETRRA are:

- Expanding of the existing EURNEX competencies database (KMS) through projects from non-EU research institutes and SME contributions
- Organisation of integration conference to identify the research topics of mutual interest between EURNEX members and non-EU research institutes
- Implementation of the "virtual meeting point" inside the existing EURNEX KMS
- Preparation of the expert exchange programme between SME's and EURNEX members
- Support for the evaluation of product qualification method knowledge transfer between non-EU research institutes and EURNEX members
- Identification of joint research topics and projects (EURNEX, SME's, non-EU institutes)

Support for the preparation of a catalogue for training cooperation among EURNEX members and non-EU research institutes

### **International cooperation**

International cooperation beyond the EU borders is essential to understand the specific challenges and conditions of the transport systems in other regions of the world.

In particular improved knowledge about the conditions in terms of transport related pollution, traffic congestion, safety and mobility needs are important to provide European contribution for more efficient, economic and environmental friendly transport systems in EU neighbouring regions. The research activities in trustful partnership are in identification by CETRRA in close connection with the stakeholders – and its exploitation policy of the innovations will strengthen the European competitiveness in the transport sector.

The CETRRA activities fostered the European surface supply chain by developing an interoperable and harmonised European transport system contributing to co-modality and a strong internationally competitive European transport industry. The European transport industry is active on a worldwide market and innovation is mandatory to maintain its position and to be successful in evolving markets. Consequently, the railway industry is modernising its products and processes in order to keep its worldwide competitiveness. This implies the application of innovative technologies and new lower cost manufacturing processes. This can only base on integrating the SME, the transport industries associations and researchers, sharing knowledge and co-ordinating current research through:

- building reliable, sustainable strategic partnership of SME with transport industry, operators, authorities, and bodies,
- better use of resources (integration of researchers with expanded knowledge basis, multidisciplinary cooperation),
- targeted benchmarking within the transport modes and other branches to perform reasonable and efficient knowledge/technology transfer for the transport sector
- strengthening of the competitiveness of involved SME as integral part of international R&D partnership.

## Euro-Asian Landbridge

New challenges of trans-continental transport projects - such as the EU-Asia Landbridge – require new forms of international collaboration on a global level.

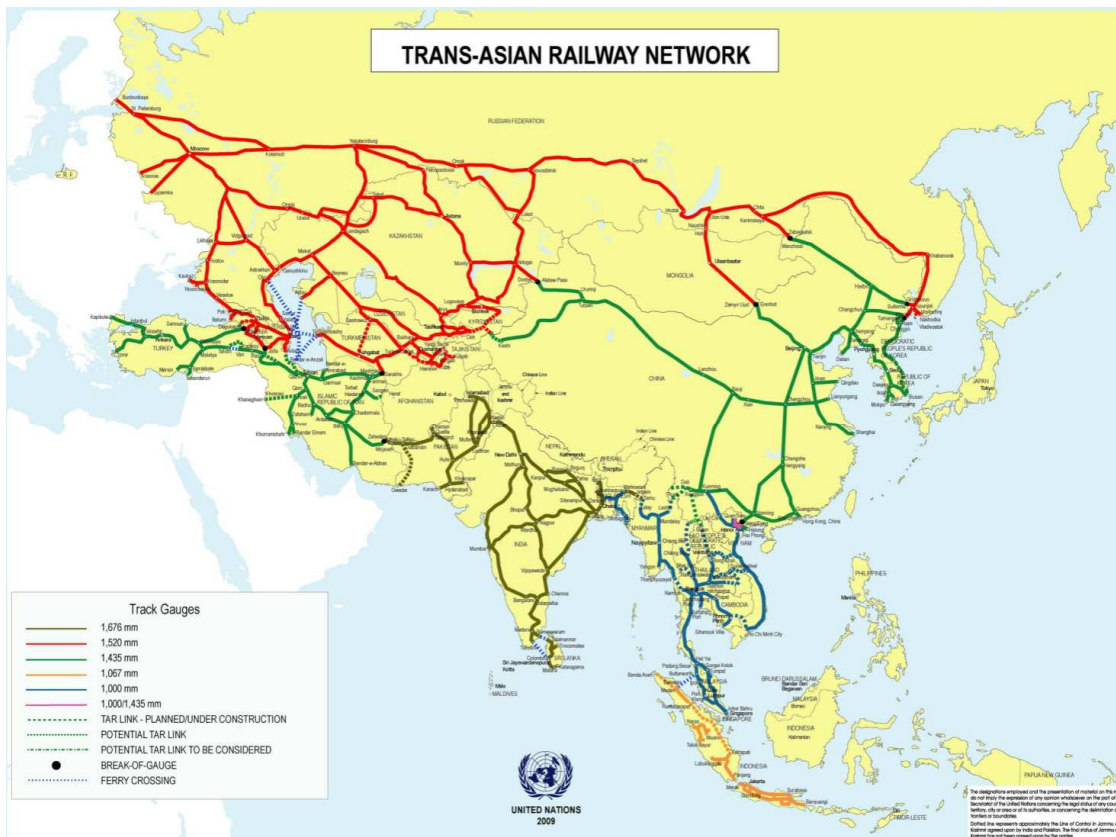


Fig.: EU-Asia Landbridge

CETRRRA partner provide commendation for European Commission for building up the landbride. Based on both Conclusions following from geographical-territorial and procedural analyses, CETRRRA partner can formulate some recommendations for the European Commission how to proceed during the Euro-Asian Landbridge project processing.

- In view of the considerable obstacles that still exist at certain border crossings within the geographical zone covered by the Euro-Asian Landbridge, it seems advisable to continue and develop actions to improve such crossings, focussing as a first step on border posts located on the Euro-Asian transport corridors.
- EC and participating countries should closely cooperate in order to facilitate the development of intermodal transport and co-modality and so contribute to creation of more efficient, effective and, sustainable transport systems.
- EC and participating countries should also support development of alternative transportation routes between Europe and Asia and make efforts to closer integrate inland and maritime transportation into effective international multimodal transport and logistics chains..
- All participating parties should work together in order to provide the Euro-Asian transport and logistics sector with a fully integrated multimodal transport

infrastructure to enable faster and more reliable transportation at lower price and smaller costs to society.

- Necessary measures in order to avoid actions which protect national interests and hinder smooth international transportation of goods and mobility of passengers should be taken in consideration.
- EC and participating countries should ensure harmonizing national transport regulation rules, especially through the facilitation of border crossing procedures, and so provide smooth operating environment for international transport and logistics business.
- EC and participating countries should build on the existing successful examples of international transportation corridors formation in rail sector and to extend this experience for cooperation in other transport modes as well as intermodal transport.
- EC could encourage private sectors of participating parties to cooperate in development of transport infrastructure through provision of fair legal base setting clear and harmonic rules on usage of private capital in implementation of various infrastructure projects.
- EC could address the potential of Public-Private Partnerships. Lessons from implementation of large scale PPP projects have to be facilitated as best practice between Asian and European countries and accelerate harmonization in both technical and regulatory fields and with regard to investment planning.
- EC should pay increased attention to key technologies enabling participating countries to pass obstacle following different gauges occurring on routes of the proposed Euro-Asian Landbridge corridors.

## **Work in progress**

In the CETRRA project actions to recover the delay in the project schedule, which was due to the delay in the finalising the Grant Agreement and providing the advanced payment by EC were ongoing. Nevertheless, since the WP leader Kick-off meeting in Zilina on June 03, 2008 several important actions have been organised and concepts for the delayed work packages were on. A general recovery schedule has been prepared.

## **Significant results achieved during the project**

### **WP1 Evaluation of the Questionnaire containing a survey of competences**

With the output from WP 1 the competences and fields of interest of the participating SMEs and international research organisations have been identified incl. indication of related projects interest in sharing of research. The used tool is an important tool for the matching of adequate partners basing on the competencies and needs which is an outcome to organise the CETRRA-initialised international cooperation for the competitiveness of the rail sector.

One of the essentials of CETRRA is matching of the special abilities, capabilities and competencies of the various partners of this project. CETRRA gives an overview on current research projects of the international researchers, their experience in sharing knowledge and their background information in order to create personal contact between researchers and science and industry. CETRRA participants are from countries all over Europe and Asia which gives the possibility to build bridges between the railroad networks of Eurasia. At the same time CETRRA partners expect a fostering of the international co operations and an acquisition of new contacts among the participants, the involvement in future research projects and to find partnerships in R&D, for potential business ventures and the developing of new products.

In line with partner requirements the results of a questionnaire were used to create a "short list of cooperation" with EURNEX Scientific Poles of Excellence. The "Short list of cooperation with EURNEX Scientific Poles of Excellence" contains:

- 1. Strategy and economics
- 2. Operation and Systems Performance
- 3. Rolling Stock
- 4. Product qualification methods
- 5. Intelligent mobility
- 6. Safety and security
- 7. Environment and Energy Efficiency
- 8. Infrastructure (and signalling)
- 9. Human factors
- 10. Training and Education

The results of the data analysis were used to appraise the competencies and develop cross-border research projects for the rail sector.

**WP2 International cooperation** meetings and Integration in EURNEX activities  
EURNEX actions and Roadmap 2010:

- EURNEX poles to be stronger involved with the pole specific capabilities

Strengthening Research cooperation is the result of a strong interaction of Individual contributions and discussion of partners (institution, core competencies, capacities, projects, visions and expectations according to their Interests) regarding the possible collaboration and tasks and future activities within CETRRA in collaboration with EURNEX and ERRAC. Thereby some visions for future transport & rail research have been discussed and an identification of cooperation possibilities with EURNEX research groups (Scientific Poles of Excellence) was organised for development of future projects of common interest (e.g. upcoming FP7 Transport calls and EC 8th Framework Program with international cooperation partner).

The match making bases on the analysis of the competencies - database questionnaire and will be drafted and provided to the CETRRA project members as action on the CETRRA WP2:

- Interaction: Individual contributions and discussion of partners (institution, core competencies, capacities, projects, visions and expectations according to their Interests)
- Possible collaboration and tasks and future activities within CETRRA in collaboration with EURNEX and ERRAC
- Visions for future transport & rail research
- Identification of cooperation possibilities with EURNEX research groups (Scientific Poles of Excellence)
- Future projects of common interest (e.g. upcoming FP7 Transport calls and EC 8th Framework Program with international cooperation partner)
- Building up trustful atmosphere with SME and international cooperation partner to come to a partnership to Identify research topics and integrate of issues
- Enhance knowledge and promote personal relationship
- Programme and agenda of exchange between researchers & unique capabilities integration of current research
- Foster individual contacts via Virtual Meeting Point, EURNEX Knowledge Management System & EURNEX website
- Regional coordination amongst Russian members by MIIT

International Co-operation is only working by strengthening individual contacts and scientific exchange according to the results of WP1 "Survey of competencies and experiences" Therefore CETRRA is platform for activities to foster development on Euro-Asia land-bridges. It uses cooperation for starting common project development between regions and the comparison of activities in regions: e.g. actions for CO2 reduction in Europe. During the WP 2 meetings an introduction of Product Qualification Methods in a European Harmonisation processes including Review of common validation & test procedures took place as well as the identification of joint research topics and projects with identification and matching of potential collaborating research partners and facilities.

The main targets for meetings were in accordance with ERRAC and EURNEX priorities defined in ERRAC Support Group, EURNEX Council and EURNEX Advisory Board like:

- Organisation of cross pole meetings

- Council /Advisory Board to agree on themes and prioritisation
- Identify research topics and start integration of issues & researchers into EC/ERRAC facilitated call 3 & call 4 process including an EC FP7 call3 information conference in St Petersburg
- Exchange & integration conferences with researchers, SME and politicians in:
  - Initiative to allocate funds and routine exchange meetings for common thinking, joint activities and overcoming barriers and constraints for international cooperation
  - Monthly monitoring of self-induced working meetings /progress of implementation ideas & competences into each other's planning (Teleconferences)

Two International conferences were organised by the Moscow State University of Railway Engineering (MIIT). The first conference took place on August 27/28, 2009 and the second one within a National Information Day with EC on September 23, 2009 at Petersburg State University of Transport (St. Petersburg).



Fig. Moscow Meeting

In Moscow the focus was set on the identification of competencies and capabilities. CETRRA gives individual partners the chance to match their capabilities with EURNEX and European Industry. Beside the coordinator TSB-FAV Berlin and EURNEX the following Russian partners have been involved

- Moscow State Transport University,
- Petersburg State Transport University,
- Omsk State Transport University,
- University of Railway Transport in Jekatarinenburg,
- Siberian Transport University in Novosibirsk,
- Irkutsk State Transport University

The St. Petersburg meeting was dedicated to inform Russian researchers on EC research activities. Representative of the European Commission Frederic Sgarbi (acting Head of Department of DG Research) emphasised that Russian railways are very important for Europe. The European Framework Programme is a chance for Russian partners to integrate in European research. Wladimir Solowjow (MIIT Moscow) informed on State organised Russian rail research activities where all Russian Transport Universities are connected within an Association.

As a result of CETRRA some tasks and future activities for collaboration with EURNEX poles have been identified. Further on the Russian partners MIIT Moscow, Uni Petersburg, Irkutsk, Novosibirsk, Omsk, Jekatarinenburg matched their capabilities with EURNEX and European Industry that would fit to, e.g.:

- Attenuation of ground born vibration
- Automated infrastructure maintenance
- Catenaries / pantograph high-speed interaction
- Vehicle tracking system for higher delivered tonnage
- Simulation of train operations

The results of the matching will lead to some further development in the Framework Programme 7 topics on “Market uptake of transport research and role of actors and regions”.

Further International Conferences with CETRRA contribution:

- Zilina ,03 June 2008
- Berlin, 22 September 2008
- Lyon, 03 Dec 2008
- Brno, 12 May 2009 Conferences
- Moscow, 27-28 August 2009
- Brussels 16 September 2009
- St. Petersburg, 23 October 2009
- Wien, 1 Oktober 2009
- Bangalore, 26/27 November 2009
- Bangkok, 29 November 2009
- Pardubice, 11 February 2010
- Lille, 06 June 2010
- Berlin ,23 September 2010
- Baltic Sea Region Discussions with EURNEX Advisory Board 27 September 2009

### **WP3 Encouraging of SME**

- Strong participation in ERRAC Roadmap CSA, representation by pole leader
- Further integration of Industrial Advisory Board member in CETRRA activities
- FP7 call 4 (2010 – 2013) programme definition via Poles/ ERRAC Roadmap members and Advisory Board

It is the objective of CETRRA to build upon this momentum by further integrating international scientists & researchers as well as innovative SME, both supporting added value to intermodal competitiveness and co-modality by multidisciplinary research cooperation throughout Europe and with neighbouring regions by:

- Use of International contacts for Understanding of market
- Important step: participation at meetings for contacts with international partners and scientists
- Identification of long-term R&D, fostering the future position in the market
- Involving of SME in international R&D activities
- Network as strategic basis for project / product development



**WP4 Product Qualification:** Two sets of problem topics representing information to complete the comparative analysis and case study have been determined and elaborated

With the on-going integration process taking place across Europe, railway transportation must be accommodated to the new requirements. Interoperability between different railway administrations is currently one of the main conditions for the development of European railway market.

In this context, achieving standardised homologation of products in different countries within the European Union becomes a basic requirement: This will increase the competitiveness of railways against other means of transport by bringing down the huge costs of repeating the acceptance processes of vehicles/products in each country, and will facilitate running rolling stock between different countries in a more flexible way.

Achieving European wide standardized homologation involves both physical and legal aspects.

These aspects must be tackled in an effective way for an adequate and fast development and implementation of standardised homologation procedures by:

1. Review of the existing approval procedures in the respective countries of the EU-Asia Land bridge (Russia, China, India, Thailand).
2. Collecting information on existing validation & test procedures and standards and carrying out a comparative analysis.
3. Making recommendations of common procedures for the case studies.

Discussing the recommendations with the European Rail Agency, National Railways Authorities of the land bridge corridor space and UIC, UITP, and UNIFE members

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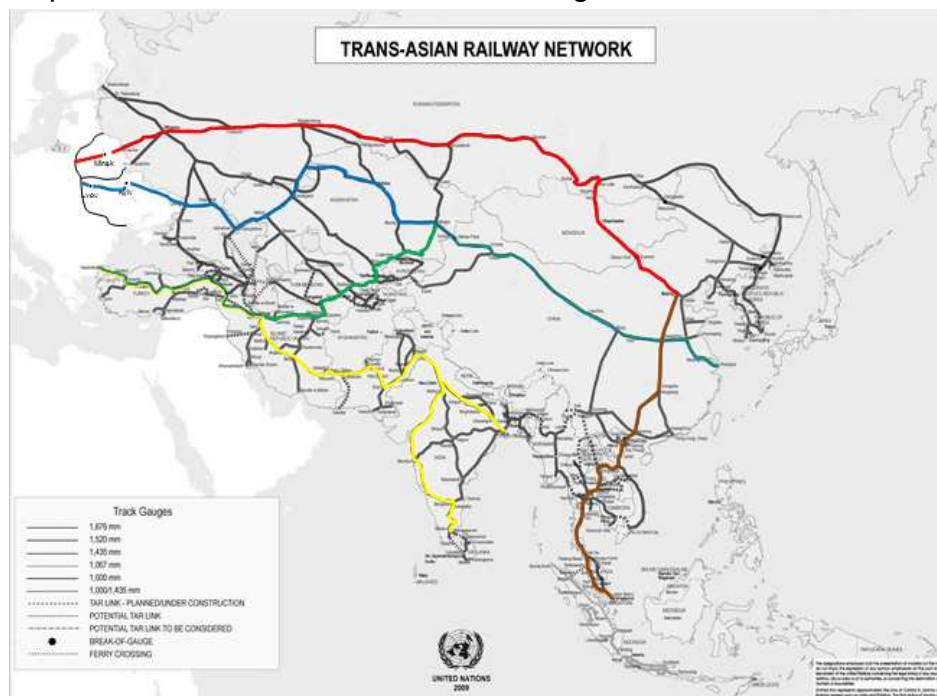


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## Recommendation for European Commission

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**WP5 Identification of research topics** and projects and participation at FP7 3rd call  
Participation of Russian partner in FP7 3rd call

- TPT.2010.7. Noise mitigation research in transport: coordination of research and strategies:
- TPT.2010.9. Market uptake of transport research and role of actors and regions CETRRaplus EURNEX priority, FAV/ EURNEX and members
- TPT.2010.10. Supporting the organisation of conferences or events of special relevance to the European transport sector
- SUT + Corporate office, beginning in 2010 as preparatory action

Based on the work in the WP 1, 2, and 3 the identification and matching of potential collaborating research partners and facilities from participating SMEs, international co-operation partners as well as EURNEX members will be performed in WP 5.. Identified research projects have been submitted to Advisory Board for advice on methodology, priority and funding. This procedure will ensure the quality and the compliance of the identified research topics to the transport strategy of the European Commission.

- Identify new joint research projects of mutual interest - basis for product oriented projects
- To identify and match potential collaborating research partners and facilities from participating SME's, international co-operation partners as well as EURNEX - members.
- To identify support opportunities for new joint research projects.
- To provide support for the development of joint research projects through EURNEX (e.g. Advisory Board).
- Identification of State of the art in R&D on international Level and definition of topics on mid- and long term basis

During the duration of the project, partners have been informed on the topics of the 3rd and 4th call of FP7. Especially at the meetings in Russia and India detailed discussions on common FP7 participation have been organised. Additionally CETRRA supported partner finding.

Concerning the 4th call (open since July 20, 2010 at Transport Research Day) partners were requested to check capability and to identify interest in the respective 4th call topics directly to the facilitating organisation ERRAC. Partners checked, who the coordinator for proposals of interest is, and directly contacted this organisation or the UNIFE/UIC/UITP.

**WP6 An evaluation and awareness of existing training opportunities** in the surface transport sector for junior scientists, researchers and engineers is undertaken in WP 6. In order to frame the past activities inside EURNEX with the CETRRA project, this WP did provide the results of an extensive survey on existing railways courses and stakeholders (operators, infrastructure managers, industry suppliers, etc) needs in terms of competences, education and training. The tasks developed to support the contents of this report involved a comparative analysis of available railways courses all over Europe and the analysis of adequacy of those courses for the several competencies required for the business processes of the different profiles of stakeholders.

WP6 does provide advice on a common approach to training and education for the surface transport sector – both for the industry as well as for the junior researchers from international cooperation partner's countries

### **T&E conclusions**

From the results presented in the previous sections, it is important to note that Industry needs and demands for courses/training are well identified. The course training activities ideally should not interfere with the daily profession tasks. As a result sort courses and e-training methodologies should be explored and Educational institutions own competences to meet the industry needs.

### **T&E proposed future work**

The Creation and promotion of a web platform concerned to e-training courses railway related (an example can be found in: <http://www.webrail.com.au>):

- Promote e-training courses via rail/transport organizations, as for instance, UIC or UITP.
- Organize and launch bilateral web meeting/conferences between educational institutions and railway related companies.
- Launch innovative courses at national and international level.
- Foundation of the EURail – European University of railway. Based on knowledge, experience and people from "real" universities in Europe, EURail is virtual in nature and aspires to foster excellence by gathering and networking the different relevant organizations and institutions around an educational project suitable to the needs of the European Rail sector.

## **WP8 Management**

Installation of CETRRA website and Virtual meeting point  
Contributions to the expanding of a cost efficient the existing EURNEX internet portal considering the special requirements of partners for establishment of the common dissemination system and to stimulate the use of the Knowledge Management System and the Virtual Meeting Point

- To perform the administrative and financial management of CETRRA according to the contractual obligations,
- To coordinate with EURNEX especially the Council, the Clients Advisory and the Scientific Board, and
- To ensure the high quality documentation of the integration process including the reporting contractually required.