Research for Future Infrastructure Networks of Europe reFINE

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ECTP 5th Conference
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- Artery system of our society
  - Mobility of people,
  - Mobility of goods distribution of vital flux
    - Freight,
    - Industrial products
    - Agricultural products (food)
    - Water, electricity, gas
  - Impact on all other activities

- Heritage of the past and
- Infrastructure of Tomorrow’s Europe
  - Quality of Life
  - Sustainable, Competitive Economy
- **Roads**
  - Motorways > 60,000 km
  - Total network about 5 million km
  - By 2020, TEN-T will include 95,700 km of roads

- **Railways:**
  - Railway lines: 215,000 km
  - (electrified: 107,400 km)
  - By 2020, TEN-T will include 106,000 km of railway lines linking main European cities

- **Waterways:**
  - Navigable inland waterways: 41,000 km

- **Water**
  - > 3.5 million km distribution pipes, > 2.5 million km waste water sewers, 70,000 treatment plants

- **Total investment on Transport infrastructure on the period 2000-2006 was € 859 bn**
Grand Paris Express

- 155 km railway lines
- 40 stations
- 21,4 → 23,5 bn €
- Infrastructures: 80%
- Rolling stock: 12%
The challenges on Infrastructure

- Social Cost of ownership
  - Cumulative investment since centuries
  - Higher level of requirements (quality, serviceability, sustainability)
  - Today’s resources for
    - New projects
      - New infrastructure
      - Interwoven with existing infrastructure
    - Existing infrastructure
      - Maintain
      - Upgrade
      - Adapt to new needs

- To keep cost of infrastructure socially acceptable
- Necessity to maintain funding for infrastructure at adequate level

→ underinvestment in infrastructure is a major risk for EU
Construction must change to comply with new requirements

- **Sustainability**
  - To design, build, operate, maintain in a sustainable way. To reduce environmental impact, resource and material consumption

- **Availability and cost of energy**
  - To adapt to new types of rolling equipment, to develop new uses of infrastructure, new regulations;

- **Climate change**
  - To cope with new and increased risks from natural hazards, including rising sea levels;

- **Ageing Society**
  - To cater for users with various needs

☞ Deliver MORE, BETTER, at LOWER COST
- Infrastructure networks support the **European social and territorial cohesion**. They guarantee Europe’s integration with the international and intercontinental market, while complying with the principle of sustainable development.

- Infrastructure networks are accessible and well connected. They support a high quality of life in **sustainable European cities** by ensuring a continuous and safe circulation of life, water and food and by providing the physical means for mobility to live and work.

- Infrastructure networks are integrated and efficient. They support a **competitive European economy** by providing fast means to develop European trade in a sustainable way: inside urban centres, between city centres and along major routes connecting Europe with the rest of the world.
Infrastructure networks are designed and improved to have a **minimised environmental impact over their entire life cycle** from design and construction stage to service, maintenance and final recycling. Continuous, efficient and reliable quality of service makes infrastructure a major contributor to reducing consumption of energy and natural resources by the European economy.

**Smart and resilient infrastructure** networks provide a high quality level, even ensuring a continuous and safe service throughout natural and man-made hazards and through climate change.
Quality of services provided by infrastructure networks is visible and recognized by users and by society. Infrastructure networks are commonly regarded as a shared heritage of great economical value; their maintenance and upgrade costs are optimised and managed as a necessity to preserve a continued quality of life for the future generations of European citizens.
A ‘first’ document

Open for discussion with

- Platforms
- EC high level deciders

A ‘Vision’ of future infrastructure

Research priorities
From an infrastructure provider
  - Design, build, maintain, upgrade infrastructure networks

To an infrastructure operator / concessionnaire
  - New contracting forms: PPPs, BOTs, etc
  - Major companies have ‘Concessions’ and ‘Operators’ branches

Civil Engineering is the 2nd market of the Construction Sector
  - 23% of total Construction Sector
  - Variations in EU Countries (maximum is 30%)
An initiative of ECTP

INDUSTRY leadership
- Autostrade, Ballast Nedam, Bam, Bouygues, Dragados, Fcc Construcción, Ferrovial Agromán, Hochtief, OHL, Soletanche Bachy, Vinci, Züblin, ..

RESEARCH
- FEHRL, Ifsttar, Deltares, TNO, Danish Technological Institute, Tecnalia, ZUS (Technical and Test Institute for Construction Prague), Bundesanstalt für Wasserbau (BAW, Germany), CSIC (SP), Consorzio Tre (IT), Univ College Cork (IE), ..

Professional Associations
- ENCORD, FNTP

Linking with ERRAC, ERTRAC, WATERBORNE, WSSTP, SUSCHEM, ESTEP, ETPIS, ARTEMIS

Linking with DG Move, DG Research
High Level Committee
- Remi Dorval (Vinci) / HG Balthaus (Hochtief) / Jesus Rodriguez (Dragados)

Co-Leaders
- JP Hamelin (Soletanche Bachy), Elena Martin Diaz (Dragados), Claude Dumoulin (Bouygues)

Secretariat
- Luc Bourdeau (ECTP, CSTB)

SRA working group
- 05/11/2009 ECTP – HLG9 establishes a Task Force on Infra
- 22/02/2010 First Assembly of ‘reFINE’ in Stuttgart / Hochtief
- 02/08/2010 Vision Document issued
- 02/11/2010 ECTP - HLG 11 decision to start an initiative
- 18/01/2011 Second Assembly of ‘reFINE’ in Paris / Ifsttar
  - 58 participants
  - Presentations by ERRAC, FEHRL, ETPIS
- 4/10/2011 SRA – draft version
- What next
  - Finalise SRA
  - Promote to EC, to stakeholders
  - Jan 2012 Third Assembly (to be defined)
  - April 2012 TRA 2012 Athens, reFINE session on infrastructure
Europe 2020 (March 2010)

DG MOVE
- White Paper - Roadmap to a single EU transport area (March 2011)
- New TEN-T Guidelines (End 2011)
- Strategic Transport Technology Plan (End 2011)

DG RESEARCH
- CSF - Common Strategic Framework (End 2011)
- Horizon 2020 (End 2012)
  - Towards a TRANSPORT Priority
    - Vertical Actions: modal transport (air, rail, road, maritime)
    - Horizontal: Intelligent Transport, .... Infrastructure
DG MOVE (Dir B1, B4)
- Meeting with H. Morsi, P. Collotte
- Meeting with M. Rommerts, R. Juriado, P. Dilara (STTP)
- STTP presentation meeting
- Informal discussion on CSF – STTP
- Meeting with Dir C Innovative Transport (F. Karamitsos, P Verhoef)
- Meeting with Cabinet (D. Oen, L. Chapuis)

DG RESEARCH (Dir H Transport)
- Meeting with J. Gaudin, S. Cervera, W. Bird, J. Blondelle

reFINE is encouraged / understood / considered
- ERRAC, ERTRAC, WATERBORNE, WSSTP
- ESTEP, SUSCHEM, ETPIS, ARTEMIS, GERG

- Establish a consensus on Infrastructure SRA
  - Optimise Modal / Co-modal / Multimodal research on infrastructure

- reFINE delegates to Platforms
  - Identify contact persons in Platforms
  - Gather documentation (SRA, working docs)
  - Share documentation through reFINE website
  - Check relations reFINE SRA ↔ Platforms SRA
  - Discuss SRA with Platforms

- Platforms day on June 23
- Today’s session 15:30
- Control urban sprawl
- Densify the city within its current limits
  ➔ Develop urban transport networks: denser, deeper networks
  ➔ Road, metro, water, energy, etc

- Support to unique EU market: fast / efficient / sustainable inter-city trading
- Support to global trading: export facilities
  ➔ Highways, High Speed Train, Waterways, Harbours, Airports, Energy supply
SRA work group – leaders:

- WG1 Elena Martin Diaz (Dragados) – Claude Dumoulin (Bouygues)
- WG2 Livia Pardi (Autostrade) – Raphael Steenbergen (TNO)
- WG3 Joost Breedeveeld (Deltares) – Francisco Esteban (FCC)
- WG4 Karsten Menzel (UCC) – Frédéric Bourquin (IFSTTAR)
- WG5 Laura Tordera (Ferrovial) – Tomás Zamora (IBV)
- WG6 Carmine Pascale (Stres) – Maria Zalbide (Tecnalia)