



# **Rail R&D in Europe – New opportunities: Horizon 2020 – the EU Framework for Research & Innovation (2014-2020)**

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# Overview

- *Rail research in FP6 & FP7*
  - **Policy aspects**
- *WP2013 Draft topics*
- *Horizon 2020:*
  - **Key features**
  - **Railway transport focus**
  - **Further steps**
- *Rail PPP/JTI: Shift2Rail*





# Railways are Transport of the Future !!!

## Why ?

### Green !

Transport accounts for 25% of EU CO<sub>2</sub> emissions, yet electrified trains can emit zero CO<sub>2</sub>

### Fast !

High speed trains compete with air planes on short haul

### Efficient !

Trains operate to time, even within congested cities. Each train can carry the freight of several hundred Trucks !



## Policy

# Supporting the ambitions of the Transport White Paper - Towards a single European transport area

### *Stimulation of railway transport*

- **Re-arranging the railway sector – relevant role of rail**  
A European Interoperable rail market  
'railway packages'

### *Reducing bottlenecks*

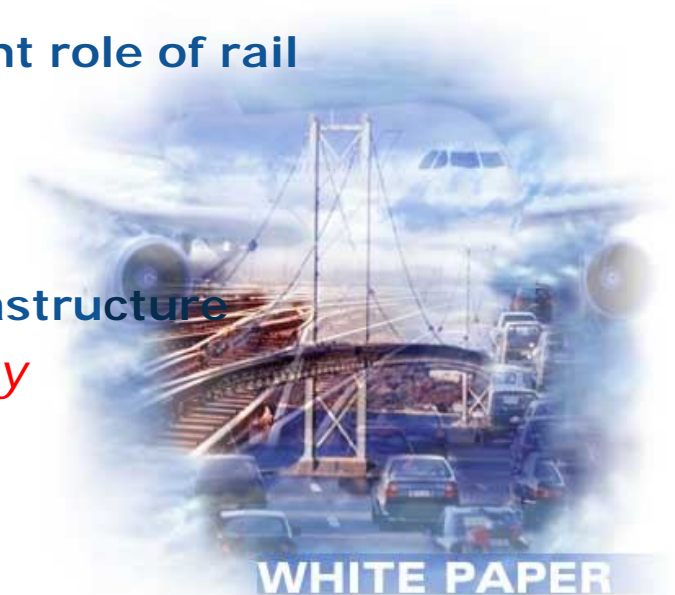
- **Trans-European Networks, General Infrastructure**

### *Placing the user at the heart of transport policy*

- **Enhancing co-modal logistic chains**
- **Appropriate infrastructure charging**

### *Managing the effects of globalisation*

- **Trying to raise the share of rail transport (Rail Freight to improve).**



# Rail research in FP6 and FP7



Electric Current/  
Overhead Line

Energy Savings

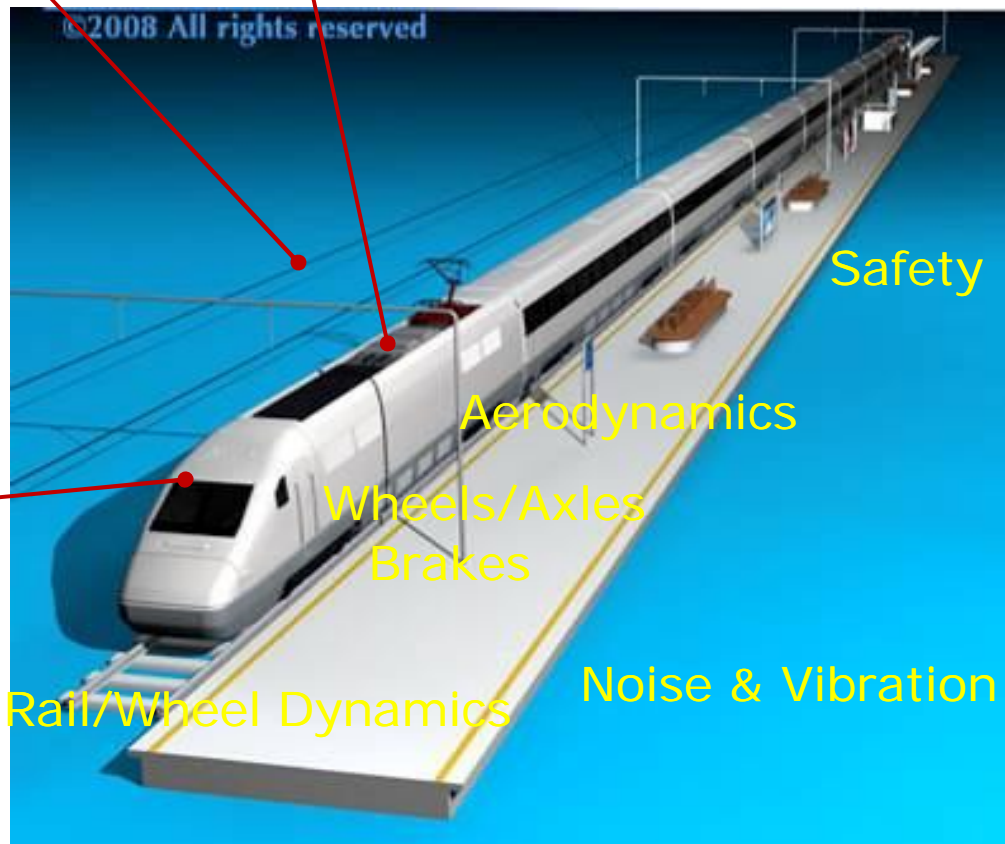
Train Intelligence

Signalling



Cab Design

Track



Bridges



Train Construction



*Funding FP6: €117M*

*Funding FP7: currently €130M, with an estimated €23M in the last call*





# FP7-SST-2013-RTD-1

## - Last call in FP7 -

- *Date of publication:* 10 July 2012
- *Deadline:* 14 November 2012 at 17.00.00 (Brussels local time)
- *Indicative budget Surface Transport (including the 'European Green Cars Initiative'):* EUR 107.63 million
- *Total indicative budget Rail:* 22 M€

*Less topics, emphasis on market uptake*

*Funding schemes :*

- **CP: Collaborative Projects**

*CP –FP = Small & medium scale < 3M€ EC funding*

*CP-IP = Large scale > 3M€ EC funding*

- **CSA: Coordination Support Action**

*Coordinating (Also CP's): min 3 partners, 2 MS or AC*





# Overview FP7-SST-2013-RTD-1

- *EUR 22.00 million for Group of topics (GT) N° 1: Increasing railway capacity*
- *EUR 16.00 million for Group of topics N° 2: Ensuring safe, green and competitive waterborne transport*
- *EUR 37.63 million for Group of topics N° 3: Implementing research for the 'European Green Car Initiative'*
- *EUR 20.00 million for Group of topics N° 4: Sustainable urban mobility, improving surface transport through ITS, infrastructures, safety and security*
- *EUR 8.00 million for Group of topics N° 5: Cross-cutting activities for implementing the sub-theme programme*
- *EUR 4.00 million for Group of topics N° 6: Horizontal activities for implementing the Transport programme*

# Overview of Topics for Group N° 1

## Increasing railway capacity

- *SST.2013.1-1. CP-FP. Level 2. Railway infrastructure optimisation and monitoring for further noise reduction – CP-FP level 1*
- *SST.2013.2-1 CP-IP. Level 2. Next generation of train control systems in the domain of urban and main line European railway systems - CP-IP level 1*
- *SST.2013.2-2. Level 2. CP-IP. New concepts for railway infrastructure and operation: adaptable, automated, resilient and high-capacity - CP-IP level 1*
- *SST.2013.5-1. Level 2. CP-FP. Technical requirements for the certification of new materials for railway rolling stock - CP-FP level 1*



## Other topics for this call (1)

### *Group of topics N° 4: Sustainable urban mobility*

- *SST.2013.3-1. Managing integrated multimodal urban transport network – CP-IP*
- *SST.2013.3-2. Implementing innovative and green urban transport solutions in Europe and beyond - CSA-SA*

### *Group No 5 Cross-cutting activities*

- *SST.2013.6-1. CSA-SA. Strengthening the research and innovation strategies of the transport industries in Europe – CSA-SA*

## Other topics for this call (2)

### TPT 2013

- TPT.2013-1. Technology transfer in the area of Transport - CP-FP
- TPT.2013-2. Mapping regional capacities in transport research and innovation - CSA-SA
- TPT.2013-3. Ex-post evaluation of the Transport (including AAT) theme of the FP7 'Cooperation' specific programme - CSA-SA



The next Framework Programme:

# *Horizon 2020*

*Previously known as FP8 or Common Strategic Framework (CSF)*





# HORIZON 2020

## 3 MAIN COMPONENTS

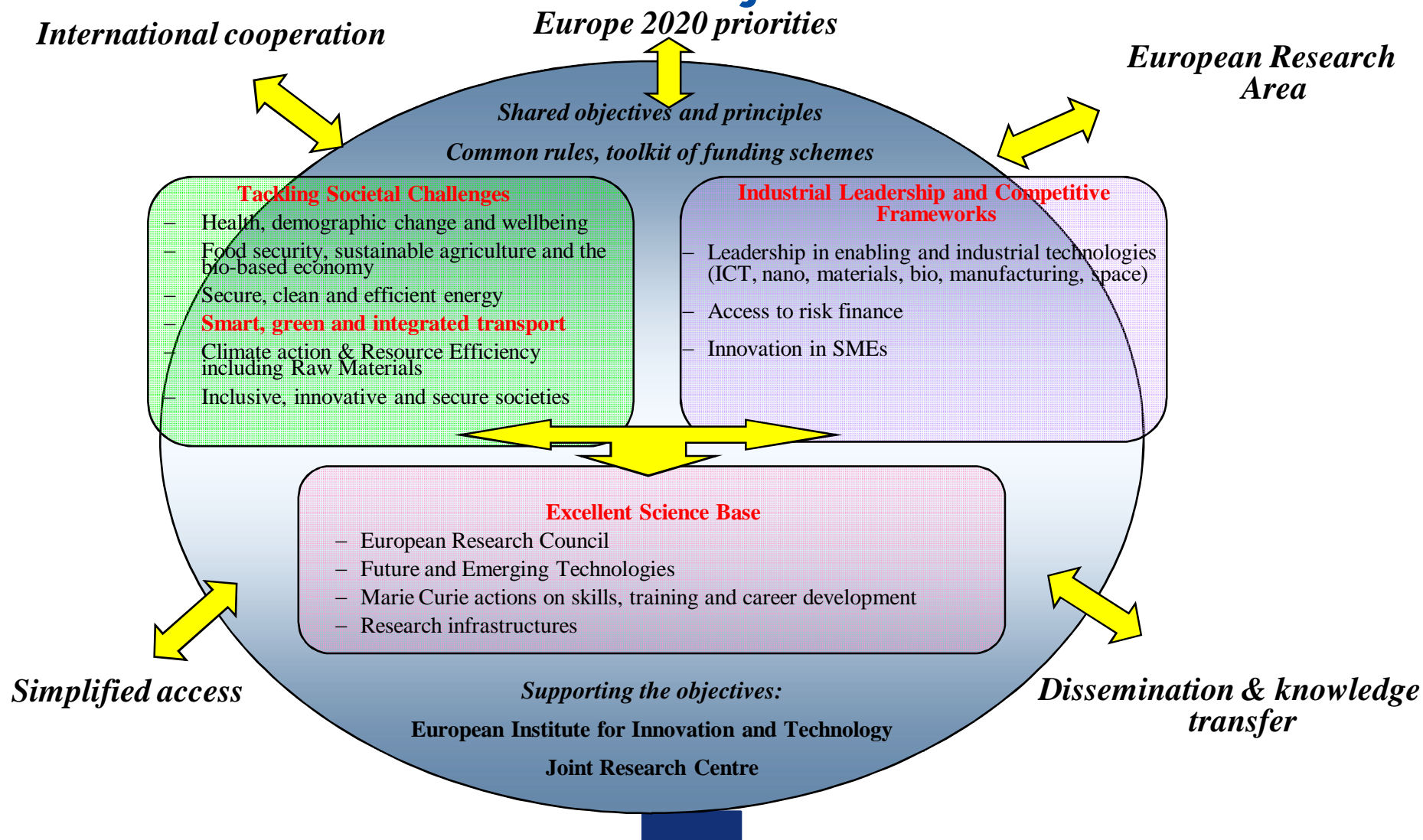
*SCIENTIFIC  
EXCELLENCE*

*INDUSTRIAL  
COMPETITIVENESS*

*SOCIETAL  
CHALLENGES*



## Horizon 2020 – Objectives and structure





## **“HORIZON 2020”: MAIN FEATURES**

### **DURATION:**

- 7 years (2014-2020)

### **BUDGET:**

- 88 billion € (current prices)

### **SMART, GREEN AND INTEGRATED**

### **TRANSPORT:**

- 7.2 billion € (current prices)

### **SCOPE:**

- from research to innovation

### **IMPLEMENTATION:**

- continued stakeholder engagement:  
maintaining and possibly extending JTIs  
and PPPs

### **FUNDING SCHEMES:**

- fewer, more flexible and user-friendly
- covering research and innovation





# SMART, GREEN AND INTEGRATED TRANSPORT IN "HORIZON 2020"

## **The challenge:**

to achieve a transport system that is

- resource efficient
- environmentally friendly
- safe and seamless

for the benefit of citizens, economy and society

## **The logic:**

- a holistic approach...
- ...that recognises modal specificities;
- that is focused on the societal challenges...
- ...and takes into account the imperatives of competitiveness.





## STRIKING THE RIGHT BALANCE

- policy objectives/industry goals/user needs
- TRANSPORT WHITE PAPER
- holistic approach/modal specificities
- competitiveness/sustainability
- technology integration/socio-economic dimension
- means/infrastructures/systems/services
- aviation/road/rail/waterborne/urban/cross-cutting







# **RESOURCE EFFICIENT TRANSPORT THAT RESPECTS THE ENVIRONMENT – railway research and innovation**

- **Cleaner and quieter vehicles**
  - energy storage and energy supply infrastructure
  - lighter vehicles, new materials, innovative design
- **Smart equipment, infrastructures and services:**
  - efficient use and management of the rail infrastructure
  - autonomous and efficient maintenance and inspection systems
  - climate resilience of infrastructures
  - accessibility and social inclusiveness
- **Improved transport and mobility in urban areas**



# **BETTER MOBILITY, LESS CONGESTION, MORE SAFETY AND SECURITY - railway research and innovation (1)**

- **Substantial reduction of traffic congestion - 'door-to-door' transport system**
  - multimodal transport management
  - information and payment system
  - accessibility
- **Improved mobility of people and freight**
  - optimisation of the railway network management
  - Interoperability, efficient use of the infrastructure
  - new positioning, navigation and timing applications (Galileo and EGNOS satellite navigation systems)
  - rapid responses to crisis events and extreme weather



## **BETTER MOBILITY, LESS CONGESTION, MORE SAFETY AND SECURITY - railway research and innovation (2)**

- **new concepts of freight transport and logistics**
  - combine high performance and low environmental impact vehicles with smart, secure on-board and infrastructure-based systems
  - e-Freight vision of a paperless freight transport process
- **reducing accidents and casualties, improving security**
  - passive and active safety, preventive safety, and enhanced automation and training processes to reduce the impact of human errors
  - integration of security aspects in the planning and management of passenger and freight flows





# GLOBAL LEADERSHIP FOR THE EUROPEAN TRANSPORT INDUSTRY - railway research and innovation

- **next generation of transport means**
  - development of innovative vehicles incorporating intelligent control systems
- **on board, smart control systems**
  - vehicle/infrastructure communication
- **advanced production processes**
  - lower lifecycle cost, facilitate vehicle standardisation and certification; fast and cost efficient design and manufacturing (including assembly, maintenance and automation)
- **new transport concepts**
  - innovative transport systems, incl. automated vehicles





## **SOCIO-ECONOMIC RESEARCH AND FORWARD LOOKING ACTIVITIES FOR POLICY MAKING**

- actions to support policy analysis and development
- user behaviour, social acceptance, mobility patterns
- business models
- impact of policy measures
- long term scenarios and prospective studies
- transport and spatial planning
- accessibility issues
- transport economics





## STRONG PARTICIPATION BY SMES

- Integrated approach - around 15% of the total budget for societal challenges and LEITs to go to SMEs
- Simplification of particular benefit to SMEs (e.g. single entry point)
- A new SME instrument, will be used across all societal challenges as well as for the LEITs
- A dedicated activity for research-intensive SMEs in 'Innovation in SMEs'.
- 'Access to risk finance' will have a strong SME focus (debt and equity facility)





# INTERNATIONAL COOPERATION

- **main drivers for international cooperation in transport R&I:**
  - global challenges, common problems
  - cross-border interoperability: Eur- Asian landbridge
  - international standards and global systems
  - access to knowledge, access to markets
- **mutual benefit, without hampering competition**
- **primarily with leading partner countries and neighbouring countries**





## Main funding schemes

- **Direct cost funding rate:** max 100% of eligible costs  
*(70% for demos and close to market activities)*
- **Indirect costs:** flat rate of 20% of total direct eligible costs
- **Collaborative projects**  
whole range of R&D activities, carried out by transnational consortia
- **Support actions**  
e.g.: dissemination, coordination, expert support, studies, etc.
- **Dedicated instrument for innovative SMEs**  
3 stages: feasibility/ main grant/ follow up
- **Programme co-funding**  
grants to national programmes for coordination and joint actions
- **Cash prize contests**  
to stimulate breakthroughs in science, research and innovation
- **Financial engineering**







## **NEXT STEPS H2020 (TENTATIVE)**

**30 Nov. 2011**

– Commission proposals adopted

**2012-2013**

– EP and Council deliberations

**2013**

– EP and Council decisions

**2nd semester 2013**

– Preparation of 1st Work Programme





# Rail Public-Private Partnership Proposal (Shift<sup>2</sup>Rail)





## Current situation

Initial proposal reviewed by Commission services  
Contacts with diverse stakeholders have taken place (manufacturers, operators, infrastructure owners)

Manufacturing industry (UNIFE) have visited Commissioner Geoghegan-Quinn & Vice-President Kallas to present proposal





## Feedback provided

Proposal is encouraging in showing readiness of industry to collaborate and commit to large-scale project

Initiative in line with Transport White Paper objectives, in which rail plays a significant role

Good representation of manufacturing industry in current proposal

Strong technology focus, centered around 2 main objectives (increasing capacity and competitiveness)





## Ongoing steps

Proposal is being reworked by UNIFE (rail manufacturer's association) and will be assessed by ERRAC (Rail Technology Platform).

→ Elaboration of proposal and supporting material in course of 2012-2013

→ Impact assessment procedure prior to Commission adoption

→ Council legislative procedure

Availability of budget under Horizon 2020 as of 2014.





# Transport Research Information Days 2012

*Opportunities for European R&D  
funding in the field of transport*



*18 July 2012: surface transport*

*19 July 2012: aeronautics and air transport*

*Charlemagne building, Brussels*

*More info & registration*

<http://ec.europa.eu/research/transport/events/infodays>





## Further information

***CORDIS:***

[http://cordis.europa.eu/home\\_en.html](http://cordis.europa.eu/home_en.html)

***Call for experts (evaluators and reviewers): PLEASE REGISTER***

<http://cordis.europa.eu/emmfp7>

***Transport web site:***

- **RTD:** [http://ec.europa.eu/research/transport/index\\_en.html](http://ec.europa.eu/research/transport/index_en.html)
- **MOVE:** [http://ec.europa.eu/research/transport/index\\_en.cfm](http://ec.europa.eu/research/transport/index_en.cfm)

***Helpdesk:*** [http://ec.europa.eu/research/new\\_hp/index.cfm?pg=enquiries](http://ec.europa.eu/research/new_hp/index.cfm?pg=enquiries)

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<http://www.ipr-helpdesk.org/>





# THANK YOU FOR YOU ATTENTION!

