

## ATTRACTIVENESS OF THE RAIL TRANSPORT MODE



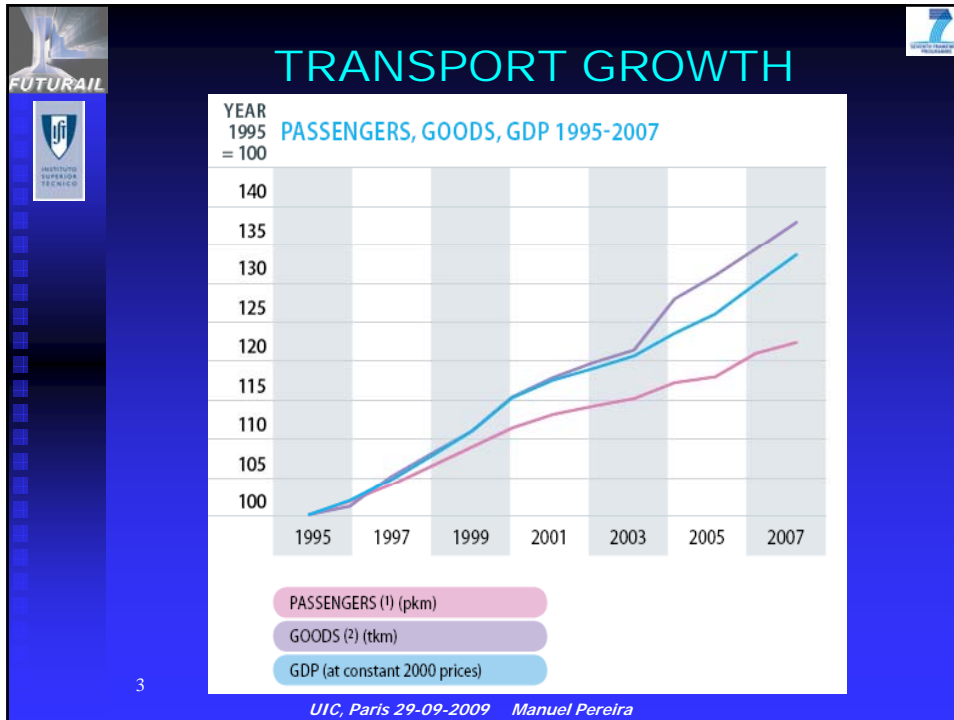
Manuel Pereira

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## ATTRACTIVENESS OF THE RAIL TRANSPORT MODE

- Trends
- Success stories
- Attractiveness of Rail from point of view of:
  - ◆ Manufacturers and operators
  - ◆ Authorities
  - ◆ From future staff – career development
  - ◆ From users
  - ◆ From society at large
- FUTURAIL

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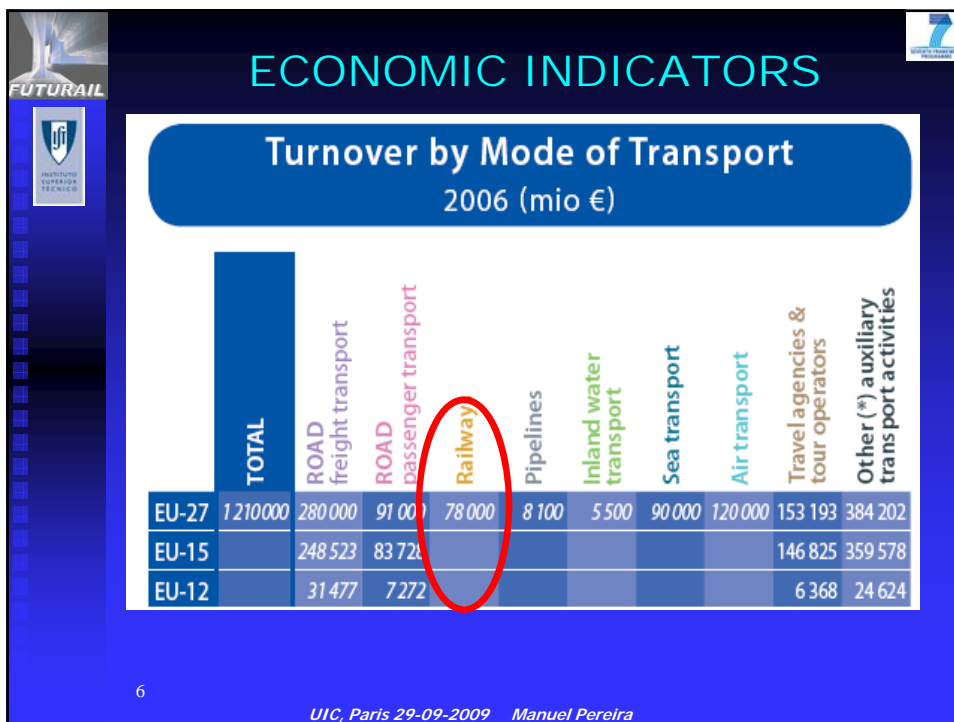
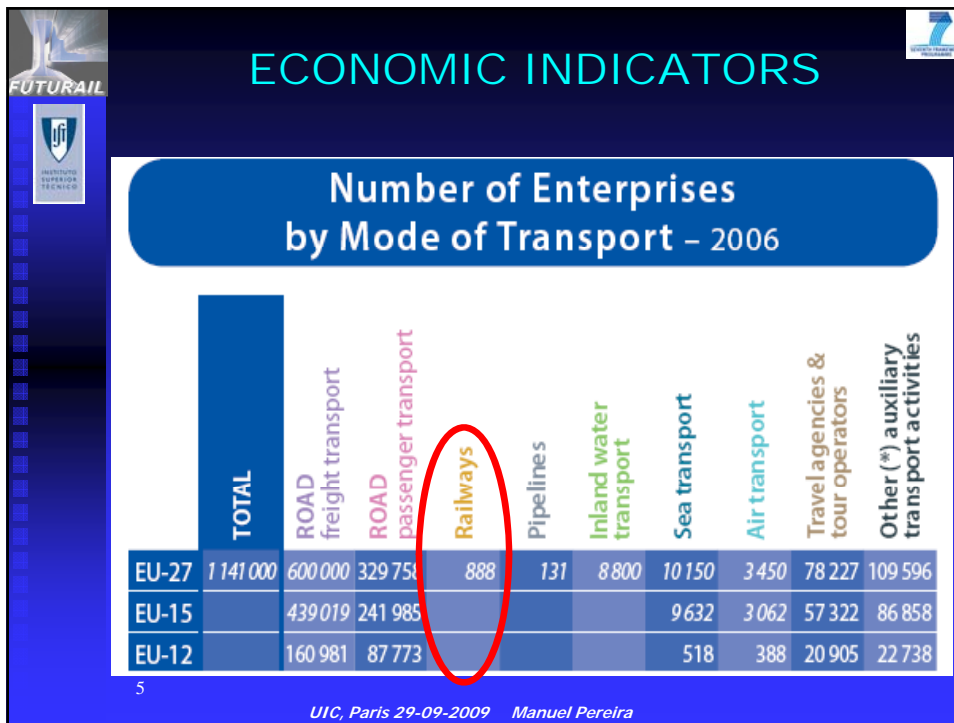


## EMPLOYMENT

### Employment by Mode of Transport 2006

	TOTAL	ROAD freight transport	ROAD passenger transport	Railways	Pipelines	Inland water transport	Sea transport	Air transport	Travel agencies & tour operators	Other (*) auxiliary transport activities
EU-27	8 884 010	2 832 404	1 840 000	900 000	17 926	43 492	171 440	407 062	484 960	2 186 726
EU-15	7 045 599	2 217 748	1 414 686	528 258	5 675	35 199	154 429	377 189	418 923	1 893 492
EU-12	1 838 411	614 656	425 314	371 742	12 251	8 293	17 011	29 873	66 037	293 234

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# ECONOMIC INDICATORS

## Final Consumption of Households for Transport

BY TYPE OF EXPENDITURE – 2007 (\*)

	FINAL CONSUMPTION OF HOUSEHOLDS FOR TRANSPORT	of which:			TRANSPORT AS A % OF TOTAL FINAL CONSUMPTION OF HOUSEHOLDS	EXPENDITURE PER HEAD ON TRANSPORT
		purchase of personal transport equipment	operation of personal transport equipment	purchased transport services		
EU-27	948 691	310 014	469 501	169 175	13.7	1 900
EU-15	884 766	292 847	436 701	155 219	13.7	2 300
EU-12						

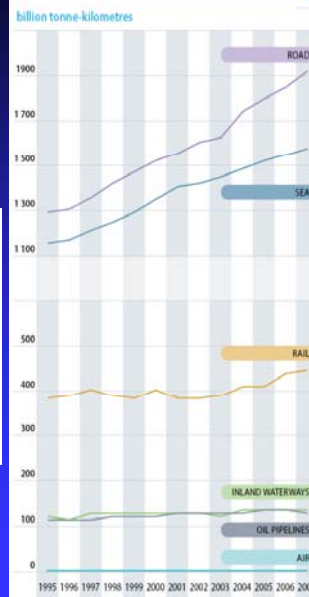
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# MODAL SHARE

## Railways

	thousand mio tkm						CHANGE '06/'07
	1990	1995	2000	2005	2006	2007	
EU-27	526.3	386.1	403.7	414.1	440.2	452.2	2.7
EU-15	256.5	222.7	257.1	262.9	285.9	296.2	3.6
EU-12	269.8	163.4	146.6	151.3	154.3	156.0	1.1

EU-27 Performance by Mode for Freight Transport - 1995-2007



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# RAILWAY MODE

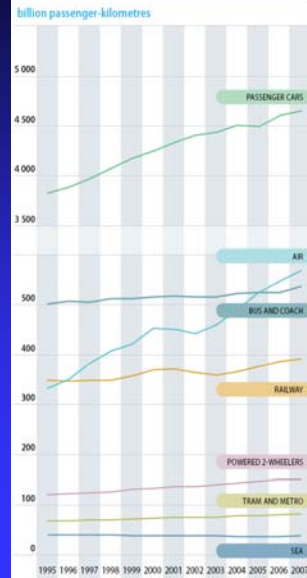
## Tram + Metro

	thousand mio pkm						%
	1990	1995	2000	2005	2006	2007	
EU-27		71.1	77.1	82.5	83.9	85.4	1.8
EU-15	49.0	48.8	54.7	60.0	61.4	62.8	2.3
EU-12		22.4	22.5	22.5	22.5	22.6	0.5

## Railways

	thousand mio pkm						%
	1990	1995	2000	2005	2006	2007	
EU-27	420.1	350.5	370.7	378.6	389.6	395.1	1.4
EU-15	268.9	276.1	309.4	329.3	339.6	345.4	1.7
EU-12	151.2	74.4	61.4	49.3	50.0	49.7	-0.6

EU-27 Performance by Mode for Passenger Transport - 1995-2007



# MODERN RAIL – modern Europe (DGTREN, 2008)

## Strengths, weaknesses, opportunities, threats

- AN EFFICIENT RAIL SECTOR – Restructuring , Rationalising public funding
- AN INTEGRATED RAIL MARKET - Creating infrastructure backbone, Identifying profitable markets for rail freight and passenger
- MEETING CITIZENS' EXPECTATIONS
  - Quality of service
  - A public service
  - An environmentally friendly mode
- RAIL IN EVOLUTION - Ongoing EU efforts
  - 2010 Liberalization of rail market for international passenger services
  - Upgrading by 2012-2015 key freight routes deploying ERTMS
  - New EU rules on train driver's licences and passenger rights





## Trends and drivers of change

### The European railway equipment sector

Source: European Monitoring Center on Change

- ❑ **MARKET**
  - ❑ Current worldwide rail market 56.7 billion per year
  - ❑ Annual growth 4%
  - ❑ **CONCENTRATION IN THE NUMBER OF LEADING COMPANIES**
  - ❑ **PLAYERS BECOMING GLOBAL**
    - ❑ Through mergers/takeovers
    - ❑ Through the establishment of subsidiaries
  - ❑ **STRENGTHENING OF TECHNICAL AND COMMERCIAL INNOVATION**
  - ❑ **SIGNIFICANT COST REDUCTIONS (10% TO 30% ON NEW PRODUCTS)**
  - ❑ **PRODUCTIVITY GAINS OF 5% TO 8%**
  - ❑ **DEVELOPMENT OF NEW AREAS OF COMPETENCES PREVIOUSLY PROVIDED BY RAILWAY OPERATORS**

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## Trends and drivers of change

### The European railway equipment sector



Source: European Monitoring Center on Change

## EMPLOYMENT

- ❑ **Covers the following sectors**
  - ❑ Production of vehicles (locomotives, RS for railways and tramways)
  - ❑ Infrastructure equipment – railway, electrification
  - ❑ Engineering systems – control/safety, telecommunications
- ❑ **UNIFE claims 130 000 in EU in 1999**
- ❑ **The biggest suppliers of railway equipment**
  - ❑ German - 38k employees
  - ❑ France - 17k employees

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## Trends and drivers of change

### The European railway equipment sector

Source: European Monitoring Center on Change

#### GROWING DEMAND FOR TRANSPORT SERVICES

- ❑ Passenger transport demand will increase
  - ❑ Urbanisation
  - ❑ separation of accommodation, work and recreation
  - ❑ Forecast increase by 17% from 2002 to 2015
- ❑ Freight
  - ❑ New and varying production processes based on JIT delivery
  - ❑ Forecast increase by 37%

(Prognos AG quoted in Vossloh AG, October 2003)

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## Trends and drivers of change

### The European railway equipment sector

Source: European Monitoring Center on Change

#### ADVANTAGES OF RAILWAY SYSTEMS

- ❑ Networks already exist in most regions and countries and metropolitan areas
- ❑ Spare capacity - Current utilisation of rail networks is low compared with roads and airports
- ❑ Greatest potential growth in
  - ❑ inner city transport operations
  - ❑ Commuter transport
  - ❑ Regional links and fast connections between metropolitan areas
  - ❑ High capacity transport and transport of dangerous goods

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## Trends and drivers of change

### The European railway equipment sector

Source: European Monitoring Center on Change

- **DERREGULATION**
  - **1<sup>st</sup> rail pack**
    - Rules for licensing and allocating infrastructure capacity
    - Separation of accounting from management functions in the national rail operators
    - Possibility of competition on TransEuropean Rail Freight network
  - **2<sup>nd</sup> Rail pack –**
    - Extension of competition to both international and domestic freight 2006
  - **3<sup>rd</sup> Rail Pack**
    - Licensed operators would be allowed to provide international and “cabotage” services by 2010

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## Trends and drivers of change

### The European railway equipment sector

Source: European Monitoring Center on Change

**DERREGULATION**

- Impact very limited
- Freight competition has enabled new entrants to take 4 % of the market

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## Trends and drivers of change

### The European railway equipment sector

Source: European Monitoring Center on Change

- ❑ **Industry Reforms**
  - ❑ competition, pressure on prices, ..
  - ❑ Design , Maintenance Technological Research shifted to industry
  - ❑ Massive reductions in employment in operators (1990-1998)
- ❑ **Interoperability**
  - ❑ key to creating a single market
  - ❑ Prerequisite for growth and technical advancements
- ❑ **Funding - PPPs, leasing ,...**
  - ❑ 1km of new single track non-electrified line for freight costs 3 M€
  - ❑ 1 km of New intercity HS line costs 20M€
  - ❑ Double deck passenger car costs 1 M€
  - ❑ Spain, France, Germany – 3-4 Billion €a year

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## Trends and drivers of change

### The European railway equipment sector

Source: European Monitoring Center on Change

- ❑ **INNOVATION**
  - ❑ How customers perceive reliability, comfort and safety
  - ❑ Manufacturers invest 500M€a year in
    - ❑ New materials, signalling, telecommunications and information systems
    - ❑ Tilting trains
    - ❑ Power trains
    - ❑ ERTMS
    - ❑ Development of platforms allowing wide range of choices within certain parameters

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## Present trends High speed trains

- Across Europe and Japan
  - ◆ Eurostar – London
  - ◆ TGV – Lyon
  - ◆ ICE - Frankfurt
- Attracting new traffic - business
- Generating revenue

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## Facts and Figures

### FRANCE

1.2 billions passengers transported in TGV since 1981.

### SPAIN

New world record: 47 000 passengers travelled in the Madrid-Seville line (AVE) in 136 trains in an holiday weekend

### EUROPE in the last 10 years

Line km increased 1.7 times up to ~3 750 km

170 km of new lines per year

Traffic volume (passenger-km) increased 2.6 times

### EUROPE in 2010

6 000 km of new lines

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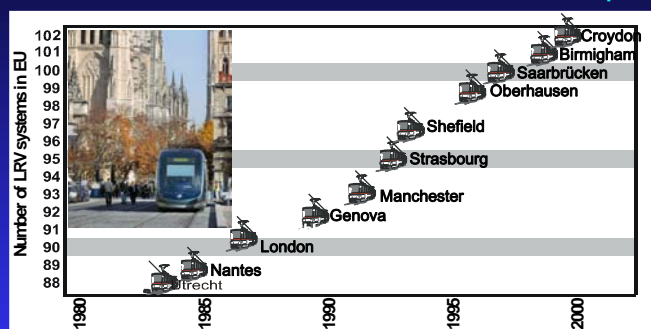
## Present trends

### Revived old regional lines

- Access to rural areas
- Tilting trains
- Light-weight Diesel cars

## Present trends

### Urban and commuter rail transport



- New light rail lines and metros
- Real Solution for traffic congestion
- Backbone of mobility

# Success stories

## Use of multivoltage locomotives



- Trans-alpine traffic is a key target for modal shift,
- With Marco Polo support the project build up a daily block train service using the Tauern corridor to the east of the Alps (from Munich, via Salzburg and Villach, to Cervignano, close to the port of Trieste).
- Critical to service reliability is the use of multivoltage locomotives able to operate on all the networks concerned.
- "Our goal is 90 % punctuality, and that depends on the quality of the locomotive.
- "There are high volumes on this route, which also connects to Slovenia and Turkey, but it is difficult to persuade operators to change from trucks, and it takes time to build up the service, which will run at a loss at first."

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# SUCCESS STORIES

Abfahrt	Départ	Partenza	SERIE	PLUGGAFER	WAG
16.00	16.00	16.00	16.00	16.00	16.00
16.05	16.05	16.05	16.05	16.05	16.05
16.10	16.10	16.10	16.10	16.10	16.10
16.15	16.15	16.15	16.15	16.15	16.15
16.20	16.20	16.20	16.20	16.20	16.20
16.25	16.25	16.25	16.25	16.25	16.25
16.30	16.30	16.30	16.30	16.30	16.30
16.35	16.35	16.35	16.35	16.35	16.35
16.40	16.40	16.40	16.40	16.40	16.40
16.45	16.45	16.45	16.45	16.45	16.45
16.50	16.50	16.50	16.50	16.50	16.50
16.55	16.55	16.55	16.55	16.55	16.55
17.00	17.00	17.00	17.00	17.00	17.00
17.05	17.05	17.05	17.05	17.05	17.05
17.10	17.10	17.10	17.10	17.10	17.10
17.15	17.15	17.15	17.15	17.15	17.15
17.20	17.20	17.20	17.20	17.20	17.20
17.25	17.25	17.25	17.25	17.25	17.25
17.30	17.30	17.30	17.30	17.30	17.30
17.35	17.35	17.35	17.35	17.35	17.35
17.40	17.40	17.40	17.40	17.40	17.40
17.45	17.45	17.45	17.45	17.45	17.45
17.50	17.50	17.50	17.50	17.50	17.50
17.55	17.55	17.55	17.55	17.55	17.55
18.00	18.00	18.00	18.00	18.00	18.00

**Passenger Transport in Switzerland**  
 A combination of investments for rail, increased operational excellence and good marketing strategy

**The Metro System in Madrid**  
 System up to 227 km and 190 stations.  
 The attractiveness of the new system pays off 615 million passengers in 2004



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# SUCCESS STORIES



### Tram-Train in Karlsruhe

Possibility of track sharing for light and heavy rail vehicles.

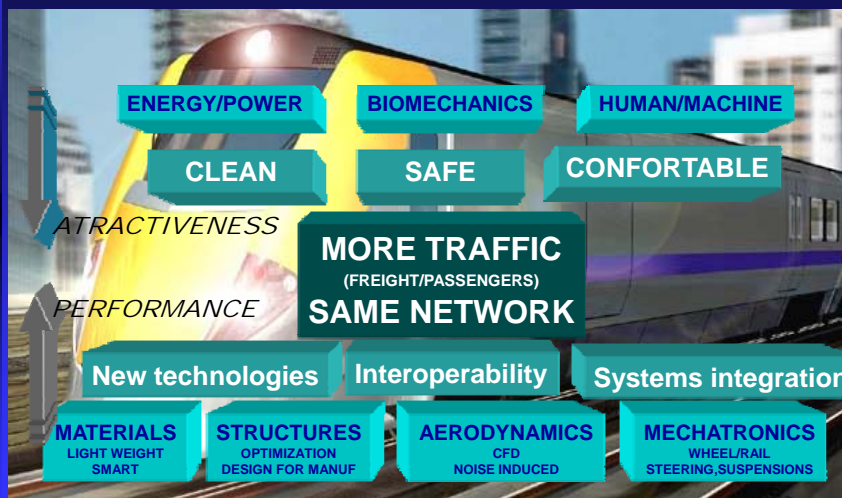
### Custom-Made Freight Transport between Spain, Germany and Slovakia

A new transport link is put in place for VW transport GmbH to optimize logistic links between the VW plants.

The 2,200 km distance between Pamplona and Bratislava is covered within 72 hours, with each train carrying 1,400 tonnes of material



# Manufacturers and Operators



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# Manufacturers and Operators

## Innovative solutions





- Bogies: Our Innovations Keep You Moving (BOMBARDIER)

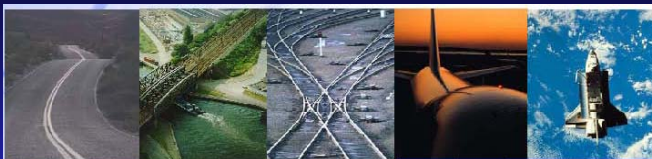


- A good neighbour and a highly attractive mobility alternative (BOMBARDIER)

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# Yardsticks for Transport Services



Yardstick	Score
Reliability of transport	3,00
Level of price	2,75
Available capacity	2,63
Information Management	2,57
Transport time	2,38
Handling time	2,13
Frequency of transport	2,00
Ecological aspects	1,75

Source: PricewaterhouseCoopers

0 0,5 1,0 1,5 2,0 2,5 3,0 3,5

Not Important Important

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## Authorities

Changes to the Rail Network  
Several committed schemes

- Infrastructure improvements
- Station improvements
- New platforms
- Platform lengthening
- Interchanges – rail/bus links
- Rolling stock upgrades
- Enhanced service frequencies
- Area Signalling Renewals



## Necessary and possible progress

- Cost driven
  - ◆ Total operating costs
  - ◆ Life cycle costs
- Technology driven
  - ◆ Increasing performances of networks and rolling stock
- Society expectations



## Technology driven research

- Bring together advanced technologies
  - ◆ Information Technology
  - ◆ New materials (Car and Aerospace industry)
  - ◆ Propulsion systems, power train, tilting, suspensions, ...
- Demonstrate at concept level – feasibility
- New improved methodologies to facilitate design integration
  - ◆ Specific design/simulation tools
  - ◆ Product oriented concurrent engineering

## Users

- Rights
- New markets
  - ◆ young, old, business, families, PRM
- Intelligent mobility
  - ◆ Seamless transport, new services, information
- Intermodality
  - ◆ stations information
- Security








## Society expectations

- Clean
  - ◆ Low emissions
  - ◆ Energy efficiency – *mass, regeneration in braking*
- Cabin Environment
  - ◆ Low noise and vibration levels, pressure changes
  - ◆ Climatisation, lighting – *on board energy*
- Safe
  - ◆ Low risk levels - accidents
    - ◆ Frequency – active safety (ATP, signalling, interoperability)
    - ◆ Severity – passive safety (crashworthiness)

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## Society at large

Behavioural change in travel in the next twenty years

- Improved consumer perception
  - ◆ improved reliability, quality of service and overall value for money.
- The market driven by key issues
  - ◆ covering access to and egress from the rail station,
  - ◆ including integration with other modes
  - ◆ availability and cost of parking at stations.
- Scope for marketing and branding of service levels and facilities, improved customer understanding of fare policies, integrated ticketing ....

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## Society at large

- Significant changes to working patterns and lifestyles over recent years
  - ◆ More flexibility in working practices
  - ◆ More people working from home and travelling outside peak times
  - ◆ Times that people use the train
- Consider offering meeting facilities at stations and review the catering and retail facilities supplied
- Image, branding and strong political desire will all be important in shaping the future of rail services

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## Future Staff - Careers



- Rail transport in Europe is a future-oriented industry and is striving to offer an even more:
  - attractive,
  - affordable,
  - safe,
  - clean,
  - competitive and
  - reliable transport mode.
- Innovation is a key success factor for European Railways and the Supply Industry

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## Targeted research lead education



**SIEMENS**: Thousands of jobs are waiting for you on our job exchange. Take advantage of the opportunity.

**ALSTOM**: Find the right role at Alstom. Our projects require highly skilled professionals. To contribute to the growth of our activities, the Group is searching for qualified people.

**BOMBARDIER**: Working at Bombardier. Bombardier Transportation. Operating in more than 35 countries, our 1,500 employees continue a proud tradition of delivering innovative rail transportation solutions, including:

- Rail vehicles - automated people movers, metros, light rail vehicles, advanced rapid transit, motor, commuter/regional trains, electric high-speed trains and locomotives
- Propulsion and controls - complete product portfolio for applications ranging from today's trucks to freight locomotives
- Bogies - product portfolio for the entire range of rail vehicles
- Services - fleet maintenance, operations and maintenance (O&M), vehicle refurbishment and modernization, and material management
- Total transit systems - customized "design-build-operate-maintain" transportation system solutions
- Rail control solutions - advanced signalling solutions for mass transit and mainline systems

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## PERSONEL DEVELOPMENT

- Elimination of jobs for restructuring and modernization
- New opportunities with increase "insourcing"
- Providing perspectives with "in-house" learning for new careers
- The diversity and uniqueness of the employees is not only respected, it is encouraged.
- No one should experience any disadvantages because of their age, gender, beliefs or ethnic origin.



Source: Sustainability Report 2007, DB AG

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## Knowledge management Life long learning

### ■ Development, dialogue and networking:

- ◆ Development, dialogue and networking: over the years employees gain valuable knowledge and professional know-how.
- ◆ Transfer of knowledge between experienced and new employees.
- ◆ DB Training plays a major role in the area of training as well as lifelong learning.
- ◆ DB Academy offers its leadership programs to employees at the senior executive staff level.

Source: Sustainability Report 2007, DB AG

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## Junior staff as the basis for success

- In 2006 DB AG trained 8000 youngsters
  - ◆ Commercial business
  - ◆ Manual and Technical occupations
  - ◆ Rail-road specific
  - ◆ IT occupations
- Collaboration with selected schools
- Recruitment of top ranked university graduates
  - ◆ In 2007 hired 240 including 90 engineers
  - ◆ Internships with DB during their studies

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# FUTURAIL

## JOB OPPORTUNITIES FOR THE RAILWAY COMMUNITY OF TOMORROW










# FUTURAIL

**Leader:**  
Instituto Superior Tecnico (IST), Portugal

**Partners:**  
NITEL, Italy  
FAV, Germany  
UIC, France  
EURNEX, Germany

**Duration:**  
18 months




**Total Budget:**  
€ 262 079










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## FP7 Project - FUTURAIL

- Europe needs rail and rail in turn, needs to upgrade its knowledge, skills and competencies by attracting new talents and skilled staff with ambitions to face the challenges of the sector
- Foster a better match between the human resources needs to make railways a more competitive and innovative sector
- The more competitive we envisage the sector to turn into, the more we need focused training and education programs to support it
- FUTURAIL will act by matching demand and supply of the required skills and competencies to foster the development of the sector




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## FUTURAIL RATIONAL

<p><b>Science, Research &amp; Innovation</b></p> <ul style="list-style-type: none"> <li>• Attractiveness examples</li> <li>• Potential of research groups</li> <li>• Outcomes and impacts to create job opportunities</li> <li>• Competitions for best and innovative ideas in High Schools and Universities</li> </ul>	⇒	<p><b>Dissemination</b></p> <ul style="list-style-type: none"> <li>• Attractive &amp; easy to understand dissemination material for examples</li> <li>• Organized site visits</li> <li>• Dissemination of major research results, awards</li> </ul>
<p><b>Gender</b></p> <ul style="list-style-type: none"> <li>• Attractiveness examples for the female researchers</li> <li>• Development of a gender related activities book in railway research</li> <li>• Raising awareness on gender diversity added value. Success stories</li> </ul>	⇒	<p><b>Dissemination</b></p> <ul style="list-style-type: none"> <li>• Interviews of participants in the Mentor / Trainee programme</li> <li>• Gender equality watching system inside the railway research</li> <li>• <b>gender opportunity help desk?</b></li> <li>• Presentation Gender Action Plans results</li> <li>• Gender mainstreaming Workshop for the network of excellences in surface Transport</li> </ul>
<p><b>Railways a competitive economic sector for the future</b></p> <ul style="list-style-type: none"> <li>• Skills and new technologies.</li> <li>• Involvement of Stakeholders and universities</li> <li>• Fact finding, studies on job opportunities</li> </ul>	⇒	<p><b>Dissemination</b></p> <ul style="list-style-type: none"> <li>• Maintain and expand network for information exchange (EURNEX)</li> <li>• Library of Railway opportunities for technology development</li> <li>• Workshop for research based training &amp; education</li> <li>• Publication of a Brochure "Railways an economic sector for the future"</li> </ul>

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## FUTURAIL Actions

- Attractiveness examples
  - ◆ Technology, services,... (Operators, manufacturers,...)
  - ◆ To be presented in workshops.
- 1 Workshop with industry
  - ◆ Analysis of current development in railway sector w/ experts from industry
  - ◆ Attractiveness examples
  - ◆ Attendance from industry and students
- Summer School September 2009, venue Genova, IT)
  - ◆ Technologies in railway transport
  - ◆ Engineering activities in railway transport
  - ◆ Research activities in railway transport
  - ◆ Software tools for the railway engineering (practical lesson)
  - ◆ 5 days, 15 students.
  - ◆ SPONSORING !
- 3 excursions (PT, 1 DE, 1 IT)
- 5 Visits (2 PT, 2 DE, 1IT)
- Newsletters
- Seminars (2) + Jobshops (2) + Gender WS (2)

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## FUTURAIL Actions

**FERTAGUS VISIT**



Cross river



Visit participants



FERTAGUS train



Wheel reprofiling

**Company name:** FERTAGUS

**Company type:** Railways Portuguese private operator

**Company mission:** Operate, in the route North/South across the Tejo River, with complete and integrated services solutions of suburban transport

**Date of the visit:** 7 May 2009

**Number of participants:** 24 (22 university students from IST and 2 professors from IST)

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**FUTURAIL Actions**

**OPERATIONAL CONTROL CENTRES (OCC) VISIT**

OCC building      Visit participants      Central monitor of the control room      Sight of the control room

**Company name:** REFER  
**Operational Control Centre (OCC)**  
**Company type:** Infrastructure manager  
**OCC mission:** Command, control and supervise all functions and activities relating to rail operation processes  
**Date of the visit:** 26 May 2009  
**Number of participants:** 15 (14 university students from IST and 1 professor from IST)

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**FUTURAIL Actions**

**FUTURAIL NEWSLETTER**

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**FUTURAIL** **FUTURAIL Actions**

**FUTURAIL SUMMER SCHOOL**

**TOPICS:**

- Research activities and innovation in the railway sector
- Strategic and economics in railways
- Innovative solutions for intermodal transport
- Railway technologies in rolling stock
- Infrastructures
- Testing and maintenance strategies of railway infrastructure
- Energy and environmental aspects
- Railway industry and operators perspectives

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Summer school on railway transport and technologies

Genoa, 31<sup>st</sup> August—4<sup>th</sup> September 2009



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**FUTURAIL** **FUTURAIL Actions**

**EXPO and SEMINAR**

**RAILWAYS: A sector for the future**  
Expo and Seminar for the dissemination of the Railway Sector

**Promoters**  
Instituto Superior Técnico  
Associação Portuguesa para a Normalização e Certificação Ferroviária

**Dates**  
27 – 28 October 2009

**Target Participants**  
Managers, High level decision making professionals and industrial staff, Academia  
University students from Engineering and management schools, High school students, Ciência Viva Program




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# FUTURAIL Actions

## **FUTURAIL “brainstorming“ meeting – Innovative actions for employer branding policy**

Date of the meeting: 4-5 June 2009

Location: REFER, Lisbon, Portugal

### **Agenda:**

Presentation of REFER

FUTURAIL – Job opportunities for the railway community of tomorrow-

Brief overview and first actions

Future railway skills – horizon 2020

Identify the necessary skills and expertise for the future railway

Gender balance in the frame of the FUTURAIL project - Overview and first actions

Current innovative actions in terms of employer branding policy, social corporate image. How “to market” the information

*UIC, Paris 29-09-2009 Manuel Pereira*

## **FUTURAIL “brainstorming“ meeting – Innovative actions for employer branding policy**

Date of the meeting: 4-5 June 2009

Location: REFER, Lisbon, Portugal

### **Agenda:**

Presentation of REFER

FUTURAIL – Job opportunities for the railway community of tomorrow-

Brief overview and first actions

Future railway skills – horizon 2020

Identify the necessary skills and expertise for the future railway

Gender balance in the frame of the FUTURAIL project - Overview and first actions

Current innovative actions in terms of employer branding policy, social corporate image. How “to market” the information





## Food for thought

What are the changes railways are facing that will determine its future

**What are the implications on:**

- ◆ technological
- ◆ demographic
- ◆ structural
- ◆ legal
- ◆ regulatory domains

**Identify aspects of:**

- ◆ attractive
- ◆ affordable
- ◆ safe
- ◆ clean
- ◆ competitive
- ◆ reliable transport mode

**Identify rail needs to upgrade its knowledge, skills and competencies by investing in:**

- ◆ research development
- ◆ technological upgrading
- ◆ implementation of new legal and economics settings that enable the sector to be more agile and competitive

**How to attract new talents and skilled staff with ambitions to face the challenges of the sector:**

- ◆ women role in shaping the railways of tomorrow

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## Food for thought

**Identify specific actions at European level for:**

- Disseminate the railways vision and the intense on-going change process
- Dissemination of good practices
- Highlight the social and industrial benefits accruing from rail to further develop European Union largely dependent on a sustainable transport sector
- Demonstrate and disseminate the need of
  - ◆ advanced high technology engineering in the future of railways
  - ◆ additional domains of knowledge
- Make evidence (foster and disseminate) that new job opportunities will be open in the sector
- By placing research information where it is most needed FUTURAIL will help bridging the past and future of the railways sector in Europe:
  - Between staff generations
  - Between old and new processes
  - Between past and future technologies
  - Between decision level within and beyond the railways sector

*UIC, Paris 29-09-2009 Manuel Pereira*