INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

Improving the sustainability of transport – The rail sector as a case study

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The rail industry in numbers

200 Members on 5 continents

2.7 billion passenger-kilometres

9.5 billion ton-kilometres

7.1 million railway staff

1,000,000 kilometres of lines worldwide

UIC in numbers

6 Regional Assemblies

7 Forums and Platforms

50 International Expert working groups

180 Cooperation projects

670 UIC Leaflets

200 reference documents

85 training sessions, conferences, seminars

Africa
5 active members
22 associate members
3 affiliate members

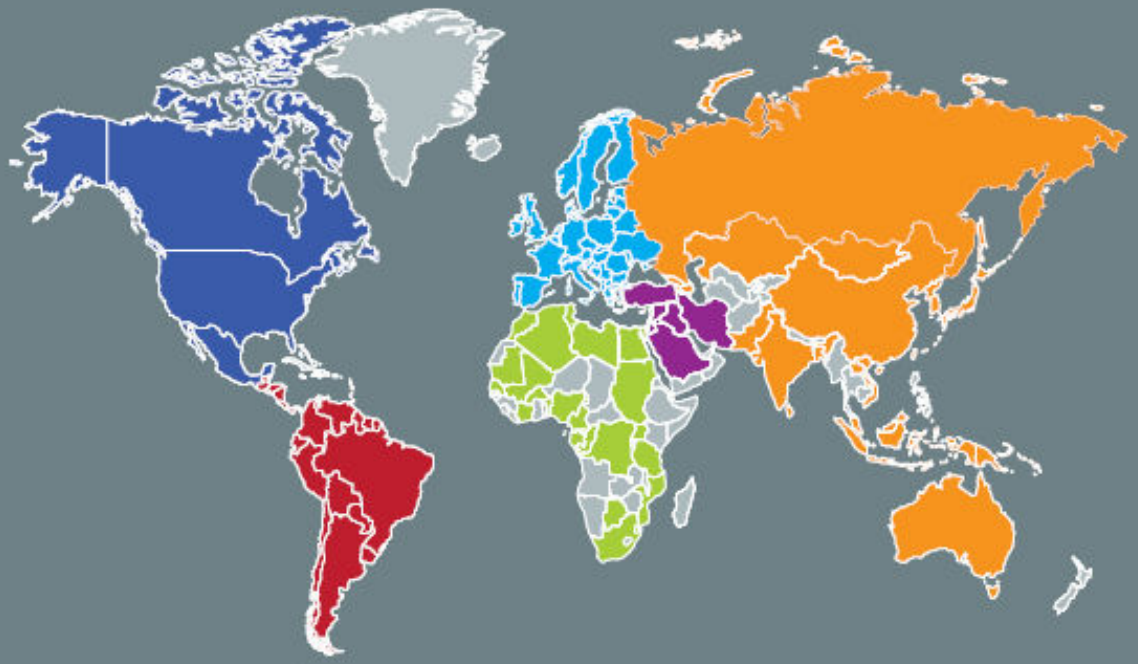
Asia-Oceania
9 active members
15 associate members
12 affiliate members

Europe
[illegible] active members
[illegible] associate members
[illegible] affiliate members

Middle-East
0 active members
2 associate members
4 affiliate members

North America
3 associate members
1 affiliate members

South America
2 associate members
2 affiliate members



UIC Mission

Promoting the development of rail transport

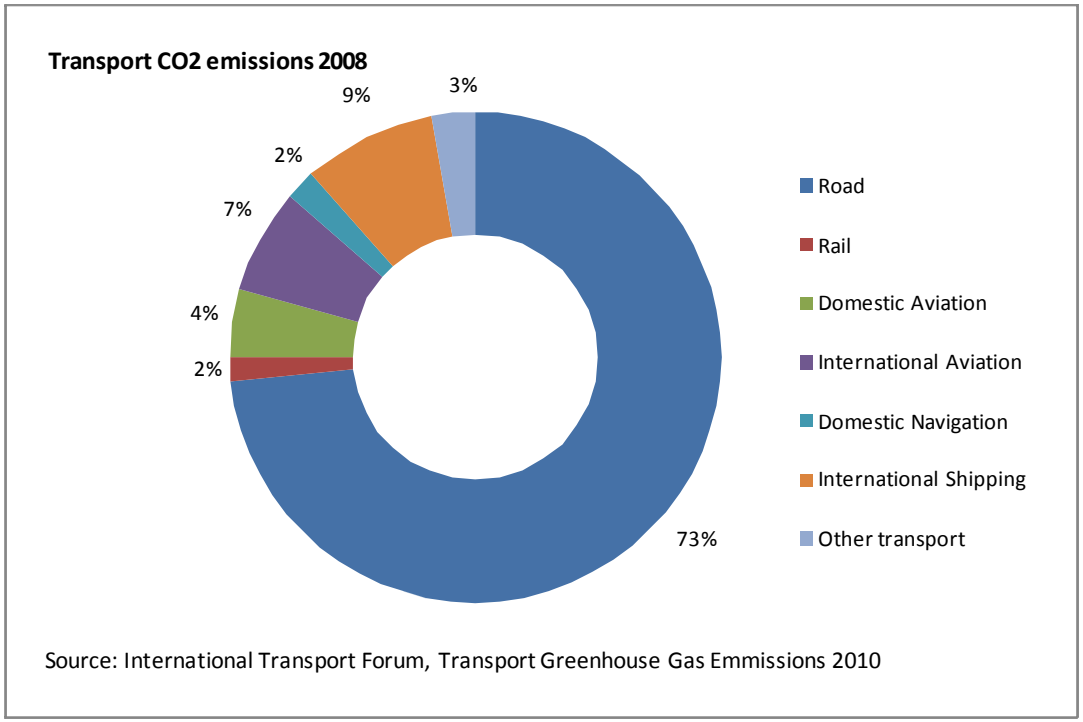
at world level,

in order to meet challenges

of mobility and sustainable development

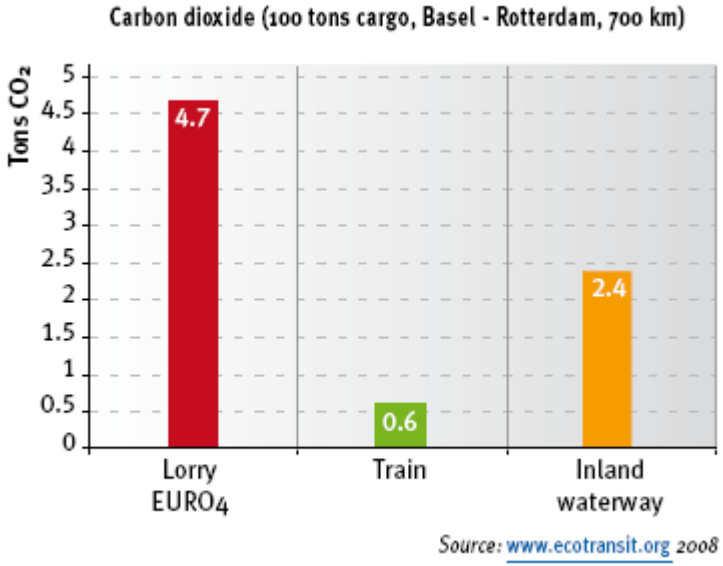
The mobility challenge

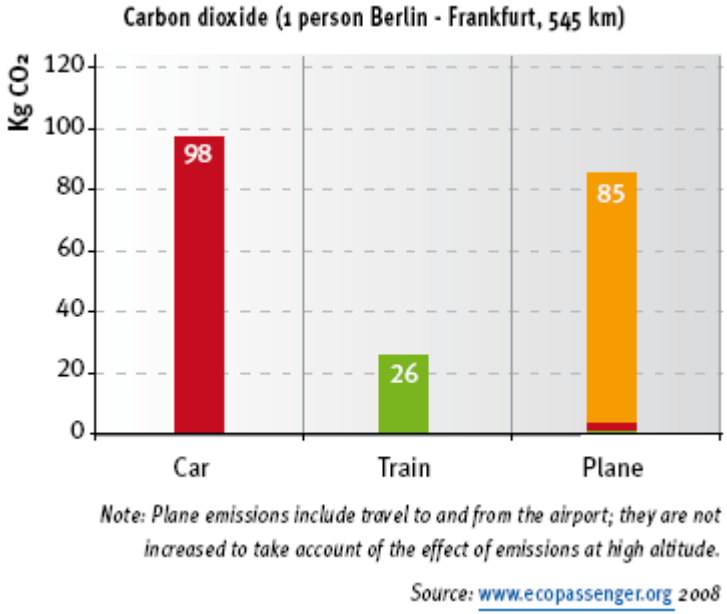
- The explosion in global mobility has created environmental challenges
- Transport accounts for over 50% of world consumption of fossil fuels – forecast to increase to 60% in 2035
- Within transport rail accounts for 2% of CO2 emissions



Source: International Transport Forum, Transport Greenhouse Gas Emmissions 2010

Rail is a low carbon transport mode



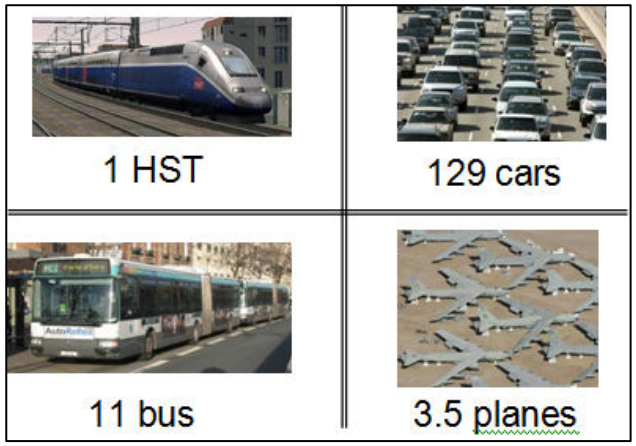


www.ecotransit.org
(global carbon footprinting freight)

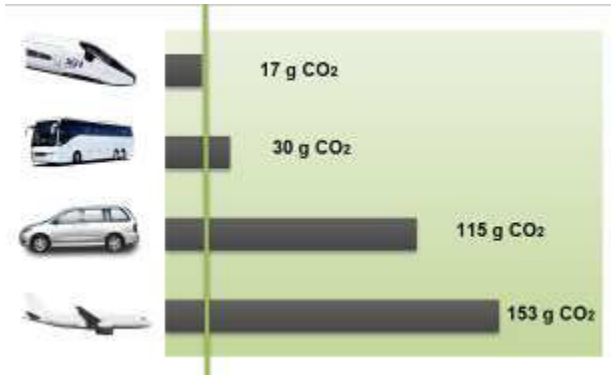
www.ecopassenger.org
(carbon footprinting passenger Europe)

Rail compared to other modes

Capacity

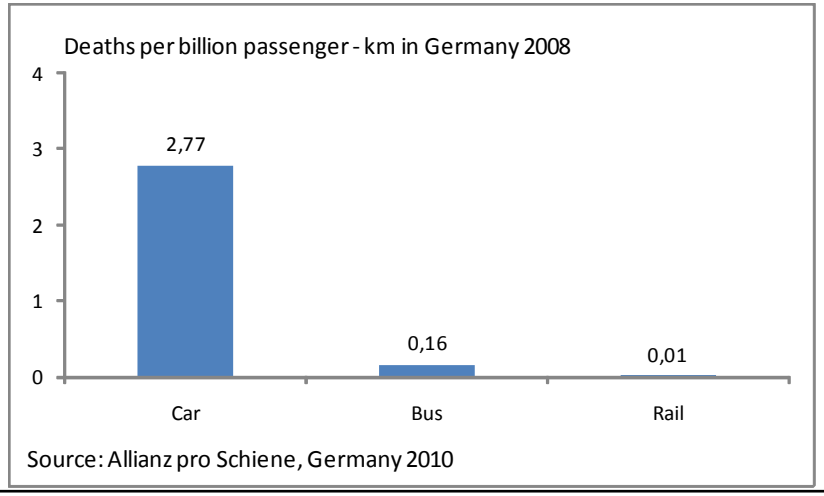


CO2



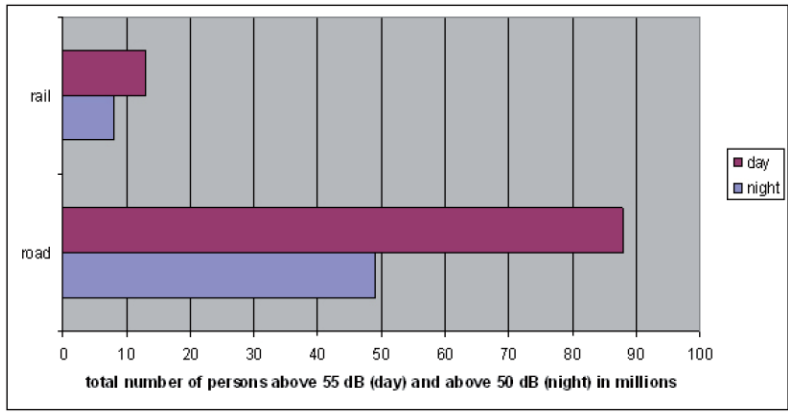
Source: Data by Alstomi and Calculation by SYSTRA

Safety

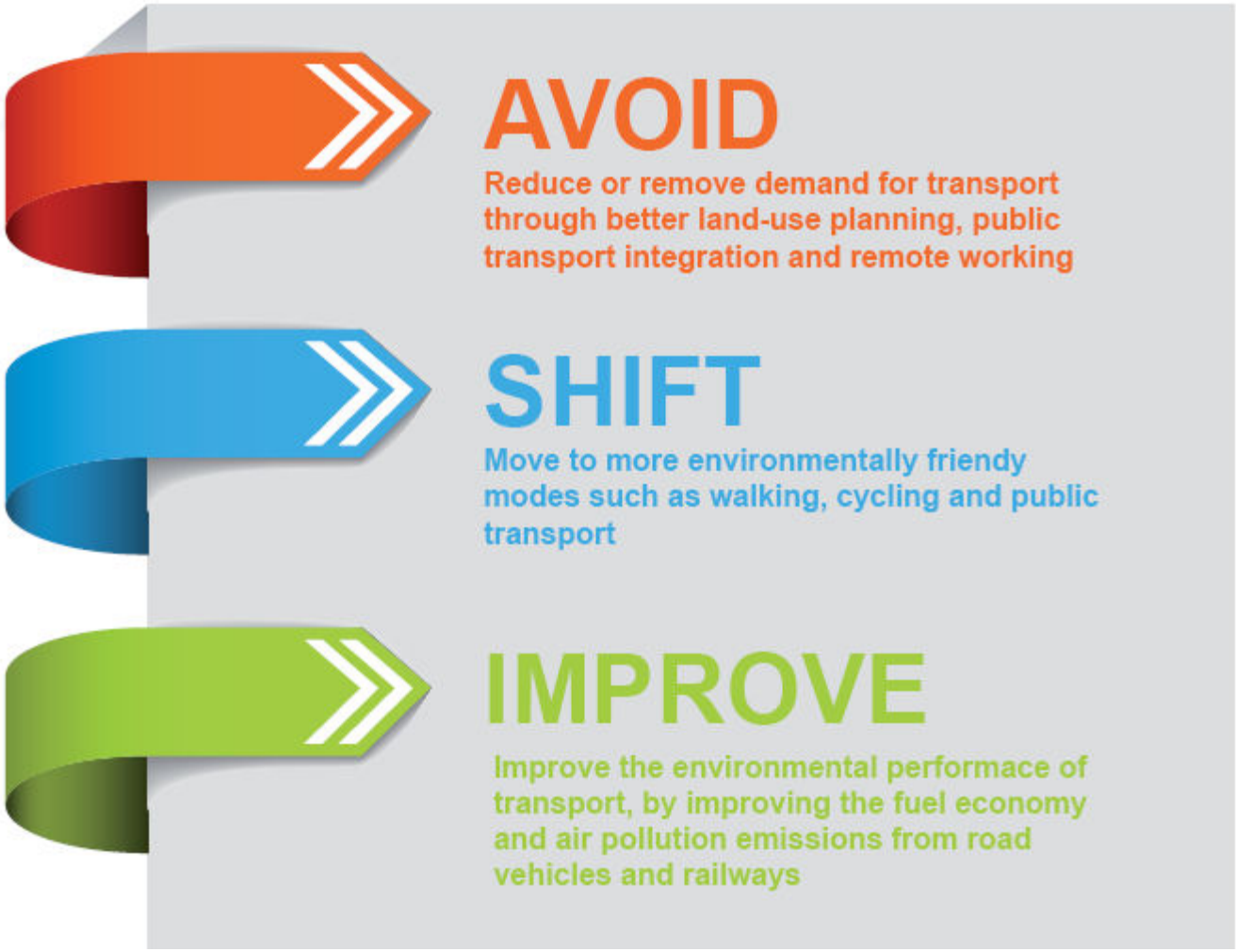


Source: Allianz pro Schiene, Germany 2010

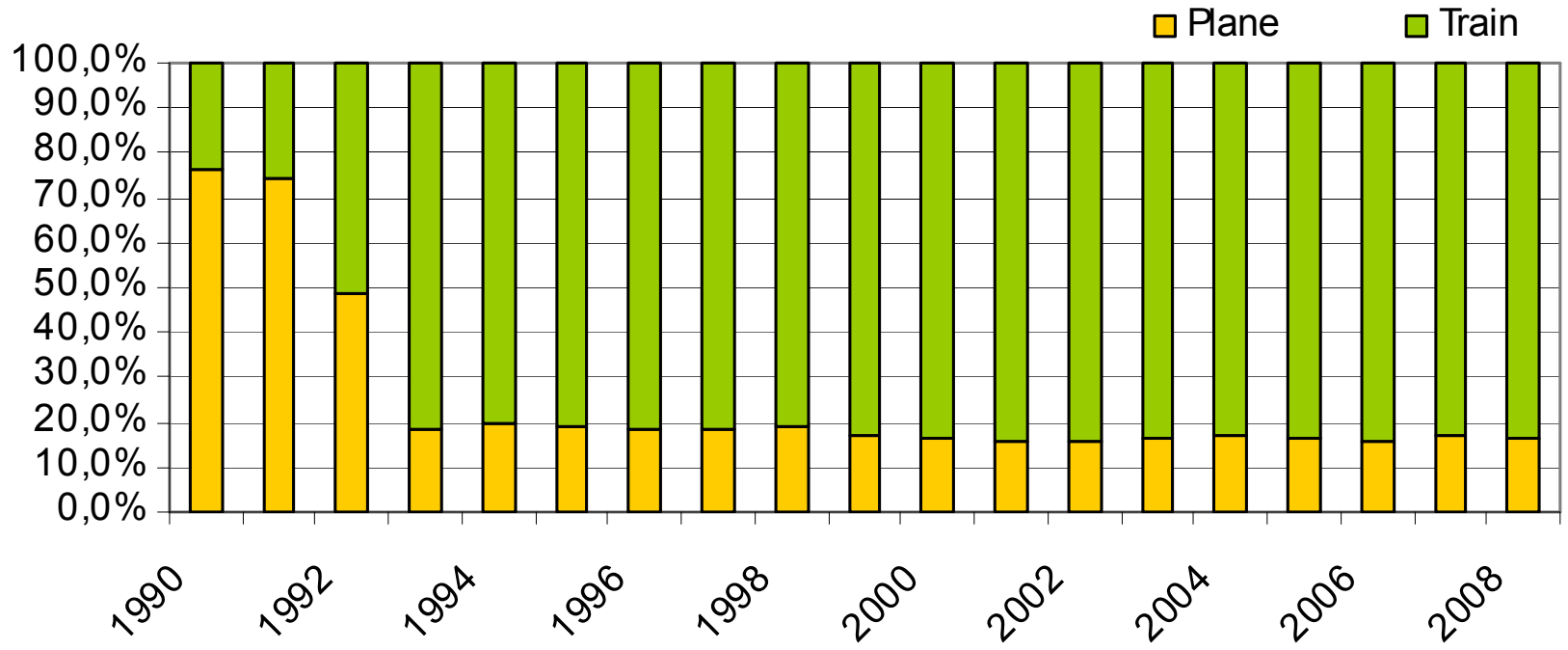
Noise



The general concept for transport:



Shift – Example High Speed Rail in Spain



Source: Renfe 2009

Example AVE Madrid-Sevilla

Although one third of passengers are induced traffic overall CO2 emissions reduced by 60% on the corridor

Improve – Strategic ambitions of European rail sector

Target 2020

Reduction of specific CO2 emissions from train operation by **30%***

Target 2030

Reduction of specific CO2 emissions from train operation by **50%***

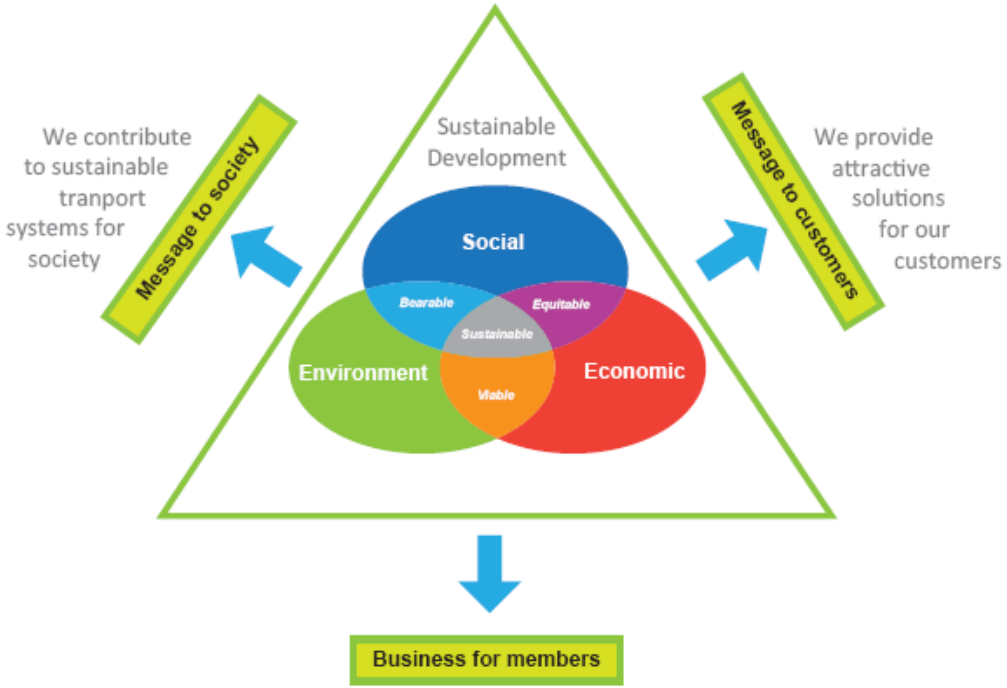
Vision 2050

European railways will strive towards carbon-free train operation by 2050

* Base year 1990: measured per passenger-km (passenger service) and gross tonne-km (freight service)

Bringing it together: Declaration on Sustainable Mobility & Transport

- 18 statements on rail's contribution and commitment to sustainable development
- 2012: Rio 20+: First rail sector sustainability report



Conclusions

- **Rail is…**
  - a low carbon mode
  - a very safe transport mode
  - a very resource efficient mass transport system
- **Rail has an important social and economic role:**
  - We are a major employer
  - We are key to the movement of freight
  - We are a solution to traffic congestion
- **The challenge is to design fully inter-modally connected sustainable mass transport systems!**

Outlook – sustainable transport

- A sustainable transport system combines the strengths of all transport modes in one integrated system
- Policies and funding strategies should follow a set of key sustainability indicators for transport

  Qualified decisions for policy making

  Qualified decisions for investment

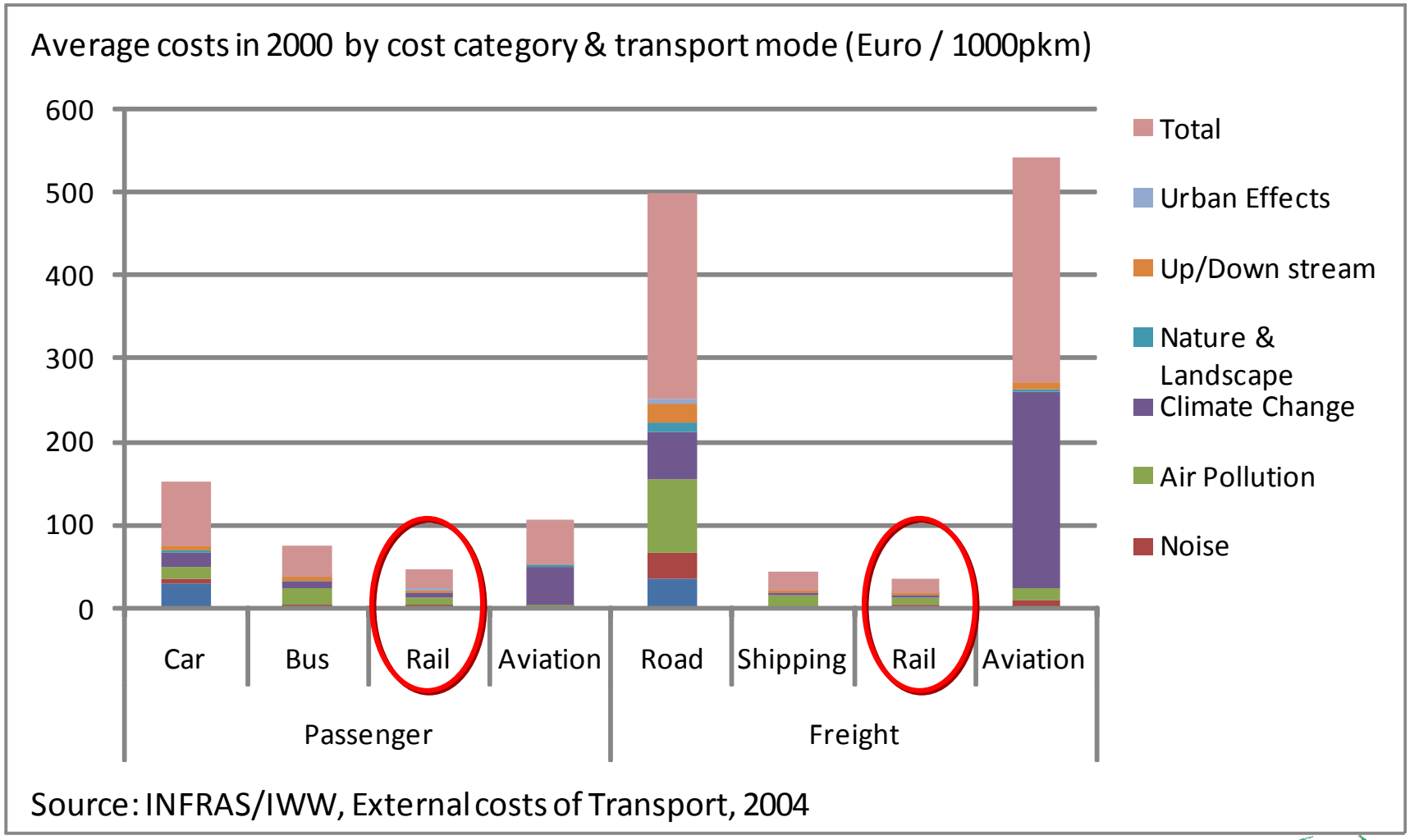
- Rail is prepared to be the backbone of such sustainable transport systems!

Thank you for your kind attention!

Contact: Henning Schwarz (schwarz@uic.org), www.uic-sustainability.org

BACK-UP

Rail has lowest environmental impacts



Worldwide approaches to saving energy

Australia - The Freightmiser system is an in-cab advice system that assists long-haul train drivers to stay on time and minimise fuel consumption. Industry trials have found fuel savings of between 5% and 20%, with no increase to journey times

USA - Regenerative braking is a whereby electric traction motors become generators, converting the energy of the train brake into usable power. In the United States these braking systems have allowed Amtrak to reduce energy consumption by 8%.

Sweden – The “Gröna Tåget” (Green Train) research shows further potential for reductions in energy consumption per seat km by 32% on the existing Stockholm to Gothenburg line through increased seating capacity and an increase in regenerative energy capacity.

Japan – Improvements in the design of Japanese Shinkansen trains, such as optimizing the length and shape of the lead nose and significantly reducing weight, have reduced energy consumption by 40% despite increase in maximum speed.