HS2 Enabling National & International Connections

**Key Note Speaker:** Alain Flausch, Secretary General of the International Association of Public Transport (UITP)

**Moderator:** Steve Gooding, Director General Highways, Roads and Local

**Speakers:**

- James Pond, European Commission, DG MOVE
- Peter Moth, Transport for London
- Paul Kehoe, Chief Executive Officer, Birmingham Airport
HIGH SPEED RAILS AND URBAN DEVELOPMENT

Alain Flausch
Birmingham, 12 September 2014
STATEMENTS:

„Investing in High Speed Trains is subsidising the rich“ (quote from a French elected member of Parliament)

„High Speed Train Services are an integral part of the urban mobility system“
DEFINITION OF HIGH SPEED

Definition is not unique

Almost...
Operating at more than (+/-) 200 km/h
Requires:
- special trains (train sets)
- special dedicated lines
- in cab signalling
... and much more
UNDERSTANDING HIGH SPEED RAIL

Is a very complex system, comprised by:

- Infrastructure
- Rolling stock
- Signalling systems
- Maintenance systems
- Management
- Station emplacement
- Operation rules
- Marketing
- Financing

Each element is used at the state of the art
Consider all of them are fundamental
UNDERSTANDING HIGH SPEED RAIL

High speed is not unique

• Many different commercial concepts of high speed (including services to customers, marketing, etc.)
• Many different types of operations (maximum speed, stops, etc.)
• Different ways to operate classic trains (in particular impact on freight traffic)
• Capacity and cost vary in each case
PERFORMANCES FOR CUSTOMERS

- Commercial speed
- Total time of travel
- Frequency
- Reliability
- Accessibility
- Price
- Comfort
- Safety
- „Freedom“
- ...

UITP
EXAMPLES OF TRAVEL TIME REDUCTION

<table>
<thead>
<tr>
<th>City Pair</th>
<th>Travel Time (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rome - Naples</td>
<td>Before: 2</td>
</tr>
<tr>
<td>Rome - Milan</td>
<td>Before: 3</td>
</tr>
<tr>
<td>Madrid - Barcelona</td>
<td>Before: 2</td>
</tr>
<tr>
<td>Madrid - Seville</td>
<td>Before: 3</td>
</tr>
<tr>
<td>Cologne - Frankfurt</td>
<td>Before: 2</td>
</tr>
<tr>
<td>Paris - Stuttgart</td>
<td>Before: 3</td>
</tr>
<tr>
<td>Paris - Marseille</td>
<td>Before: 2</td>
</tr>
<tr>
<td>Paris - Brussels</td>
<td>Before: 2</td>
</tr>
<tr>
<td>Paris - Amsterdam</td>
<td>Before: 2</td>
</tr>
</tbody>
</table>
If HS travel time is 4 hrs or less, HS rail captures 50+% of combined air/rail traffic.
HIGH SPEED ADVANTAGES FOR SOCIETY

• Offers a high capacity of transport (up to 400,000 passengers per day, Tokyo-Osaka) permits reducing traffic congestion helps economic development shapes land-use

• Respects the environment:
  efficient use of land (1/3 motorways) energy efficiency (x9 planes/ x4 cars)

• Is safe
High speed increases capacity!

- Introduces more capacity in the transport system:
  - New high speed line capacity
  - Released capacity in classic lines
  - Optimising operations by separation of traffic

- But the capacity of new high speed lines is very variable
Parallel layouts

HS line
Paris-Lille
(TGV Nord)
Energy efficiency comparison

Traffic units carried (number of passengers x km) for one unit of energy (kilo-equivalent of petrol, kep)

1 mile = 1.6 km, 1 kWh = 0.086 kep
Source: SNCF (Fr. RR), ADEME (France's EPA), 1997
SAFETY

Europe

Passengers injured in accidents per billion passenger km

Japan: no fatal accidents in 45 years high speed history!
HIGH SPEED STARTS

In Japan (1964):
Tokyo-Osaka (515 km)
- To solve capacity problems
- Creation of the „system“

In Europe (France, 1981):
Paris-Lyon (420 km)
- To solve capacity problems
- After technology improvements
EXPECTED EVOLUTION OF THE WORLD HS NETWORK

km

HIGH SPEED RAIL SYSTEMS IN THE WORLD

In operation
- France
- Germany
- Italy
- Spain
- Belgium
- The Netherlands
- United Kingdom
- Japan
- Korea
- China
- Turkey
- Russia

Planned
- Argentina
- Brazil
- Canada
- India
- Indonesia
- Iran
- Mexico
- Morocco
- Poland
- Portugal
- Saudi Arabia
- USA
HIGH SPEED RAIL AND THE URBAN WORLD
HIGH SPEED RAIL DEFEATS URBAN GEOGRAPHY

In January 2013

High speed tracks
under construction
normal tracks used
by High speed trains

1 hour
2 hours
WHAT TYPE OF SERVICES DO HIGH SPEED TRAINS PROVIDE?

The „beetroot“ station

- Driven by an aim for technological efficiency
- „in general it is a commercial failure and if it succeeds to break even, then it is an ecologic and financial disaster“
- Consensus about the prerequisite of an excellent connection with pre- and post urban public transport services
WHAT TYPE OF SERVICES DO HIGH SPEED TRAINS PROVIDE?

The urban service

France: Marne-la-Vallée – Champagne Ardenne: 113 km in 27 min
Japan: Utsunomiya – Koriyama: 105 km in 28 min
Taiwan: Taichung – Kaohsiung: 179 km in 44 min
China: Beijing – Tianjin: 118 km in 30 min
Etc.

„Frequency wins over speed in the commercial stake“
(World speed survey 2009)
WHAT TYPE OF SERVICES DO HIGH SPEED TRAINS PROVIDE?
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HSR is a tool for urban development:

- TGV in France is an entire and integrated part of the mobility plan of the Paris region, like bicycles, suburban trains, metro, buses, car sharing.
- Station development by JREast in Japan
- HSR as a tool for revamping downgraded areas central (often former rail sites)
- Example of CIUDAD Real (midsize cities): an AND-AND story
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<table>
<thead>
<tr>
<th>Breakdown by activities</th>
<th>Year 1992</th>
<th>Year 2000</th>
<th>Var% 2000/1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.- Energy and water</td>
<td>3</td>
<td>5</td>
<td>66,7</td>
</tr>
<tr>
<td>2.- Mining &amp; Chemical Industry</td>
<td>14</td>
<td>15</td>
<td>7,1</td>
</tr>
<tr>
<td>3.- Metalurgy</td>
<td>42</td>
<td>43</td>
<td>2,4</td>
</tr>
<tr>
<td>4.- Other manufacturing industries</td>
<td>110</td>
<td>128</td>
<td>16,4</td>
</tr>
<tr>
<td>TOTAL INDUSTRY</td>
<td>169</td>
<td>191</td>
<td>13,0</td>
</tr>
<tr>
<td>5.- Construction</td>
<td>286</td>
<td>387</td>
<td>35,3</td>
</tr>
<tr>
<td>6.- Commerce, restauration and repairs</td>
<td>1,731</td>
<td>2,886</td>
<td>66,7</td>
</tr>
<tr>
<td>7.- Transportation and Communications</td>
<td>253</td>
<td>290</td>
<td>14,6</td>
</tr>
<tr>
<td>8.- Services to businesses</td>
<td>270</td>
<td>485</td>
<td>79,6</td>
</tr>
<tr>
<td>9.- Other Services</td>
<td>312</td>
<td>517</td>
<td>65,7</td>
</tr>
<tr>
<td>TOTAL COMMERCE AND SERVICES</td>
<td>2,566</td>
<td>4,178</td>
<td>62,8</td>
</tr>
<tr>
<td>TOTAL ECONOMIC ACTIVITIES</td>
<td>3,021</td>
<td>4,756</td>
<td>57,4</td>
</tr>
</tbody>
</table>

Taxes on economic activities. Data from Dec. 31 each year.
Source: The Chambre of Commerce of Ciudad Real
CONCLUSION

• High speed is expanding dramatically around the world
• A highly beneficial transport system for society
• High speed always needs public help
• High speed is a complex system
• High speed conception is not unique and it must be adapted to each case
• High speed rail is a part of the urban mobility
THANK YOU!