EUROPE'S HIGH SPEED RAIL NETWORK: MATURATION AND OPPORTUNITIES

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Presentation Outline

1. HSR 2007 Highlights
2. Passenger Rail Performance
3. Innovation & Rail Transport
4. From Engineers to Entrepreneurs
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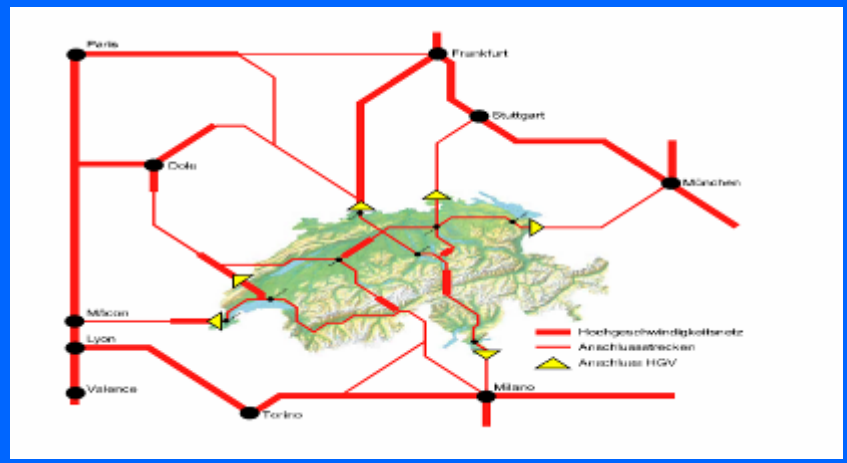
1. Highlights: TGV Est – June 2007

- International service by an SNCF/DB joint venture;
- Integrated local/ regional service planning in France;
- New rail speed record (574.8 km/h) set April 3, 2007.

Lötschberg Basis Tunnel – June 2007

- **First in several planned Alpine basis tunnels:**
  - Gotthard;
  - Brenner;
  - France - Italy;
- **Significant time savings (~ 60 min.);**
- **New construction and operating techniques.**



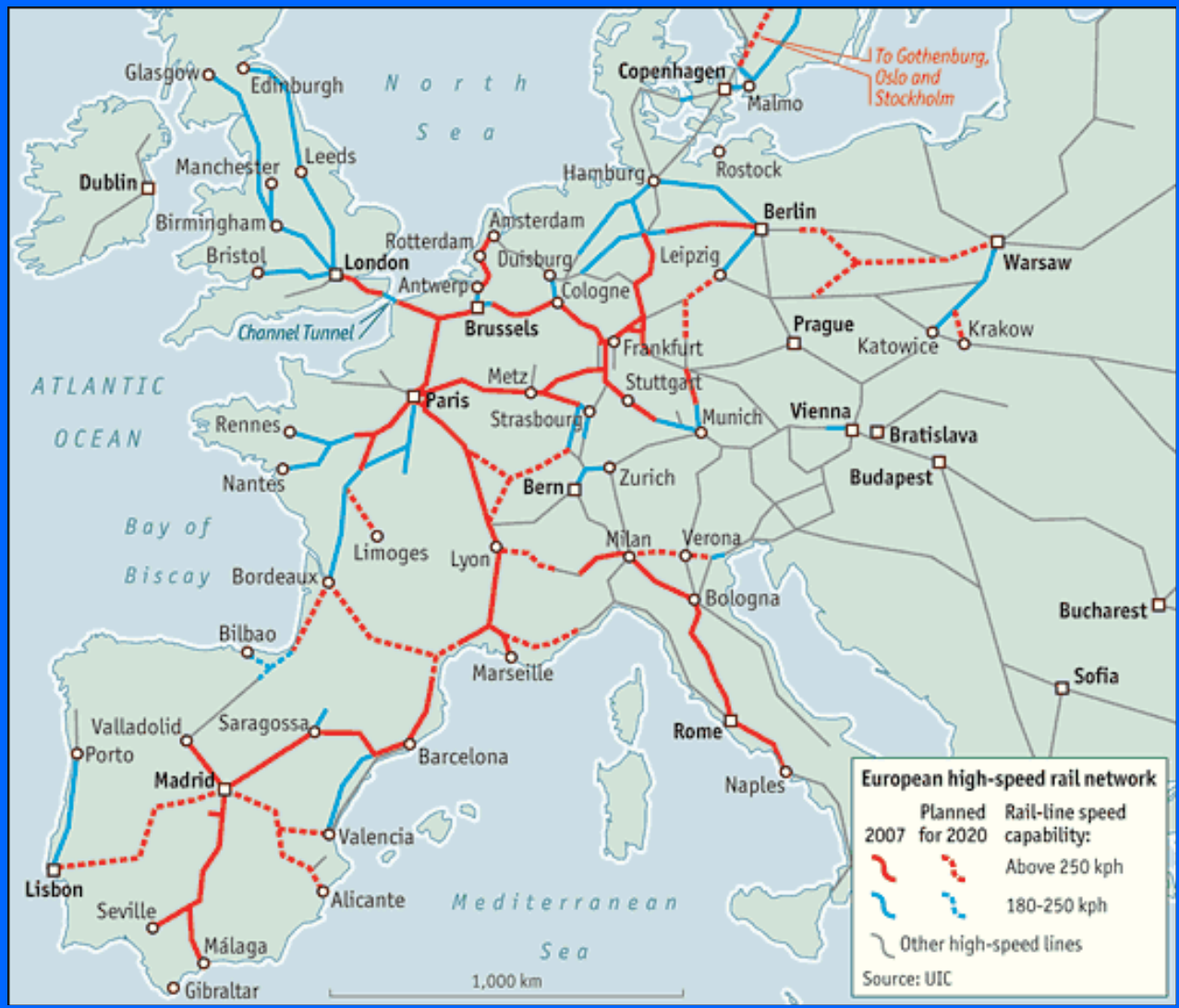
Channel Tunnel High Speed Line – November 2007

- Reduces travel time by 20-minutes;
- Improves connections to Northern Britain;
- Revitalized St. Pancras station – joint development.

Railteam: High Speed Europe

- Goal: Seamless rail travel through Europe.
- Multilingual information (on-board, hub cities);
- Missed connection service (limited);
- Frequent traveler program (points, lounges); and
- Integrated reservations system – (future!).

HSR Network 2007 & 2020



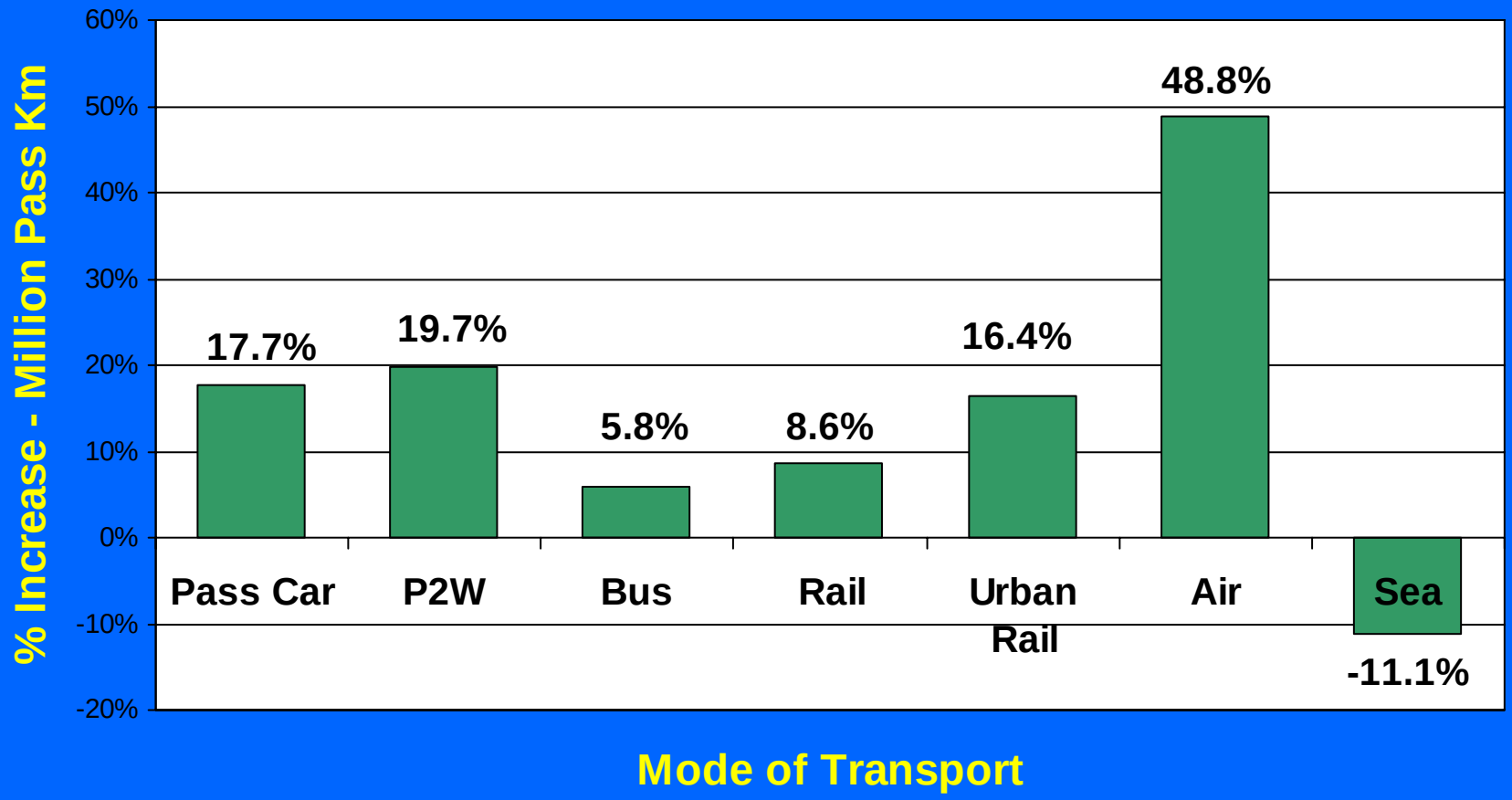
2. Performance

High Speed Rail is a good product:

- Technology is well developed;
- A physical network is largely in-place;
- Rail service is extremely energy efficient; and
- Center-city to center-city service is attractive.

… So, how is it doing?

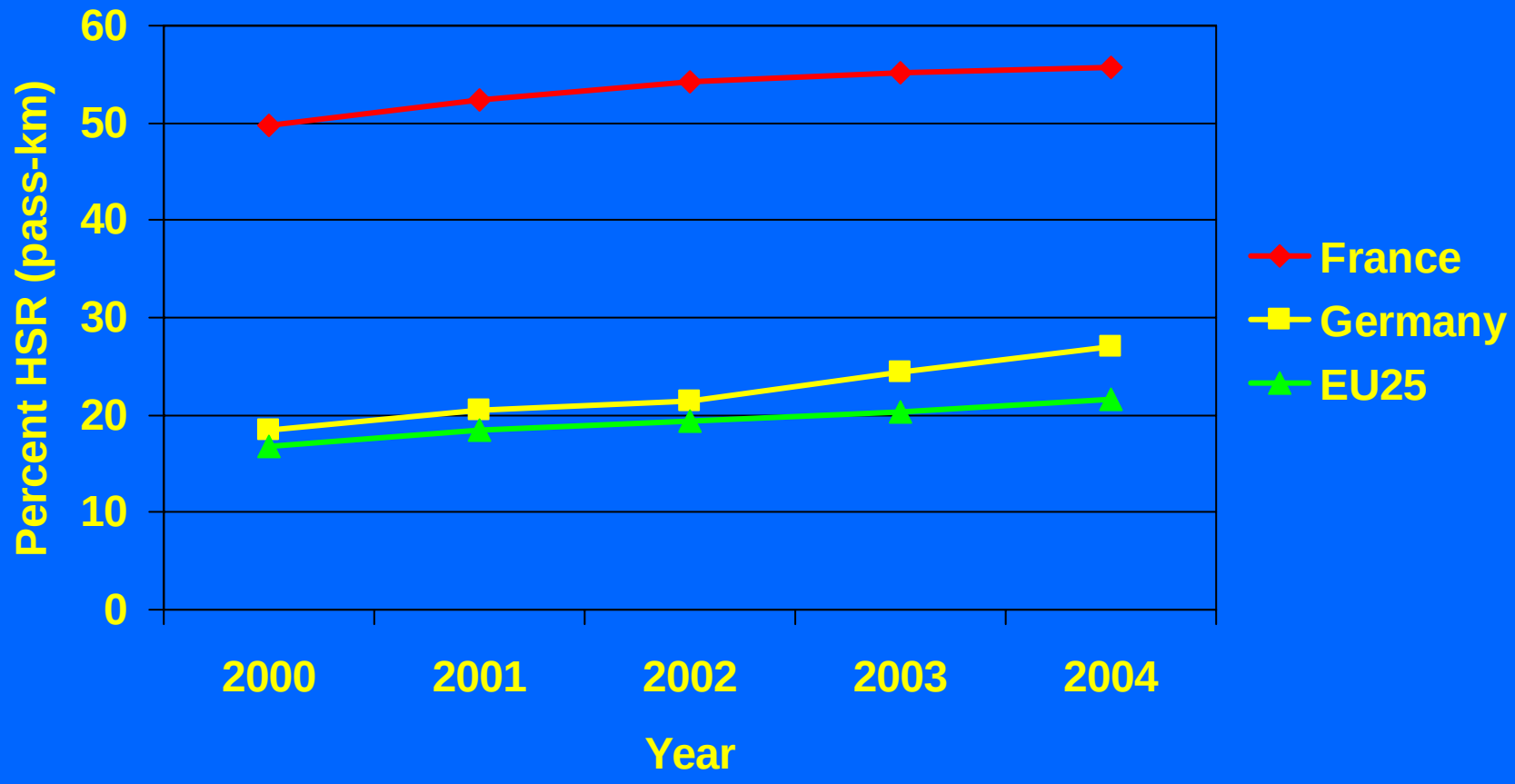
Passenger Transport: EU25: 1995-2004



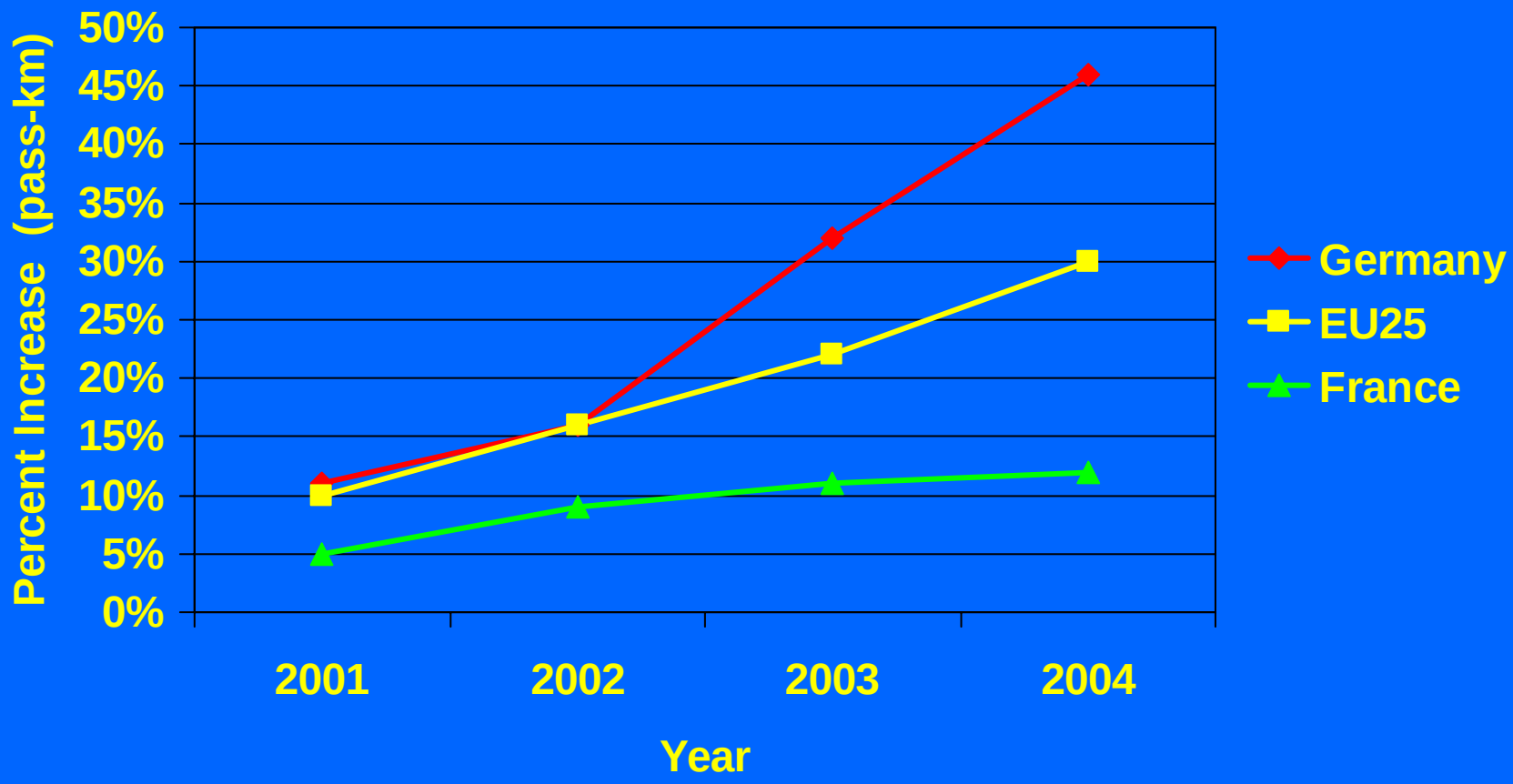
Share of HSR passengers increasing:
(% HSR pass-km of total rail pass-km)

Country/ Year	BE	DE	ES	FR	IT	SE	EU25
2004	11	27	14	56	17	27	**22**
2003	11	25	12	55	16	27	**20**
2002	11	22	12	54	15	26	**19**
2001	11	21	12	52	15	26	**18**
2000	11	19	11	50	11	25	**17**

HSR pass-km as a % total pass-km



Increase in HSR pass-km share since 2000

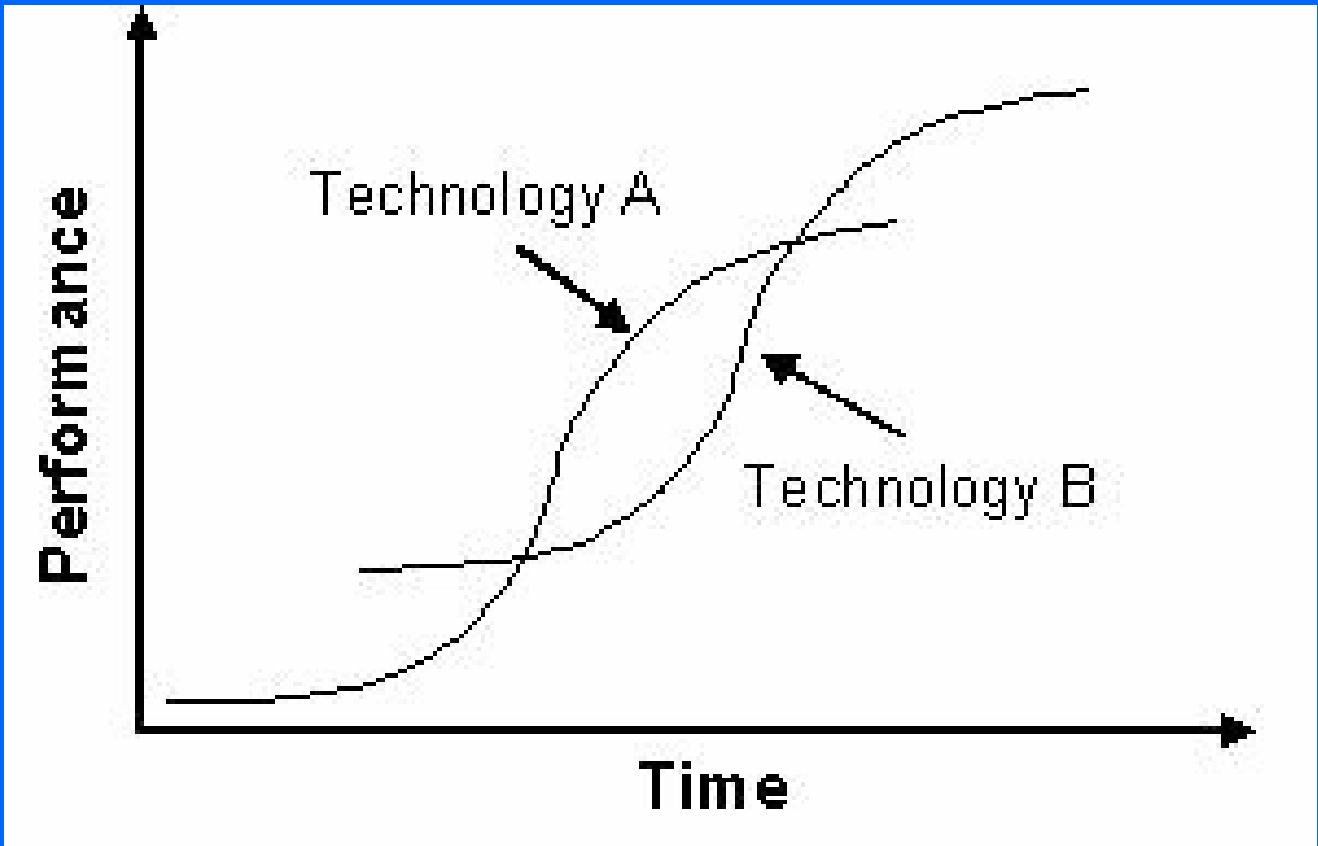


How can HSR be more successful?

- ***INNOVATION*** - creating efficient and attractive new services tailored for today's transport demands;
- HSR is already strong in technical innovation, today it needs to focus on overcoming barriers to social/ institutional innovation:
- This means introducing innovation in:
  - service design;
  - pricing strategies;
  - integration with other transport networks;
  - etc …

3. Innovation & Rail Transport

S-Curve Theory of Innovation



Innovation in existing businesses is hard.

- Reasons include:
  - "If it's not broke, don't fix it" mentality;
  - Resistance by those displaced or otherwise affected;
  - Institutionalized processes often hinder innovation (e.g. investment analysis based on status quo future);
  - "Curse of knowledge" … the inability to see from fresh perspective.
- Creative destruction is needed to encourage innovation and entrepreneurship (Schumpeter).

Barriers to innovation in the rail sector

Barrier Type	Specific Barrier
Institutional	Monopolistic business model
	Political (internal and external) involvement in making operating decisions
Organizational	Lack of investment capital
	Insufficient professional resources
	Insufficient technical expertise – i.e. reliance on a specific technical path
	Problems caused by European railway re-organization (i.e. vertical competition within companies) that reduce cooperation and increase uncertainty
Socio-cultural	National orientation of railway companies
	Old-fashioned consumer image of railways
Technical	Long innovation cycles
	Misunderstanding of customer needs

4. From Engineers to Entrepreneurs

- **This means developing new products & operating strategies that combine innovative ideas with the benefits of traditional rail service:**
  - Frequency;
  - Comfort;
  - Flexibility; and
  - Value.
- **The following pages present some ideas …Railways are doing many of these things, they need to do more.**

Think of (transport) network not lines.

What:

- HSR to HSR;
- Local transport/rail; and,
- Intercontinental Airports.

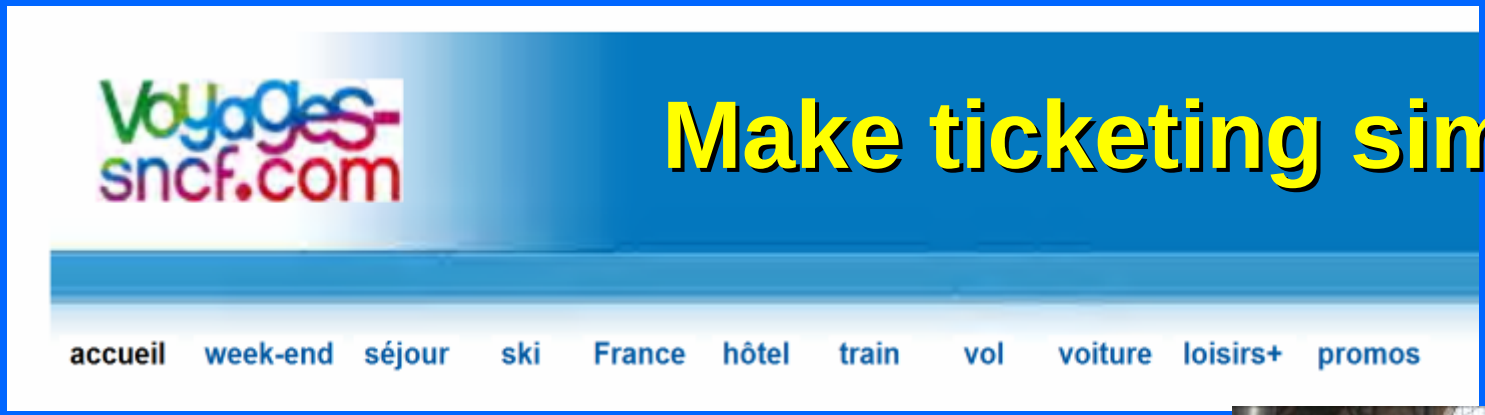
By improving coordination of:

- Infrastructure
- Schedules (Taktfahrplan?)
- Tickets and Booking (Simplify)
- Services (Baggage? Lounges?)

Coordinate infrastructure investment programs

- **Travel demand no longer respects national borders;**
- **Today's economy is based on regions, often international;**
- **Examples:**
  - Munich – Zurich: economy vs. government;
  - TEN Priority corridors;
  - Interoperability/ERTMS; &
  - Increasing capacity efficiently.

Make ticketing simpler!



- Single website for all travel needs (e.g. SNCF: L'EcoComparateur);
- Include local transport (CityTicket);
- Ticket exchange possibilities – flexibility is a key railway benefit;
- Ticketing machines (language!);
- Octopus-type rail tickets?
- ***New types of tickets and booking possibilities allows new types of travel products: e.g. Night and Flight.***

Apply modern pricing strategies

- Traditional railway pricing:
  - Peak fares are too low; and,
  - Off-peak fares are too high.
- Low cost airline ticket pricing: designed to fill every seat at the highest possible fare;
- ***Develop load management based pricing schemes blending traditional railway benefits with techniques to increase income and ridership.***

Create independent business units

SNCF – iDTGV service:

- Low cost airline ticketing model;
- Services targeted to specific markets (quiet, active);
- Operating efficiencies: e.g. tickets checked on platform;

- ***Independent business units enable established companies to circumvent institutional barriers and test new ideas and products.***

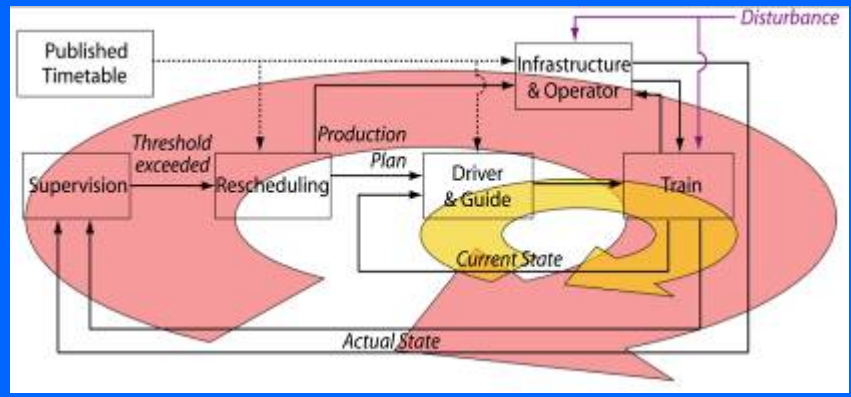
Form and enhance partnerships

- Railways have many potential partners:
  - Other railways (Railteam);
  - Airlines (Lufthansa/DB);
  - Local governments;
  - Workers/unions (Southwest Airlines);
  - Private sector (PPP); and
  - Customers (frequent traveler programs).
- Keys are mutual benefits, partner competency and good contracts;
- ***Partnerships enable railways to offer improved products and more efficient operations.***

Embrace new technology

Information Technology:

- IT approaches for improving train operations e.g. re-scheduling;
- IT approaches for infrastructure investments e.g. simulation;
- IT approaches for ticketing;
- ***Coordinated IT approach provides the opportunity for new products, e.g. "real-time intermodal substitution" (RTIMS) ... (i.e. take a different train) … fully using rail network substitution opportunities.***



5. Conclusions

Moving from engineers to entrepreneurs means:

- **Developing and implementing innovations that combine new ideas with the benefits of traditional rail service;**
- **Focusing on overcoming social and institutional barriers to develop and implement these innovations.**