

Strategies for international High-Speed Rail operators in the European passenger transport market

Long-distance passenger transport: market, planning, innovation

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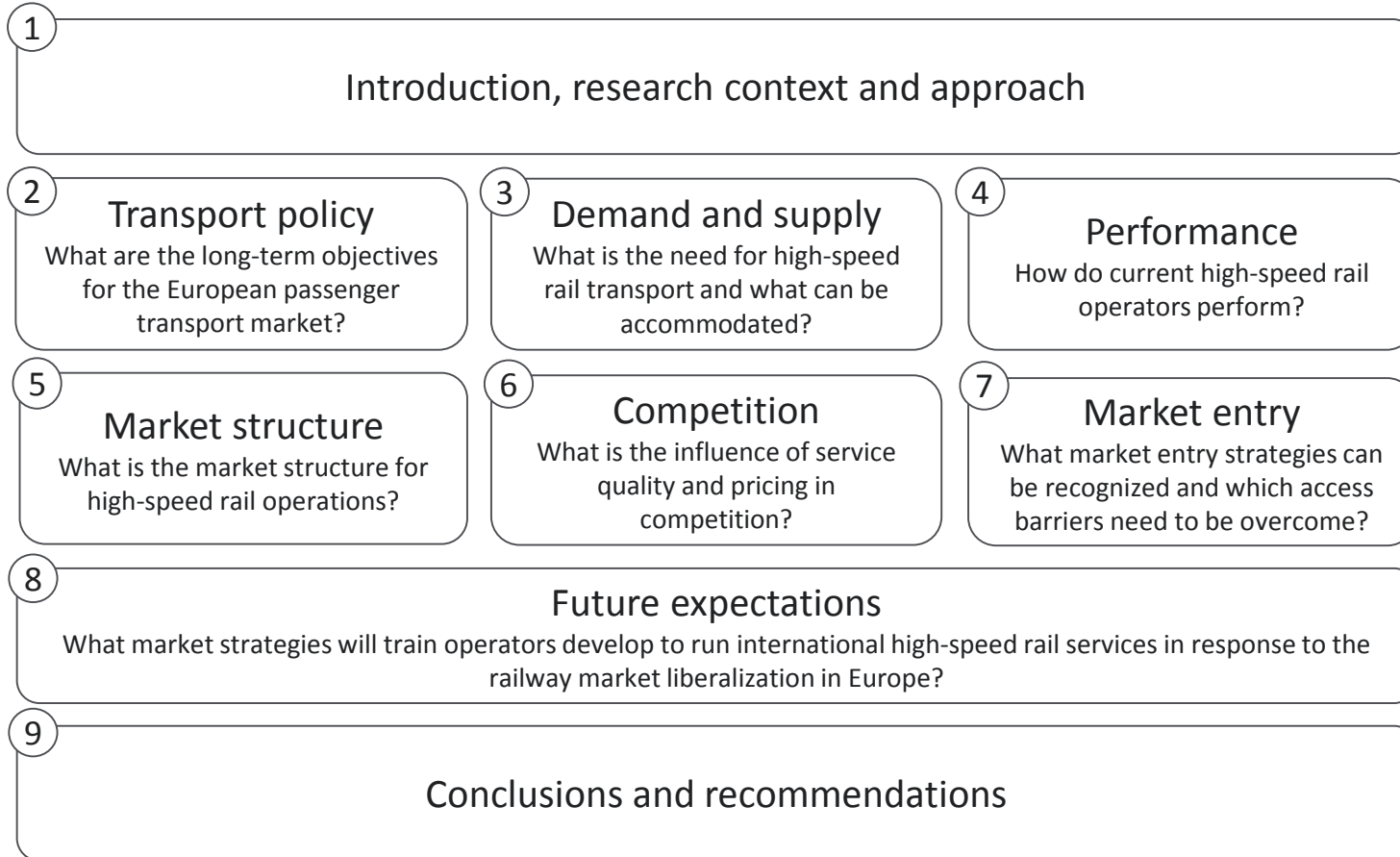
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Politecnico di Milano



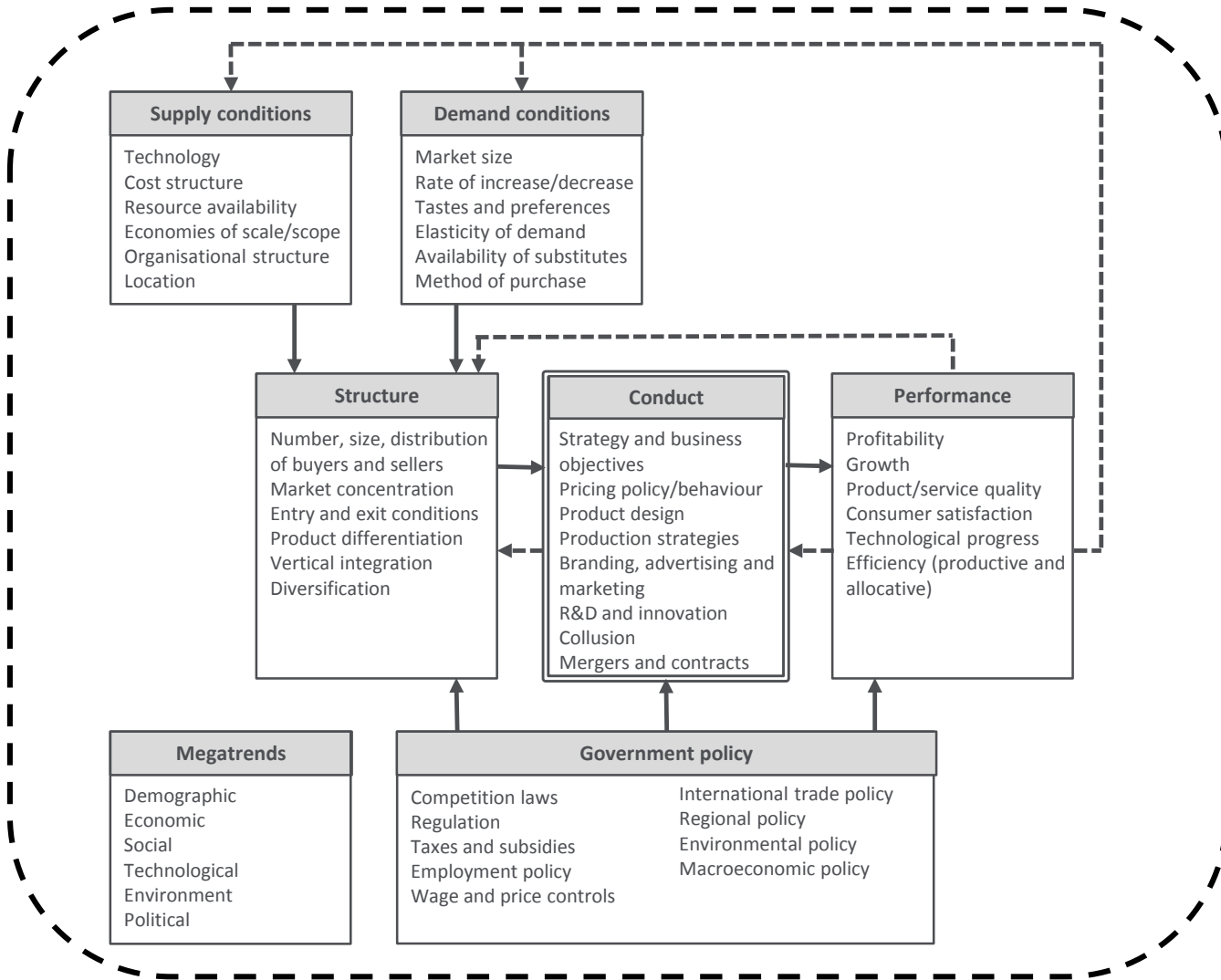
Research questions

If the European transport policy on railway market liberalization doesn't give way to train operating companies to develop their business in a competitive and sustainable way, train services cannot be improved and the railway's market share will not grow.



Research model

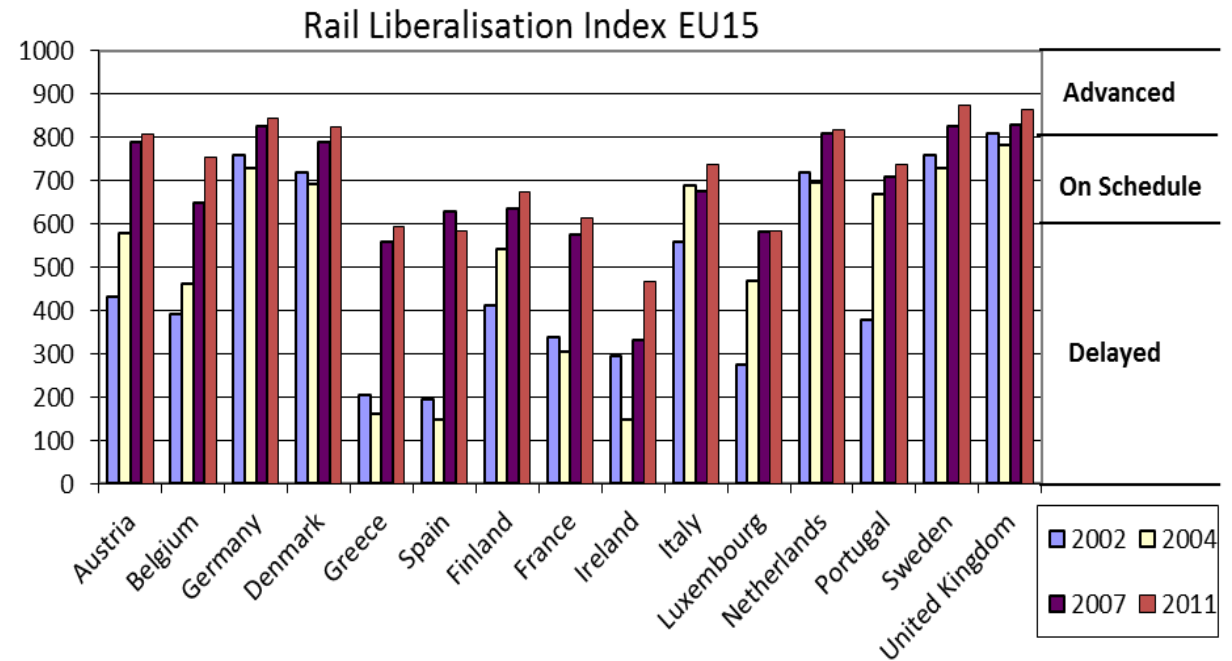
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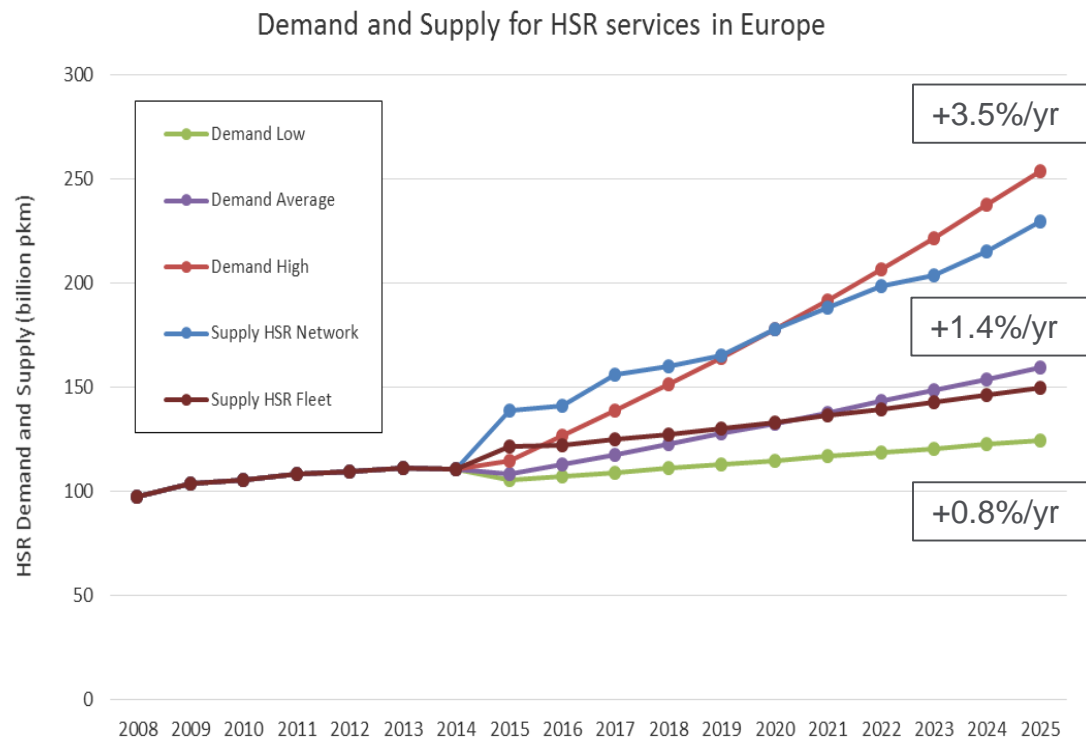
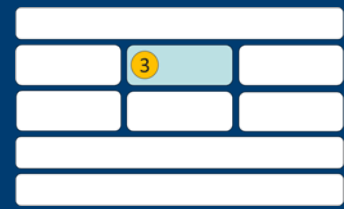
Transport policy

- **Treaty of Rome:** four freedoms of movement (goods, services, capital, labour)
- **EU White Papers:**
 - Efficient and low-carbon transport system
 - Ten goals towards 2050 for a Single European Railway Area
- **Four Railway Packages:** Reform of the European railway legislation
- **Directive 2007/59/EC:** Market for cross-border railway traffic open since January 2010

The railway liberalisation in progress, but not completed yet.



What is the need for high-speed rail transport and what can be accommodated?



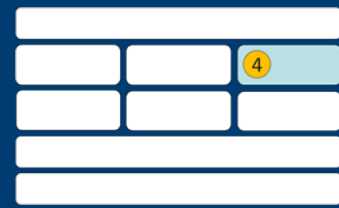
Demand:

- Mobility growth in Europe
- Strong correlation between income and high-speed travel demand
- Shift from low-speed to high-speed travel modes

Supply:

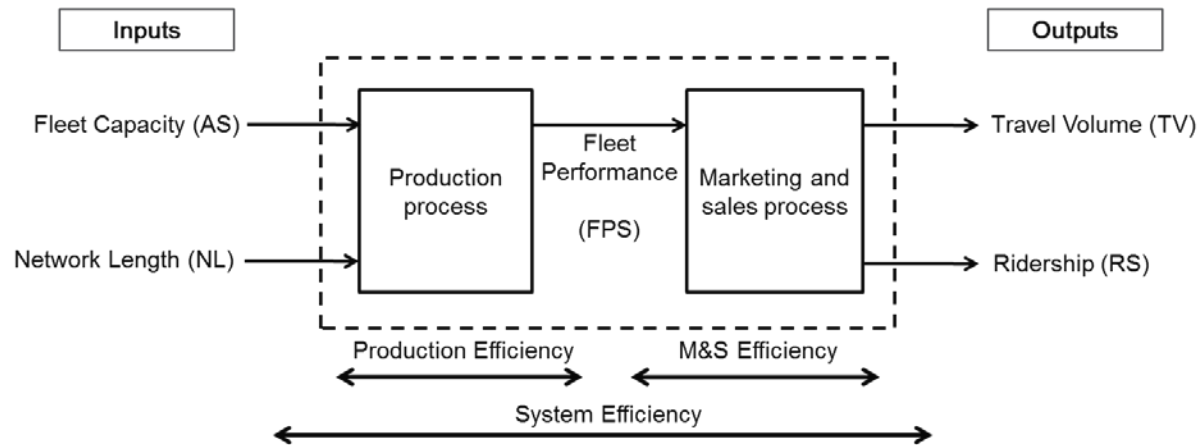
- Rail network and rolling stock are limiting factors for high-speed rail growth.
- Growth of the train fleet is more restricting than the growth of the HSR network
- The current plans for new rolling stock can accommodate a 1.4% demand per year
- The new lines under construction and plans can facilitate a 3.5 % demand growth

How do current high-speed rail operators perform? (1)



Multiple Input Multiple Output model for benchmark analysis:

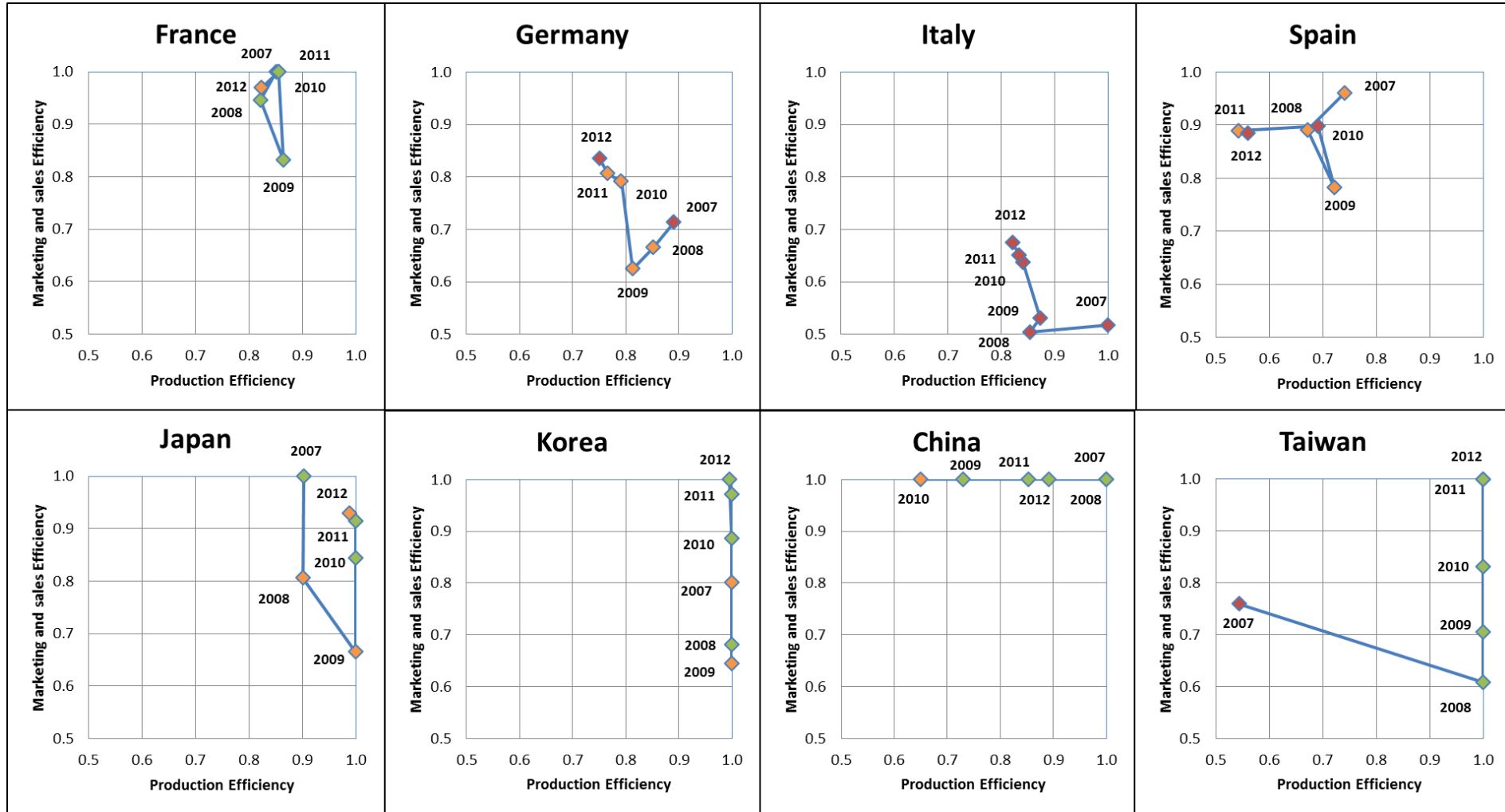
- Partial Performance Measures (PPM) analysis
- Network Data Envelopment Analysis (NDE A)



Performance matrix:

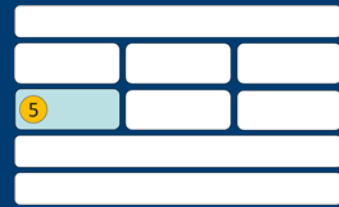
		Production Efficiency	
		Low	High
Marketing & Sales Efficiency	High	Improvement needed on Production →	Best performance
	Low	Poor performance ↗	Improvement needed on Marketing & Sales ↑

How do current high-speed rail operators perform? (2)



◆ $0.50 \leq \text{System Efficiency} < 0.75$
◆ $0.75 \leq \text{System Efficiency} < 1.00$
◆ $\text{System Efficiency} = 1.00$

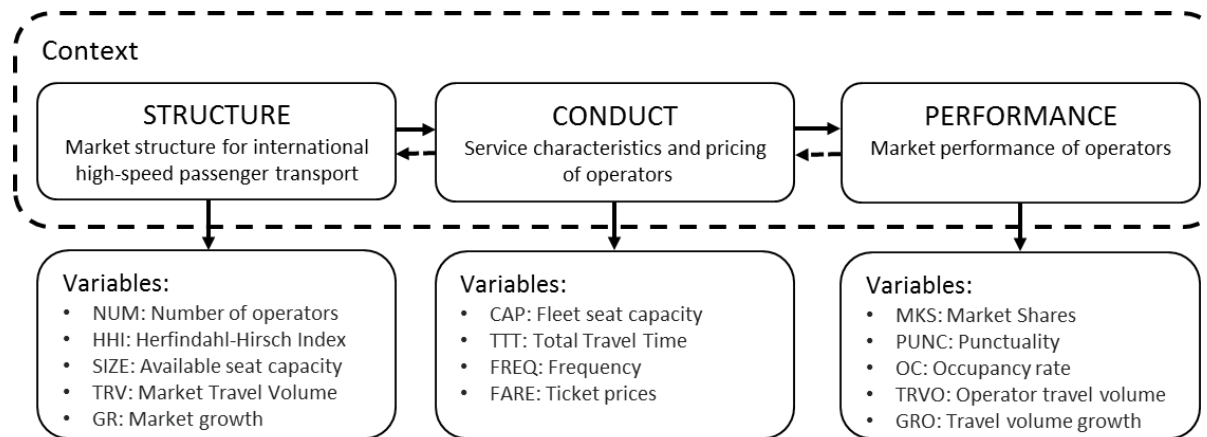
What is the market structure for high-speed rail operations? (1)



Two-step multilinear regression analysis using SPSS:

1. Identification of significant parameters
2. Calculation of correlation coefficients

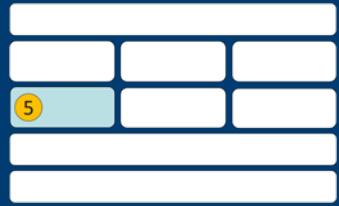
Sensitivity analysis to identify strong relationships



Three sets of equations:

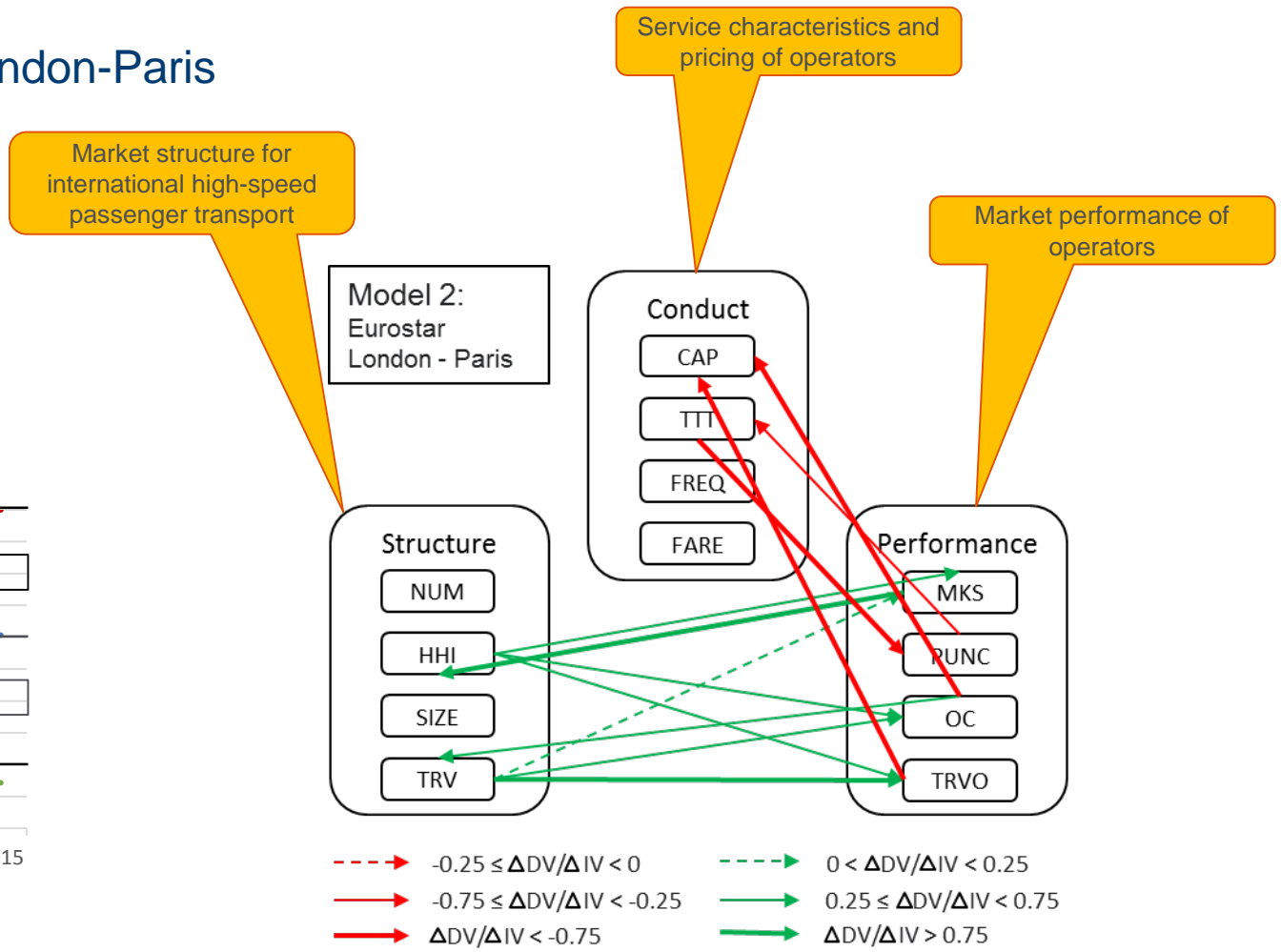
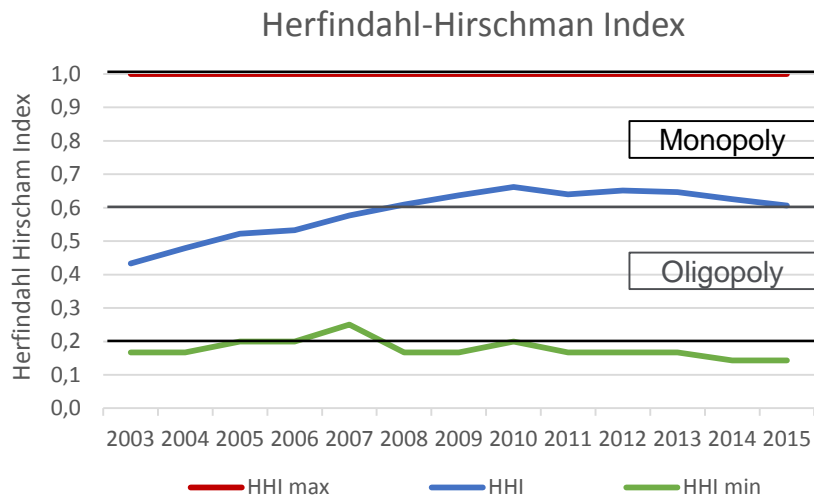
- $S_{\text{structure}} = f(\text{Conduct variables}, \text{Performance variables})$
- $C_{\text{conduct}} = f(\text{Structure variables}, \text{Performance variables})$
- $P_{\text{performance}} = f(\text{Structure variables}, \text{Conduct variables})$

What is the market structure for high-speed rail operations? (2)

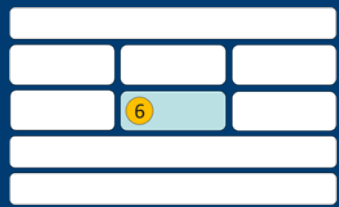


Two models are analysed for the London-Paris market:

1. All operators
2. Eurostar

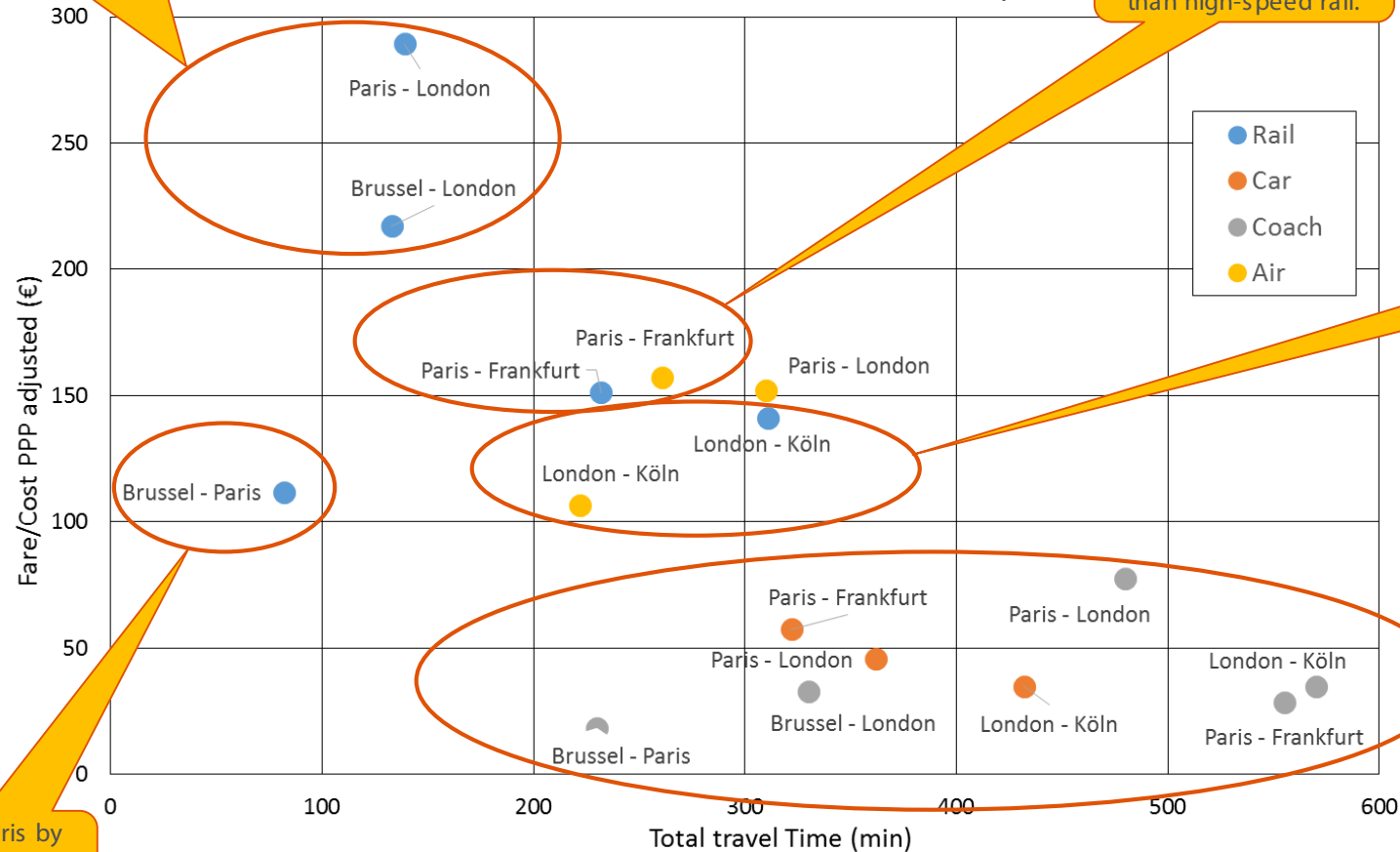


What is the influence of service quality and pricing in competition? (1)



The routes served by Eurostar are the most expensive, but the service is much faster than by air or road

Five cross-border links in Western Europe



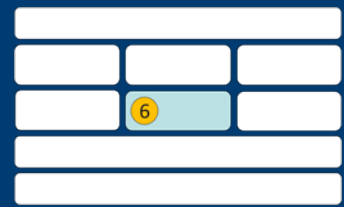
Paris-Frankfurt by air is a less attractive option than high-speed rail.

For London-Köln it is cheaper and faster to take a plane than the high-speed train.

Brussels-Paris by Thalys proves to be good value for money

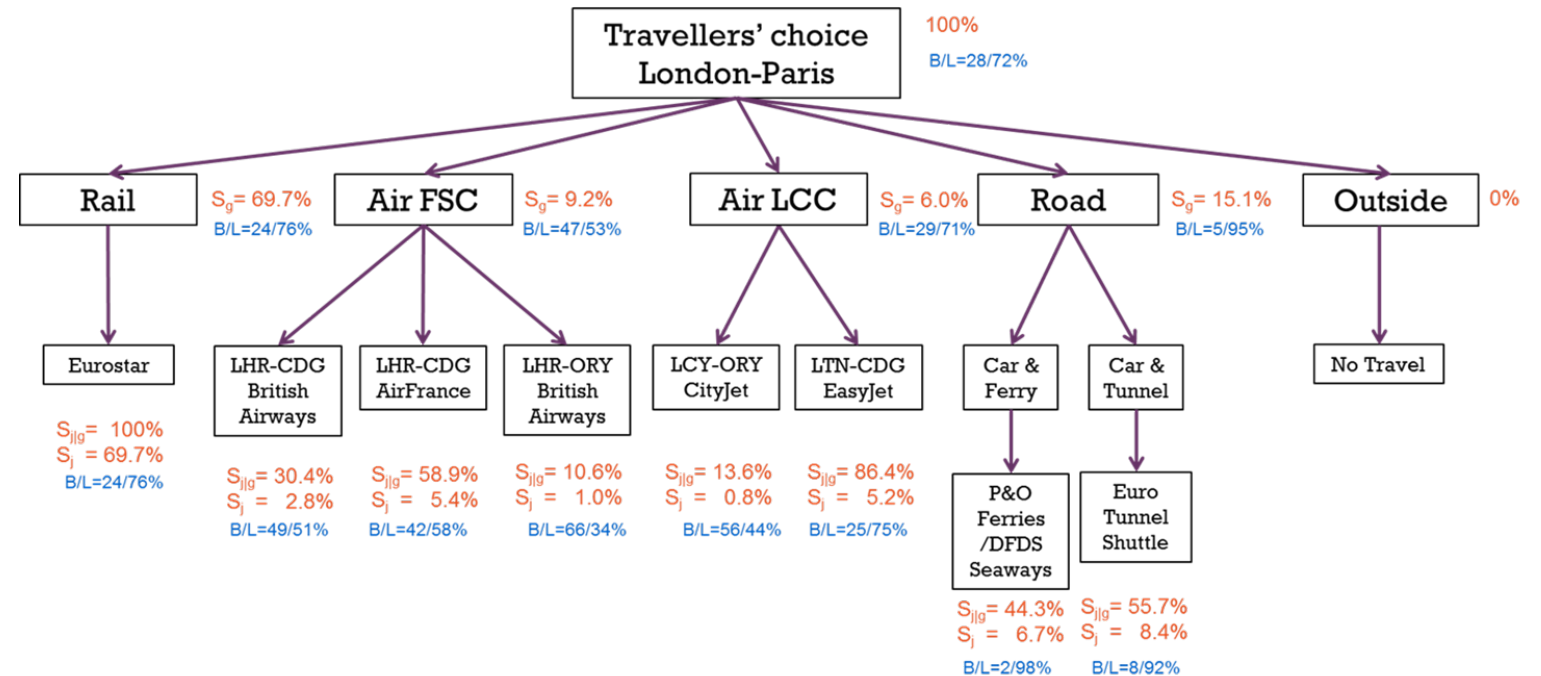
Coach services and private cars are low-cost and low-speed

What is the influence of service quality and pricing in competition? (2)

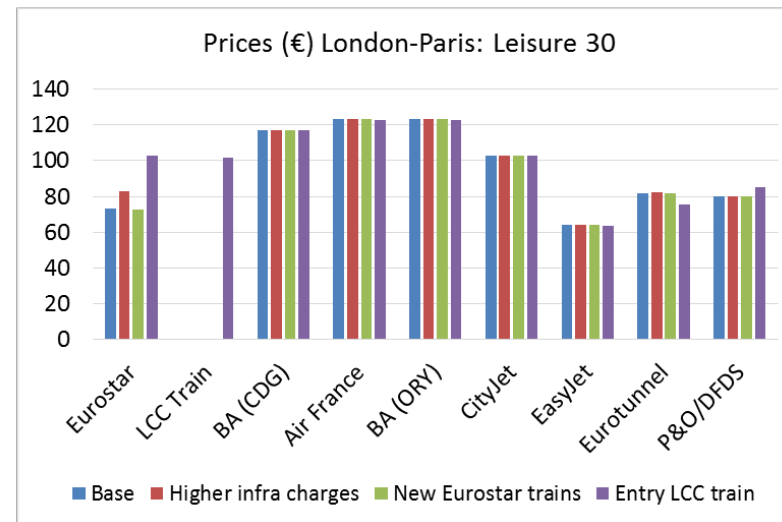
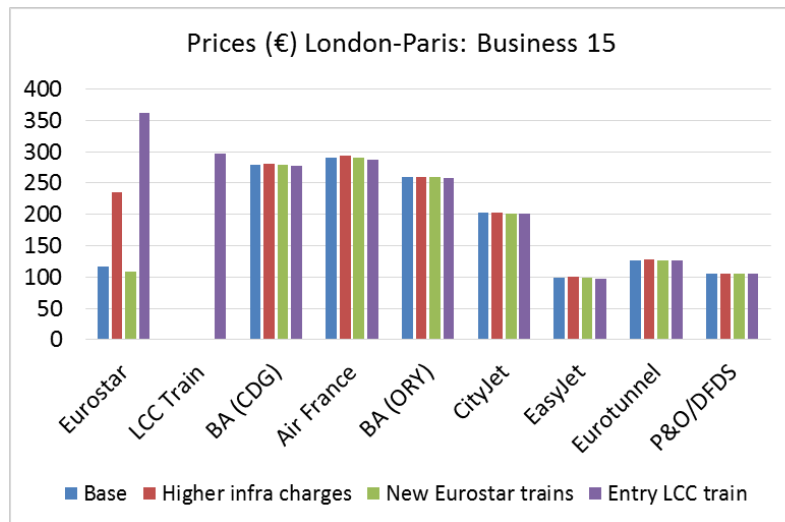
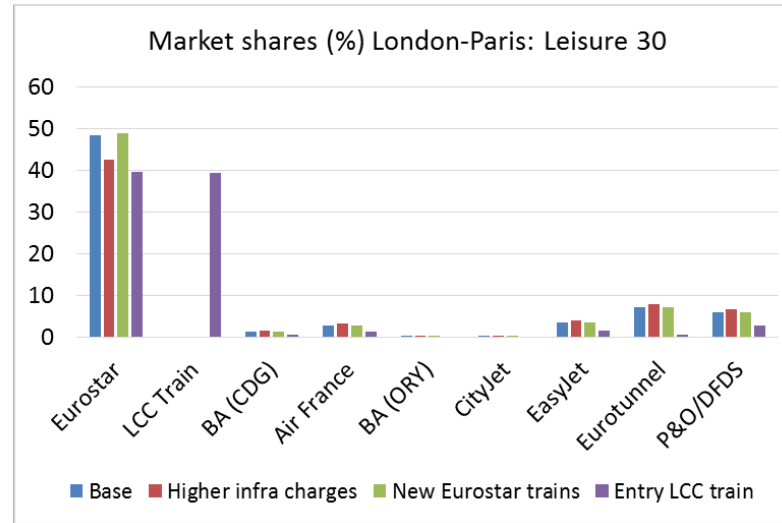
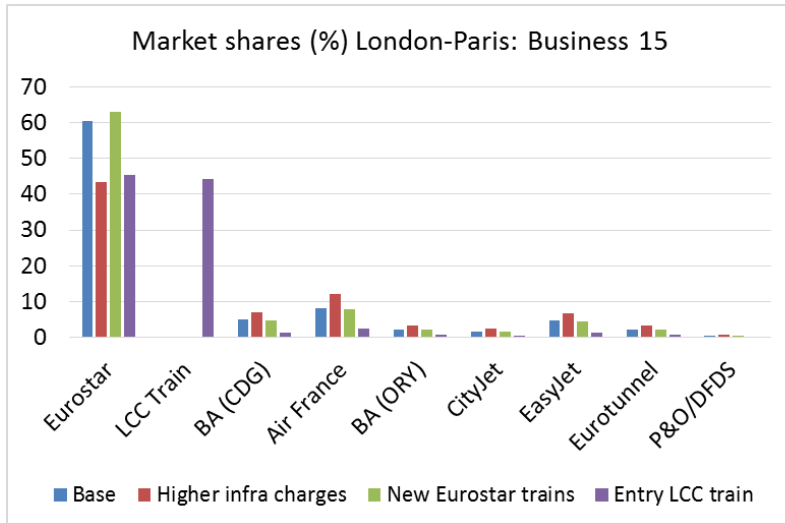
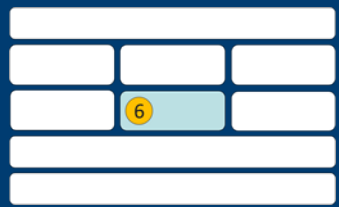


Market simulations London-Paris:

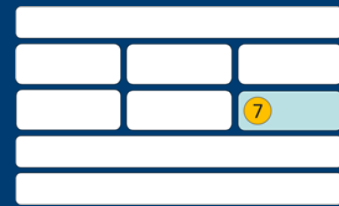
1. Increase of infrastructure charges
2. New Eurostar trains
3. Entrance of a new high-speed rail operator with low-cost trains



What is the influence of service quality and pricing in competition? (3)



What market entry strategies can be recognized and which access barriers need to be overcome?



Entry strategies:

- Cream skimming (or Cherry picking)
- Head-on competition
- Product and market differentiation
- Niche market entry

Deterrence strategies:

- Blockading
- Preventing
- Adapting

Market barriers	Administrative barriers	Technological barriers	Operational barriers	Financial barriers
Insufficient high speed market demand and growth	Non-compliance with European Rail Directives regarding safety certificates and vehicle authorisation	No certified multi-system locomotives for the whole corridor	International train paths and platform and station capacity not secured and aligned with domestic time tables	Negative business case to start a new international service
Strong competition from established (incumbent) operators and (low cost) air carriers	Not meeting additional national law, regulations and access rules in Member States along the route	Non-compliance to route specification (track profile, tunnels)	Non-licensed train drivers and untrained stewards and ground staff, not speaking all official languages along the route	High and volatile track access charges and other costs and differences in neighbouring charging systems
Distant foreign market, other languages and cultural differences	Poor information on administrative procedures and failing non-discriminatory network access	Non-compliance with European and national technical systems (signalling, traction power supply, ICT)	Missing license to operate train services (safety certificate)	Not enough financial resources, investors
Insufficient experience and track record in railway operation and high speed services	Missing strong and independent rail regulatory body and long and costly administrative procedures	Exceeding noise and wear limits	No access to qualified maintenance and cleaning workshops and parking facilities	Poor internalisation of external costs for air and road travel
Exit of EU Member States like Great Britain	Extra border regulations and controls for cross border traffic		No access to facilities for ticket sales and traffic information	Negative economic climate

- Incumbents have settled on the most attractive, busiest routes in Europe
 - SNCF will defend its market share on the existing cross-border links and will expand their business through Eurostar.
 - DB AG has withdrawn from Thalys and will focus on their ICE product.
 - Trenitalia is investigating an open access high speed service between Paris and Brussels
 - SBB might take the opportunity to grow their market share on routes to France, Germany and Italy
- Head-on competition with product differentiation and lower prices on the busiest routes by new entrants
- It is unlikely that new open access operators will enter the European market in the near future.
- For the medium term, new entrants on domestic open markets, may expand their business across borders after their domestic position is established
- A new operator without any rail track record entering the market is the least probable option.

- Cross-border traffic between EU states is still hampered by complex technical and bureaucratic barriers.
- The available rail network and rolling stock fleet limit the medium and high growth demand scenarios
- The Asian HSR operators and SNCF are the best performers regarding production efficiency and marketing and sales efficiency
- Incumbents have settled on the most attractive, busiest routes long before the finalisation of the railway legislative framework.
- A new high-speed rail entrant would completely change the competitive landscape in the London-Brussels market
- The European high-speed rail market is dominated by SNCF.
- For attractive and busy routes, head-on competition with product differentiation and lower prices seems to be the only viable strategy to enter the market for new players.

European Commission

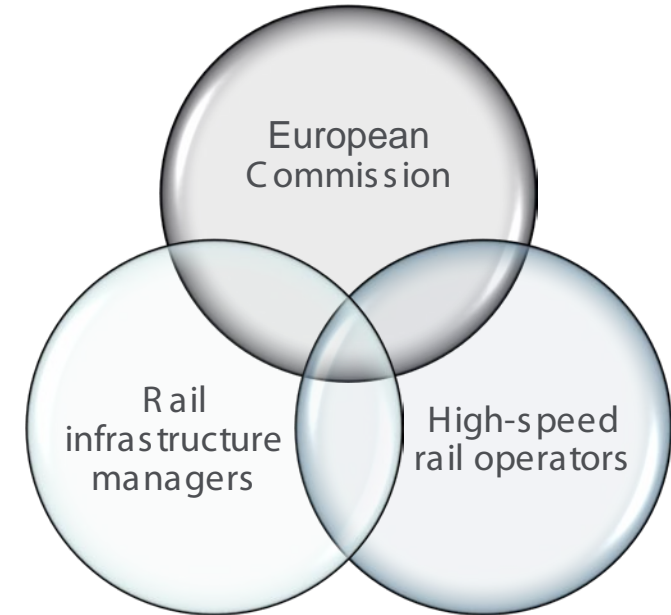
- Further implementation of the four Railway Packages
- Consideration of a fifth Railway Package
- Priority on realization of missing cross-border connections
- Erection of an independent pan-European rail infrastructure manager
- Tendering of Public Service Contracts on international routes

Rail infrastructure managers

- Harmonisation of national tariff systems across borders
- Further development of the Platform of Rail Infrastructure Managers in Europe

High-speed rail operators

- Start on profitable national routes before operating cross-border
- Head-on competition with product differentiation on high-demand connections
- Get access to the needed amount of interoperable trainsets for service delivery:
 - Buy already approved second-hand trains or lease existing rolling stock to start the operation.
 - Modify existing trainsets if interoperable trains are not available in the market.



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