Uncertainty and Inter-jurisdictional High-speed Rail Planning

Insights from Portugal and the United Kingdom

Naomi Stein
Economic Development Research Group

Joseph M. Sussman
Massachusetts Institute of Technology

The work presented here was completed at the MASSACHUSETTS INSTITUTE OF TECHNOLOGY with support from the MIT Portugal Program.
Motivation: HSR as a Sustainable Initiative

Equity
- Connect central & peripheral
- Benefit large cities and smaller intermediate areas

Economy
- Relieve congestion
- Overcome distance
- Build competitive networks

Environment
- Incentives for compact growth
- Preserve interstitial spaces
- Energy efficiency

Sustainability
It’s complex!

Multiple: Geographic & Temporal Scales, Actors, Domains

Therefore, focus on uncertainty at the interface between technical and institutional complexity

Technical complexity

• Uncertainty of outcomes

Institutional complexity

• Uncertainty of a multi-actor interjurisdictional system of control
Case Studies

Selection criteria: < 1 hour from a major city

Source: RAVE, modified by Author

Source: DfT, modified by Author
Cooperative multi-scalar planning and robust system design – Coimbra

- City of Coimbra & REFER (national infrastructure agency) entered into a formal cooperative protocol to manage a multimodal hub and new area of development.

- Cooperation led to a more robust design that could go ahead in multiple future scenarios, including one with no current HSR implementation, but without precluding its future inclusion in the multimodal hub.
Station placement affects:

- Development prospects
- Incentives for local government involvement
- Policy tools available to influence HSR outcomes

Evaluation dominated by more near-term considerations:

- Reduce travel times between dominant O-D pairs
- Provide easy regional car access
- Avoid localized cost associated with urban construction

**Challenge:** how can the evaluation process adequately account for potential but uncertain future development that might justify a more centralized station location?
Uncertainty and the challenge of integrating local station-area plans – Birmingham

- Pre-existing metro plans & “enterprise zone”
- Co-dependence of HSR & local initiatives
- **Uncertainty** of local initiatives as a barrier to their inclusion within the national evaluation process
- Failure to include “HSR supportive” strategies may constrain HSR’s success

“The DfT have assumed no changes to land use will occur as a result of HSR which is not consistent with regeneration proposals associated with the High Speed Rail stations in the West Midlands, e.g. Eastside in Birmingham city centre.”

- CENTRO, HS2 Consultation Response, Re: Assessment of Wider Benefits

Source: Author, using base-map from Centro
Managing uncertainty of outcomes in project evaluation – Old Oak Common, London

- Convergence of transport infrastructure and industrial land
- TfL & the Mayor’s office want a strategic transport interchange
- London Overground connections could be justified if major redevelopment occurs

Managing Uncertainty

Inter-jurisdictional OAPF planning process to develop future land use scenarios for EIA sensitivity tests – used to evaluate system performance under alternate futures
Summary of Findings

1. Existing processes and evaluation mechanisms affect the level to which local knowledge can be incorporated into HSR design

2. Certain initial decisions along with cooperative inter-jurisdictional planning can help manage the long-term uncertainty of HSR planning and implementation

3. Flexibility is important
Strategies for resilient multi-scalar planning & implementation

Any HSR project is subject to: long timelines, high stakes, iterative design, and *challenge*

**Formalized commitments**
- Local representation in decision-making
- Contractual agreements that formally incorporate local plans
- Designating a % of HSR funds for complementary schemes
- Inclusion of local accessibility requirements in HSR authorizing documents

**Informal coalition building**
- HSR changes the competitive landscape
- Introduces incentives for cooperation
- Take the opportunity to reevaluate other regional LU/T strategies
- Build a broader coalition for change
- Partnerships gain durability from stakeholders interested in broader vision
Parting Thoughts –

“High-speed rail infrastructure should not be considered the end objective, but rather the initiation of a long process of developing actions and strategies to enhance its effects”

- J.M. Ureña

Territorial Implications of High Speed Rail: A Spanish Perspective.

contact: nstein@edrgroup.com

Image: Coimbra
Image Source: Author
Acknowledgements

Special thanks to Isabel Lopes for arranging meetings and serving as my translator in Portugal, to Michael Colella in London, to Fred Salvucci at MIT for giving me the chance to go to the UK, and to my co-author and advisor Joe Sussman!

Thank you interviewees and meeting participants:

PORTUGAL (January & November 2012)
• Arq. José Manuel Pereira and Dr. Nuno Camelo, City of Évora.
• Isabel Lopes, Eduardo Pires, and Daniel Ferreira, REFER.
• Rafael António Robalo Ribeiro de Azevedo, REFER.
• José Vilela; António José Cardoso; Helena Terência, and Fernando Rebelo, City of Coimbra.
• Dra. Sandra Cadima; Maria João C.G. Neto de Vasconcelos, City of Leiria.
• Luis Santos and Ricardo Grade, SMTUC, Coimbra.

UNITED KINGDOM (January and February 2013)
• Chris Tunstall and Richard Leonard, Birmingham City Council.
• Mike Ogden, Maria Pilar-Machancoses, and Toby Rackliff, Centro.
• Michael Colella, Peter Moth, and Andres Wallace, Julian Ware, and Simon Weaver. Transport for London.
Findings – I.
Managing outcome and institutional uncertainty

Coimbra: National-local collaborative planning can produce station-designs that are more robust and able to perform under multiple future scenarios.

Évora & Leiria: An evaluation mechanism that values more certain current costs over potential future benefits can result in a station-placement decision that constrains the economic development and environmental sustainability benefits of HSR.

Birmingham: Insufficiently broad project assessment due to both outcome and institutional uncertainty can block potential long-term benefits from HSR.

Old Oak Common: The OAPF offers one model of inter-jurisdictional scenario planning that can help manage long-term development uncertainty within a formal evaluation framework.
Findings II.
The importance of establishing flexible initial conditions

• The Coimbra collaboration between REFER and the City creates a institutional framework that can more flexibility handle changing designs needs.

• HSR-supportive local planning in Évora and Leiria is at risk because of the decision earlier in the HSR planning process to locate stations external to the cities.

• In Birmingham, initial decisions about station design may constrain or enable future station-area growth.

• At Old Oak Common, the initial decision to purchase a “real option” by building decking over the rail yards would provide flexibility to enable higher-density commercial development as future market conditions allow.