



infrastructure **b**usiness
models, valuation and
innovation for local **d**elivery

EPSRC

Engineering and Physical Sciences
Research Council



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**UNIVERSITY OF
BIRMINGHAM**



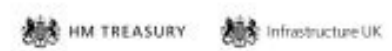
**Newcastle
University**



UNIVERSITY OF LEEDS

Background

- National Infrastructure Plan 2011
- EPSRC/ESRC £7M investment in two research centres:
 - *“innovative business models that arise when infrastructure is considered as an interdependent system of systems”*
- **ICIF & ibuild** successful bids



National Infrastructure Plan 2011



National importance of the local

- *For too long, central government has hoarded and concentrated power. It leaves no room for adaptation to reflect local circumstances or innovation to deliver services more effectively and at lower cost.* – Greg Clark MP, HM Treasury
- *Job multipliers for local infrastructure investment are often much higher [than national capital expenditure]* – Review into Obama Stimulus programme
- *Huge infrastructure demands and hungry institutional funds - link them; Excellence in industry, commerce, academia – extend it; England's cities pulsing with energy – unleash it* – Heseltine Review (BIS, HM Treasury)
- *Let's hear it for infrastructure: why local schemes are key to the economy* – John Lavery, New Civil Engineer.

New business models



Infrastructure

ageing assets; changing demand; climate change; new tech; interdependence



Localism

Localism Act 2011; Green Deal (local low C action); Local Enterprise Partnerships; City Deals; Growth & Infrastructure Bill



Localism Act 2011

New business models will appear: hurriedly or well designed
ibuild will fill the current knowledge vacuum



WS1: The business of interdependence



WS2: Re-thinking infrastructure value



WS3: Issues of scale in local delivery



WS4: Integrative case studies



WS5: Co-creation
phases

Initial
Event

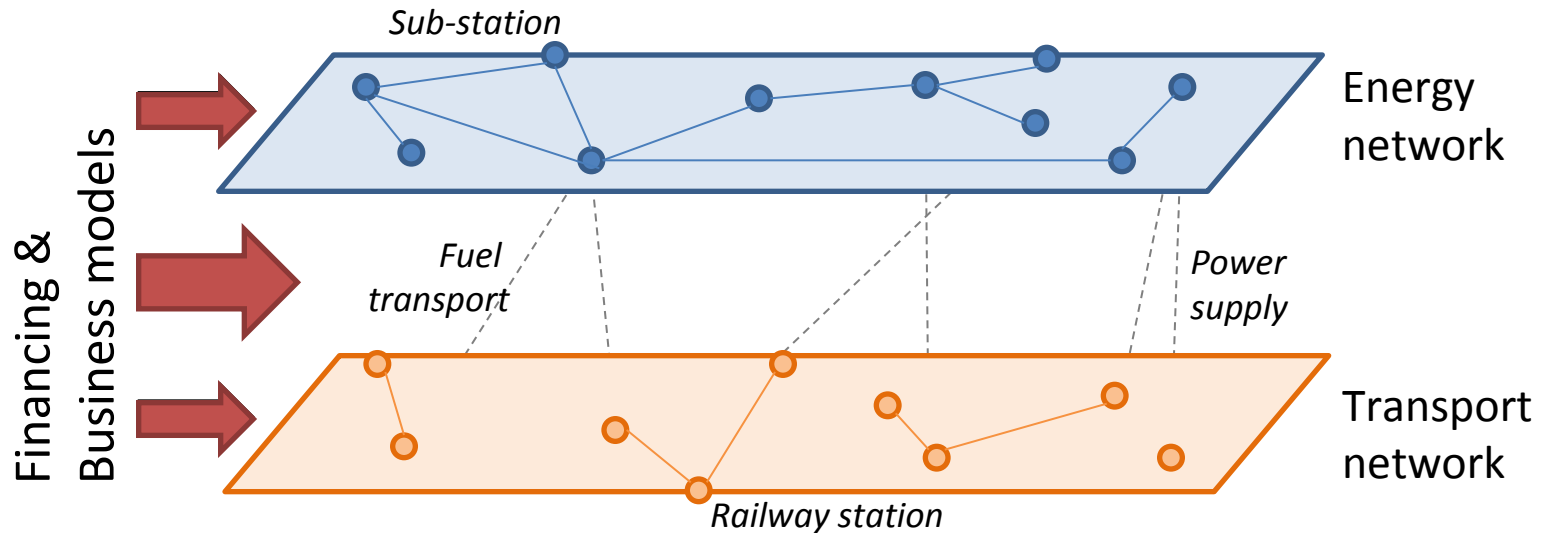
Event 1

Event 2

Event 3



WS1: The business of interdependence



- Identify interdependencies & related opportunities (co-location; multi-function; co-ordinated operation...)
- Propose and test new business models
- Appropriate governance and regulatory arrangements



WS1: The business of interdependence



Vancity

Public trust that supplies natural gas, water, wastewater treatment, heating and cooling to 0.25M customers in Indianapolis, Indiana and surrounding communities.

Basque Co
250 organ
business &
Spanish e

Example of possible
local infrastructure
funding mechanism?

Vancouver City Credit Union: Deposits invested in local projects.



WS2: Re-thinking infrastructure value

- **Underinvestment springs from undervaluation**
 - More efficient use of assets and materials
 - Whole system economic value (e.g. Systems of provision)
 - Complex value (fiscal, social & environmental accounting)





WS2: Re-thinking infrastructure value

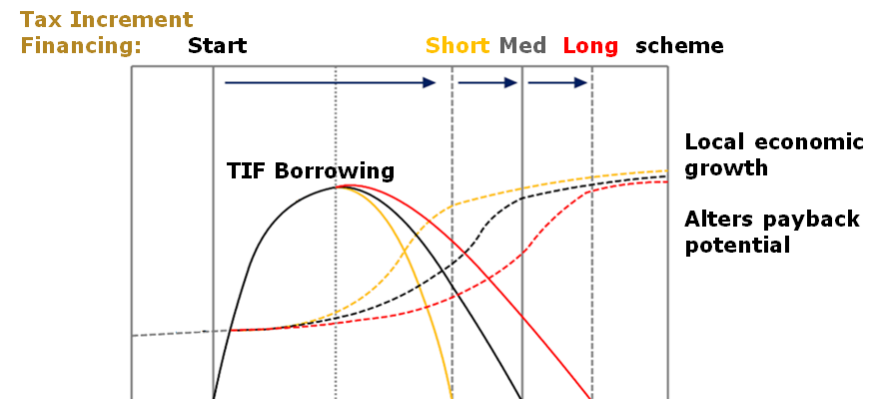
- Social value of infrastructure driving community action
- Deemed uneconomic by private sector
- Micro-financing from
 - Community shared purchase
 - £500k community labour
- Broadband for Rural North: www.b4rn.org.uk





WS3: Issues of scale in local delivery

- Scalability of infrastructure business models
- Supply chain costs & regulation
- Infrastructure finance mechanisms (e.g. Tax Increment Financing)



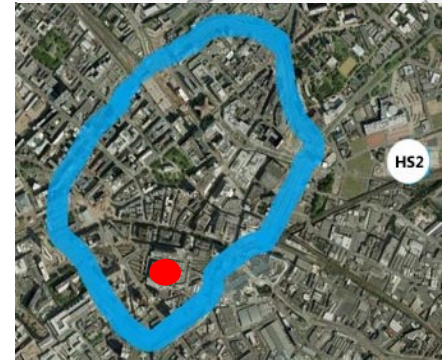
Work by Andy Pike, Newcastle



WS4: Integrative case studies

- Bench-test new approaches
- Integrate across WS1-3
- Co-created with our extensive industrial partners
- E.g. High speed rail in Spain
 - “...has helped to boost the phenomenal growth rates in Madrid but has left many of the regions, whose economic prospects rail-links were supposed to increase, struggling to catch-up.”

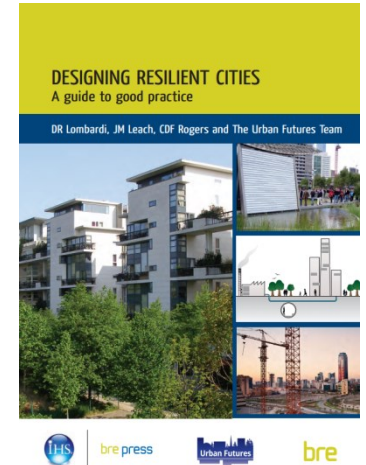
Source: Rodríguez-Pose, A and Fratesi, U (2004) Between development and social policies: the impact of European Structural Funds in Objective 1 regions, *Regional Studies*, 38 (1): 97-113





WS5: Co-creation, Engagement & Impact

- Cultivating shared learning
 - Inter-disciplinary research (e.g. RA buddy system)
 - EPS & ES teams at each university
 - Collaboration with partners (e.g. joint events with ICE, IUK, trade bodies, HM Treasury, DfT &c.)
- Decision Theatre
 - Visualising research outputs
 - Multi-sector collaborative environment
 - Supports public engagement
- Maximise impact
 - Co-creation of case studies and outputs
 - Community engagement (e.g. citizens juries)
 - Open Centre stakeholder network and case studies to benefit wider academic community



The **ibuild** Vision

- Internationally recognised research centre with a unique focus on innovation and delivery of infrastructure at the local scale:
 - Infrastructure interdependencies - particularly at the local scale
 - Infrastructure as a driver of urban and regional economic growth
 - Valuation of infrastructure services to local communities
 - Reconcile national (e.g. regulation) and broader (e.g. climate) drivers with local infrastructure decisions
 - Co-creation of activity with local and national stakeholders interested in infrastructure delivery