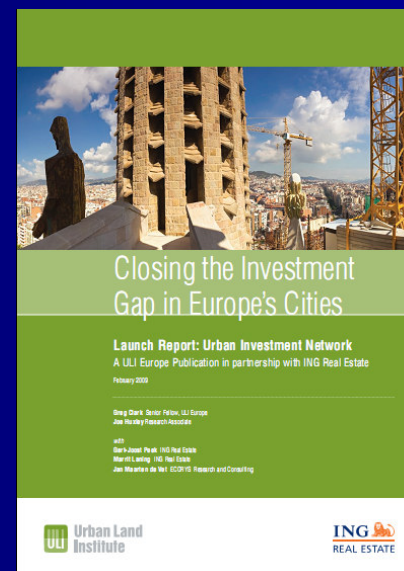
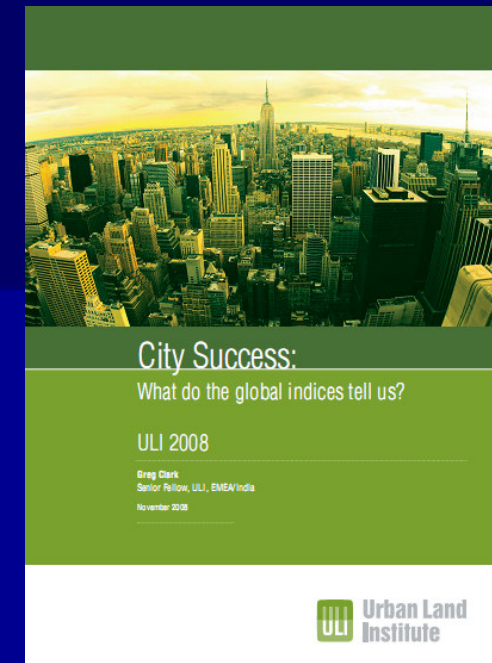
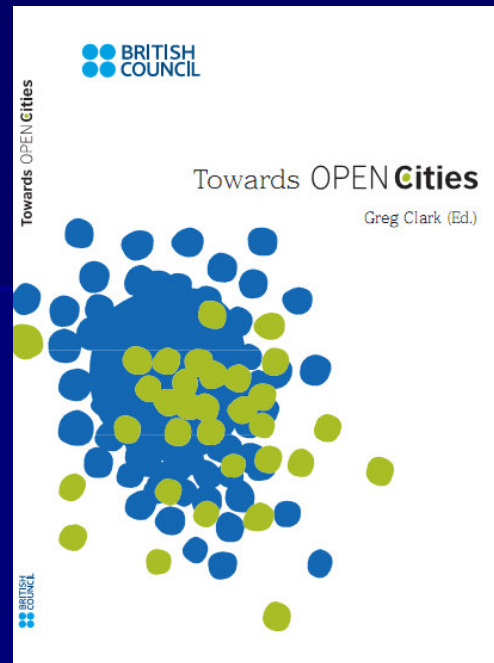
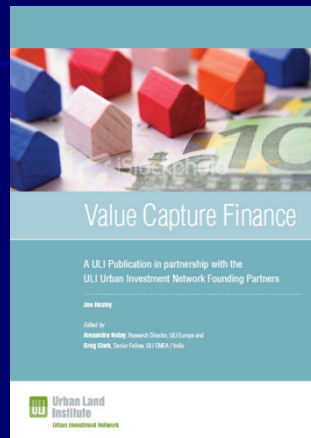
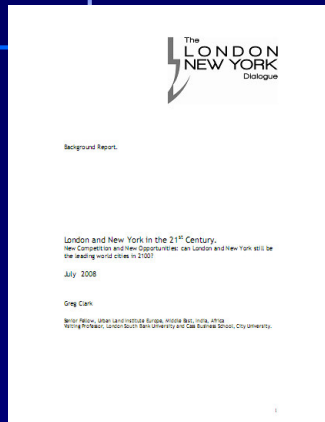


# Connective infrastructures between cities and regions in national development

Greg Clark

Denmark, October 2009

# Our Agenda



## Initial thoughts

- In a globalising world, many cities are **collaborating to complete**
- Increased **connectivity** is a **fundamental** component

Many examples of this:

- Glasgow and Edinburgh
- Seattle and Vancouver
- Balmet: the Baltic Metropolises Network
- Quattropole (Metz, Luxembourg, Trier and Saarbrücken)
- Milan, Turin, Genoa, Lyon and Barcelona
- Centrope (Vienna, Bratislava, Brno, Győr, Eisenstadt, St Pölten, Szombathely, Sopron and Trnava)
- Randstad
- Tshwane and Johannesburg
- Pan Pearl River Delta
- Cities of the Yellow Sea Rim (Kitakyushu, Shimonoseki City, Fukuoka City, Tianjin City, Dalian City, Qingdao City, Yantai City, Incheon Metropolitan City, Pusan Metropolitan City and Ulsan Metropolitan City)

# Drivers of City-Region success

## Shorter-term (one or two business cycles)

- Connectivity and accessibility.
- Economic breadth.
- Quality of life, place, and amenity.
- Skills of labour force.
- Innovation and creativity.
- Business environment, entrepreneurship and city cost-base.
- Image and identity.
- Leadership and implementation of strategy.

# Drivers of City-Region success

## Longer-term (five to ten business cycles)

- Openness to international populations.
- Power (and adaptability) of the city region identity and brand.
- Location and access to growing markets.
- Role in fostering/brokering international trade.
- Power and influence of language and regulatory/legal/financial systems.
- Depth of artistic, architectural and cultural endowment.
- City-regional leadership and effective investment advocacy.
- Adaptation to climate change.
- Success in adjusting to shocks, and luck/skill in being on the right side of conflicts.
- Investment in the city from all sources (including higher tiers of government).

# What can inter-city connectivity achieve for nations?

- Enables smaller and medium sized cities to **approximate the scale**, diversity, and complexity of larger cities in an open international economy.
- Offers scope for sustainable city and regional development models based on **polycentric principles and complementarity**.
- Provides a **regional dimension** to city development which can integrate smaller cities and towns.
- Can help to provide a more **diverse offer** to external investors and business clients.
- Provides unique **branding opportunities** that can be distinctive and appealing in a complex market place.
- Offers opportunities for **higher tiers of government** to invest in city development without favouring one place over another, and to strengthen national outcomes.
- A **fresh logic** for major infrastructure investments.

# Case study overview

## International infrastructure

- Channel Tunnel Rail Link (HS1)
- Øresund Bridge-Tunnel

UK - France

Copenhagen - Malmö

## Inter-city infrastructure

- Gautrain
- Hangzhou Bay Bridge
- Honshu-Shikoku bridges

Tshwane - Johannesburg  
- and Thambo Airport

Shanghai - Ningbo, China

Honshu and Shikoku, Japan

## Regional infrastructure planning

- Hong Kong 2030

Pearl River Delta

## Inter-city transport improvements

- Seattle and Vancouver

Seattle - Vancouver

# Channel Tunnel Rail Link (HS1)



## Profile

**Links:** London to Paris and Brussels (Kent to Nord-Pas-de-Calais)

**Timescale:** 1987-1994

**Type:** High speed rail and tunnel

**Length:** 124 miles (31 miles of which underwater)

**Financing:** Government grant and loan against future revenues

**Cost:** GBP 9.46 billion





# Channel Tunnel Rail Link (HS1)



## Benefits

Construction jobs:	4,000 UK peak (35% in Kent) (1990)
Sustained jobs:	2,750 in Kent (by 1996)
Development catalyst:	Kick-started wider development projects. Redevelopment and positioning of Lille.
Connectivity:	London - Paris : 2hr 15 mins London - Brussels : 1hr 51 mins
Passengers:	14.7 million (2003)
Freight:	18.4 million tonnes (2003)
Sector growth:	Industrial resurgence in the Nord-Pas-de-Calais Agglomeration of London, Paris, Brussels.
Value of travel time and fare reductions:	GBP 2.78 billion (2004-2020)

# Øresund Bridge-Tunnel

## Profile

**Links:** Copenhagen (Denmark) to Malmö (Sweden)

**Timescale:** 1995 - 2000

**Type:** Rail and road tunnel and bridge

**Length:** 7.7km bridge (from Sweden), 4km island, 3.5km tunnel

**Cost:** USD 1.3 billion

**Journeys:** 25 million (2007) (+ 17% on 2006).



# Øresund Bridge-Tunnel

## Benefits

**Construction jobs:** 5,000 peak with onsite peak of 2,000 (95% from the Øresund region)

**Training:** Local labour market up-skilling projects in conjunction with Technical Colleges and Universities

**Journey times:** Reduced by 35 mins

## Competitiveness

**and critical mass:** Now Scandinavia's largest conurbation (2.6 million)

## Labour market

**flexibility:** 17,000 daily commuters and talent circulation

**Activity retention:** 70% of passengers begin or end their journey in the Øresund Region

# Gautrain



## Profile

**Links:** Johannesburg, Tshwane & O Thambo Airport

**Timescale:** 2006 - phase 2 completion in 2010 or 2011

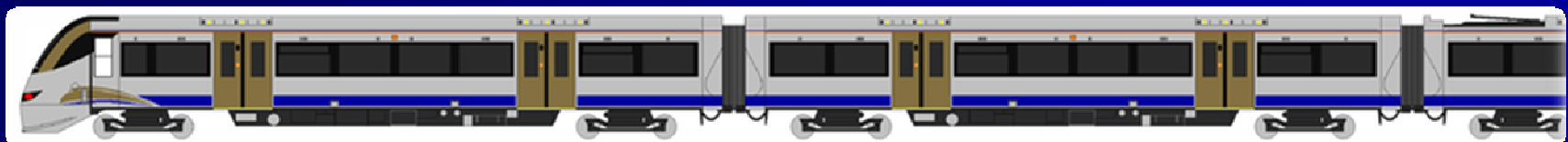
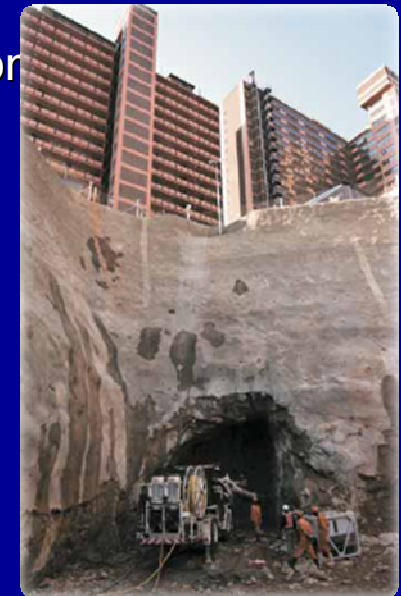
**Type:** High speed rail link

**Length:** 80km track with 15km underground

**Cost:** ZAR 25.4 billion

**Journeys:** 160,000 passengers / day

**Finance:** ZAR 22 billion government grants and ZAR 3 billion private sector



# Gautrain

## Benefits

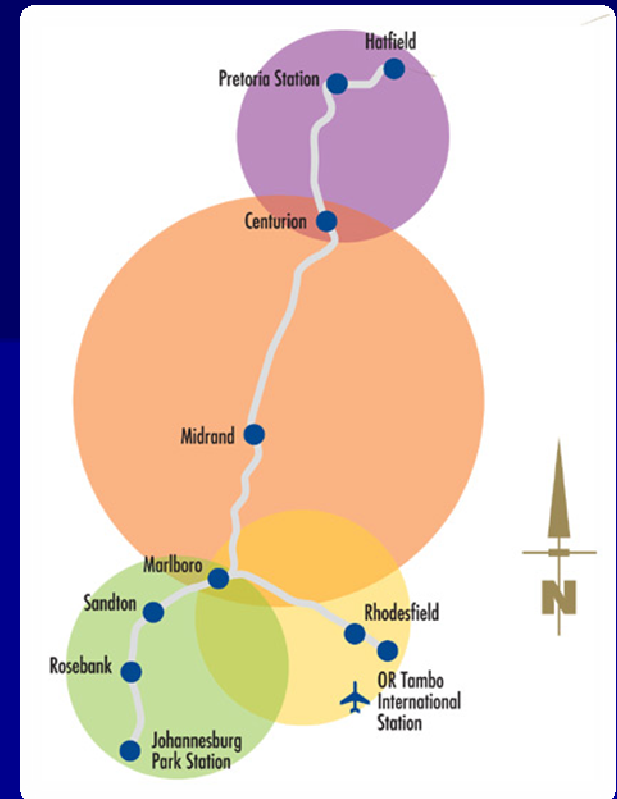
**Job creation:** Direct: 11,700  
Indirect: 63,200

**Training:** Un-skilled/semi-skilled:  
10,400  
Management: 1,250

**Productivity:** Likely to “increase the gross domestic product of the province by 1%” (Ignatius Jacobs, ANC, Executive Council, Public Transport, Roads & Works)

**Intensification:** Intensified land use around nodal points increases walkability and levels of activity

**Traffic reduction:** 20 % reduction in congestion on the N1 which costs the province economy ZAR 300 million a year.



# Hangzhou Bay Bridge, China

## Profile

**Links:** Ports of Shanghai and Ningbo, Yangtze River Delta

**Timescale:** 2003 - 2008

**Type:** Road bridge

**Length:** 35.7 km

**Cost:** USD 1.6 billion

**Finance:** 80% private sector funded - rare for China

## Benefit

**Travel:** Reduction in travel distance of 100km

**Agglomeration:** Increased critical mass of the two economies



# Honshu-Shikoku bridges, Japan



# Honshu-Shikoku bridges, Japan

## Profile

**Links:** Honshu and Shikoku regions (Osaka, Kobe, Naruto, Imabari)

**Timescale:** 1<sup>st</sup> crossing completed in 1979  
2<sup>nd</sup> crossing completed in 1988  
3<sup>rd</sup> crossing completed in 1999

**Type:** 17 long span road and rail bridges across 3 routes

**Length:** 172.9 km

**Cost:** JPY 2.87 billion





# Honshu-Shikoku bridges, Japan

## Benefits

**Key aim:** To 'facilitate transportation between Honshu and Shikoku with expressways and railways, thus to contribute to the balanced development of the nation's land' (Chikao Ito, President, Honshu-Shikoku Expressway Company Limited)

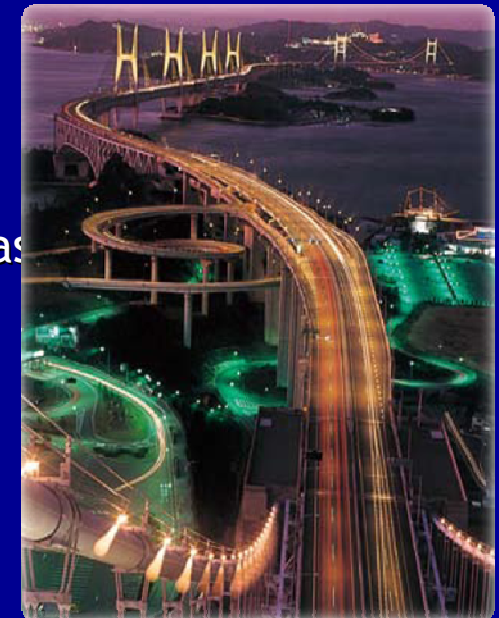
## **Critical mass**

**and cohesion:** 35 million people with a GDP of 130 trillion Yen

**Traffic increases:** Cross-bridge journeys increased by 2.6 from 1984

## **Industrial**

**productivity:** Freight shipments from Shikoku 1.9 times greater than in 1984



# Hong Kong: Hong Kong 2030 (2001)

## Plan type

- Spatial development strategy and infrastructure plan
- Provides a highly robust framework for developing the spatial environment according to new social, economic and environmental needs.

## Aims to

- Provide a comprehensive framework for Hong Kong to strive towards being the most cosmopolitan city in Asia, 'enjoying a status comparable to that of New York in North America and London in Europe.'

## Scale

- Regional until 2030

## In response

- To the positive and negative aspects associated with the region's extraordinary growth.



# Pearl River Delta: Hong Kong 2030 (2001)



# Seattle and Vancouver



## Profile

**Infrastructure:** I-5 Highway: USD 220 million lane upgrade

**Vancouver bridges:** widening works

**Sea to Sky highway:** CAD 520 million expansion

**Highway 99:** USD 600 million for road enhancement

**Ferryboats:** Capacity increases

## Benefits

### Intellectual

**critical mass:** Mayoral collaboration is pushing forward thought leadership in innovative sectors such as alternative energy

### Business:

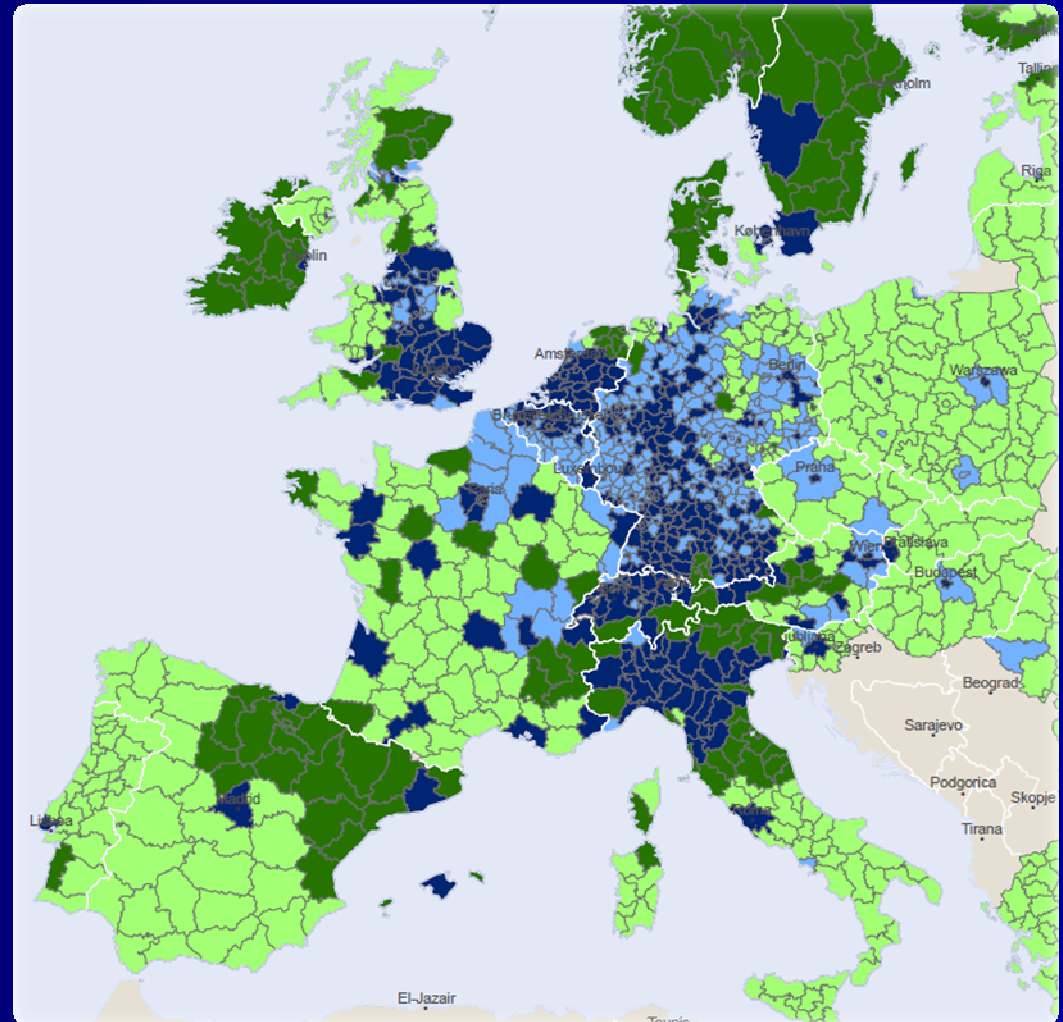
Seattle firms winning Vancouver 2010 contracts

### Destination

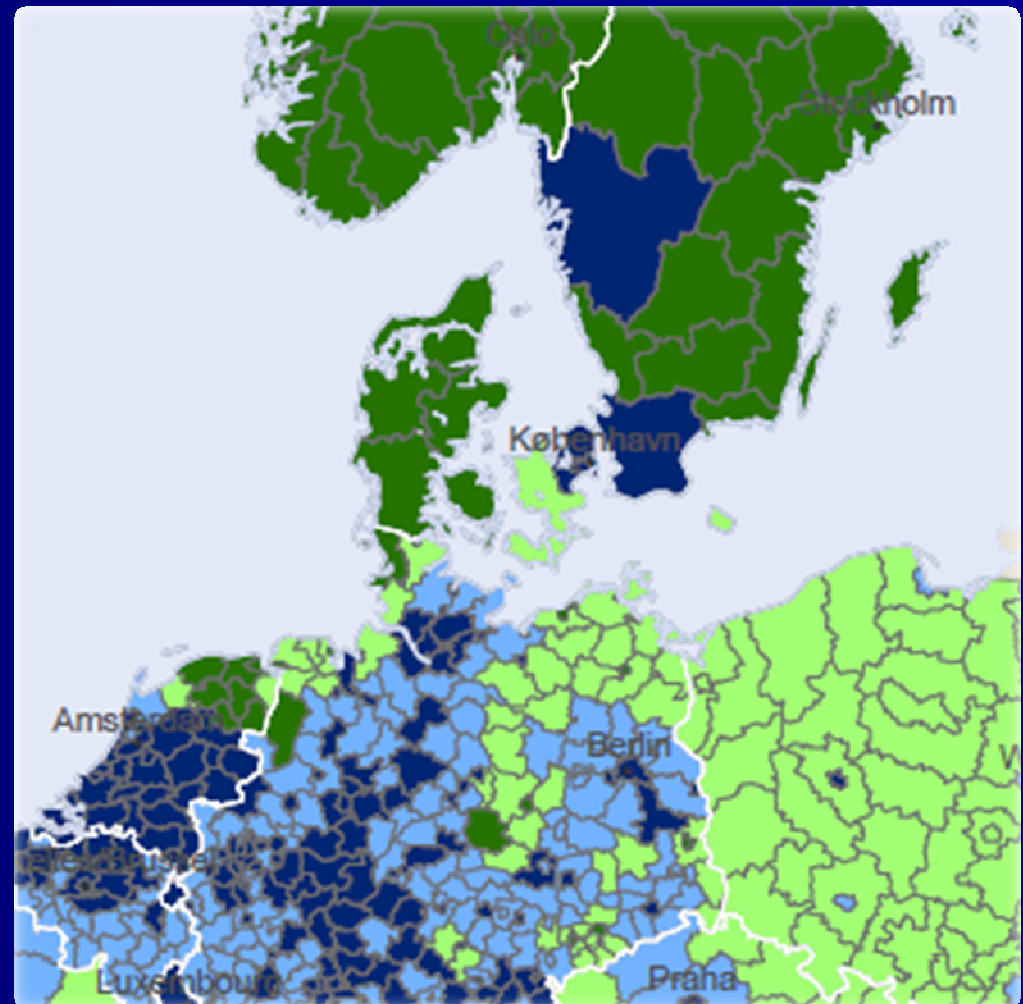
**marketing:** Richer diversity of attractions than one metropolis <sup>20</sup>

# European access

GDP-PPS per capita in 2006 versus potential accessibility (multimodal) in 2006:



GDP-PPS per capita in 2006  
versus potential  
accessibility (multimodal)  
in 2006:



# Beyond socio economic analysis? What other advantages?

- i. Stimulus against recession.
- ii. Environment.
- iii. Development: TOD and Land Development.
- iv. Agglomeration
- v. Capacity
- vi. Brand
- vii. Confidence
- viii. Demonstration effects

# Vision: what does international experience tell us?

- Chose the development model you want through infrastructure.
- Shape growth for wider purposes.
- Internal connectivity key to national success in a global system.
- 21<sup>st</sup> Century solutions.
- Ambition and Investment.