Professor Sir Peter Hall
Symposium: What Cities for the next 3 Billion?
OECD Paris
4th December 2012
The World goes to Town ... (but part of it leaves for the suburbs)
The Argument

• Everywhere, cities are decentralising (even if they’re also growing!)
• This means a shift from sustainable to less sustainable transport
• Cities are building sustainable public transport networks – and extending them into metro areas
• But beyond them, the peri-urban peripheries remain auto-dependent
• *The answer: The “Heineken model”: develop new transport options - tram-trains, BRT – with urban extensions along them*
The Great Reversal, 2010-2011: U.S. Cities growing faster than Suburbs

- Core “primary cities” of 51 largest metropolitan areas (>1 m.) grew faster than their suburbs: 1.1% vs. 0.9%
- Reverses 90-year trend
- Lifestyle change? Young people, families, professionals

Source: William Frey, Brookings Institution
### U.K: Cities are growing here too...

**Table 2 Local and unitary authorities with the highest growth in population, 2001 and 2011**

<table>
<thead>
<tr>
<th>Local or unitary authority</th>
<th>England region or Wales</th>
<th>2001 population (thousands)</th>
<th>2011 population (thousands)</th>
<th>Change since 2001 (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tower Hamlets</td>
<td>London</td>
<td>201</td>
<td>254</td>
<td>26.4</td>
</tr>
<tr>
<td>Newham</td>
<td>London</td>
<td>249</td>
<td>308</td>
<td>23.5</td>
</tr>
<tr>
<td>Manchester</td>
<td>North West</td>
<td>423</td>
<td>503</td>
<td>19.0</td>
</tr>
<tr>
<td>Hackney</td>
<td>London</td>
<td>207</td>
<td>246</td>
<td>18.9</td>
</tr>
<tr>
<td>Hounslow</td>
<td>London</td>
<td>216</td>
<td>254</td>
<td>17.6</td>
</tr>
<tr>
<td>Greenwich</td>
<td>London</td>
<td>218</td>
<td>255</td>
<td>17.1</td>
</tr>
<tr>
<td>Milton Keynes</td>
<td>South East</td>
<td>213</td>
<td>249</td>
<td>17.0</td>
</tr>
<tr>
<td>Leicester</td>
<td>East Midlands</td>
<td>283</td>
<td>330</td>
<td>16.7</td>
</tr>
<tr>
<td>Peterborough</td>
<td>East of England</td>
<td>157</td>
<td>184</td>
<td>16.6</td>
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<tr>
<td>Waltham Forest</td>
<td>London</td>
<td>222</td>
<td>258</td>
<td>16.3</td>
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<tr>
<td>Slough</td>
<td>South East</td>
<td>121</td>
<td>140</td>
<td>16.3</td>
</tr>
<tr>
<td>Swindon</td>
<td>South West</td>
<td>180</td>
<td>209</td>
<td>16.2</td>
</tr>
</tbody>
</table>
...unfortunately they’re also declining

Table 3 Local and unitary authorities with the lowest growth or decline in population, 2001 and 2011

England and Wales local and unitary authorities

<table>
<thead>
<tr>
<th>Local or unitary authority</th>
<th>England region or Wales</th>
<th>2001 population (thousands)</th>
<th>2011 population (thousands)</th>
<th>Change since 2001 (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrow-in-Furness</td>
<td>North West</td>
<td>72</td>
<td>69</td>
<td>-4.0</td>
</tr>
<tr>
<td>Knowsley</td>
<td>North West</td>
<td>151</td>
<td>146</td>
<td>-3.5</td>
</tr>
<tr>
<td>Sefton</td>
<td>North West</td>
<td>283</td>
<td>274</td>
<td>-3.2</td>
</tr>
<tr>
<td>Sunderland</td>
<td>North East</td>
<td>285</td>
<td>276</td>
<td>-3.2</td>
</tr>
<tr>
<td>South Tyneside</td>
<td>North East</td>
<td>153</td>
<td>148</td>
<td>-3.1</td>
</tr>
<tr>
<td>Redcar and Cleveland</td>
<td>North East</td>
<td>139</td>
<td>135</td>
<td>-2.9</td>
</tr>
<tr>
<td>Burnley</td>
<td>North West</td>
<td>90</td>
<td>87</td>
<td>-2.8</td>
</tr>
<tr>
<td>Kensington and Chelsea</td>
<td>London</td>
<td>162</td>
<td>159</td>
<td>-2.2</td>
</tr>
<tr>
<td>Middlesbrough</td>
<td>North East</td>
<td>141</td>
<td>138</td>
<td>-2.0</td>
</tr>
<tr>
<td>West Somerset</td>
<td>South West</td>
<td>35</td>
<td>35</td>
<td>-1.1</td>
</tr>
<tr>
<td>Hyndburn</td>
<td>North West</td>
<td>82</td>
<td>81</td>
<td>-1.0</td>
</tr>
<tr>
<td>St. Helens</td>
<td>North West</td>
<td>177</td>
<td>175</td>
<td>-0.8</td>
</tr>
</tbody>
</table>

E.U. Population Change in Core Cities and LUZs 1996-2001

Source: EU, State of the European Cities
EU: Four Patterns of Urban Change

• *Urbanisation*: growth of entire agglomeration - both core city and outer areas. *About 1/3 UA areas*, especially large dynamic cities in Spain (Madrid, Seville, Zaragoza), Greece (Athens, Thessaloniki), and Benelux (Amsterdam, Rotterdam, Brussels). Also second-tier cities in the Nordic countries (Turku or Odense) and dynamic German centres.

• *Overall urban decline*: decline of entire agglomeration - both core city and peripheral areas. *About 1/3 UA cities*, particularly eastern Germany and all Central and Eastern European countries except Bulgaria. Also the Ruhr (Germany) and many Italian cities. Often the core city declines faster than periphery. In some cases (Milan, Rome), suburbanisation occurs outside agglomeration borders.

*Source*: EU, *State of the European Cities*
EU: Four Patterns of Urban Change (ctd)

- **Suburbanisation**: peripheral growth while core city declines. *About 1/4 UA cities*, particularly on the Iberian Peninsula and in Poland. Also occasionally in Italy and the UK, and in key larger cities (Barcelona, Vienna, Warsaw, Berlin)

- **Re-urbanisation**: both core city and periphery grow, but the core grows faster. *Only 1/20 cases*, in Spain, Greece, Denmark and Finland. Generally due to lack of available peripheral land

- **Conclusion**: even though urban populations are generally growing faster than the national average, great variation exists across Europe. *Generally, growth is more common in peripheral urban areas than in the urban core*. City size and national and regional context are not wholly responsible

*Source: EU, State of the European Cities*
EU Intra-Urban Dynamics, 2000-

Source: ESPON, FOCI Report, 2010, from Urban Audit
UK: Commuting by Public Transport, %, 2001

Map 4: All occupations: percentage of workers using public transport by LSOA (Wider South East), with rail network shown

Modal Split: London, all journeys, 2001

Figure 2.33: Number and main mode share of residents’ trips (all purposes) within and between central, inner and outer London, 2001

Commuting Trends, Stockholm Mälar Region, 1985-2006

European models: (1) Freiburg: Vauban
European Models (2) Ypenburg
Montpellier: French city success story

• Fastest-growing major French city: 25th in 1954 (97,000) > 8th in 2008 (253,000)
• Metropolitan area (aire urbaine), within 25-kilometre radius: 510,000 people in 2008, 15th largest in France; fastest-growing major urban area in France 2001-8
• Immigration: students, retirees, second home owners and sun-lovers (French California: 300 days sunshine a year)
• Plus high-tech companies, R&D
Montpellier Tram Network: Lines 1, 2, 3
Line 1 and CBD Extension
Odysseum: Fun Shopping + Leisure
TGV Contournement /Odysseum Station
Line 2 in Big Box (Boîte à Savon) Land
Maverick Mayor meets Dress Designer: Georges Frêche and Christian Lacroix
Line 3: « Des travaux sur mesure, pour une ligne haute couture »
Line 3: New growth corridor

- New north-south axis: Avenue de la Mer: university quarter (Porte Marianne) to Pérois, almost on the sea
- 5-kilometre-long, 2500-square-metre corridor
- 6000-8000 new homes
- 75 000 m² new offices
- 40 000 to 50 000 m² new public buildings
- Largely outside Montpellier city limits: Pérois, Lattes
- Central city alliance with bordering communes for strategic transport and land use planning: Communauté d'Agglomération de Montpellier, Castelnau-le-Lez, Montpellier, Lattes et Pérols
The Montpellier Message

- “Ride on me, where the living is easy”
- Attracted yuppie in-migrants (*jeunesse dorée*)
- Frêche voter base! So he always won…
- New knowledge economy jobs: universities, high-tech, R&D
- Lifestyle: sun, fun, shopping, style
- But also “sustainable”
- *Trams as part of image*
- City marketing: powerful, self-publicising mayor
- Critical importance of city region dimension
- *But: how far out does it extend?*
Limits of the “Tramway Boom”: Three French Cities, Population 2006

<table>
<thead>
<tr>
<th></th>
<th>Amiens</th>
<th>Rennes</th>
<th>Strasbourg</th>
</tr>
</thead>
<tbody>
<tr>
<td>City center communes</td>
<td>136 105</td>
<td>209 613</td>
<td>272 975</td>
</tr>
<tr>
<td>Suburbs</td>
<td>25206</td>
<td>72937</td>
<td>167289</td>
</tr>
<tr>
<td>« Periurban belt »</td>
<td>112504</td>
<td>289203</td>
<td>198406</td>
</tr>
<tr>
<td>... in « railways corridor »</td>
<td>56179</td>
<td>124055</td>
<td>112580</td>
</tr>
<tr>
<td>... out « railways corridors »</td>
<td>56325</td>
<td>165148</td>
<td>85826</td>
</tr>
<tr>
<td>Total</td>
<td>273 814</td>
<td>571 753</td>
<td>638 670</td>
</tr>
</tbody>
</table>

Source: Xavier Desjardins, SINTROPHER Workshop Presentation, Kassel, September 2012
Share of population growth inside/outside rail corridors

Source: Xavier Desjardins, SINTROPHER Workshop Presentation, Kassel, September 2012
Share of building permits granted in communes in rail corridors 1999-2008

Source: Xavier Desjardins, SINTROPHER Workshop Presentation, Kassel, September 2012
The Answer: The “Heineken model” for transport

- Heineken slogan
- “Refreshes the parts other transport cannot reach”
- Options that reach peri-urban places
- Tram-Train
- BRT (Bus Rapid Transit)
Tram-Train Pioneer: Karlsruhe

- Started 1992
- Dual mode: DC (tram) and AC (rail)
- 400km system; 20m train-km/year
- Longest line (S4) 230 km (130 miles)
- Traffic x2
- “Karlsruhe model”
Kassel (Nordhessen): Regional Model

- 1991: New High-Speed Line
- Würzburg/Frankfurt > Berlin/Hannover
- Main train station relocated: integrated HST (ICE) + Regional Express trains
- Then, adopted “Karlsruhe” (1992) model: TramTrain
- And: developed diesel variant for one line > Wolfhagen (tunnel problem!)
- Linkage/opening 19.08.07
Obere Königsstrasse: Main Axis
On board the Tram: Through the Station Tunnel...
... and through the (old) Central Station
Out into the Country…
... to the Wolfhagen Terminus
Strasbourg: The Tram Train comes to France
Integrating Transport and Land Use: The Key

<table>
<thead>
<tr>
<th>Density</th>
<th>Size distribution</th>
<th>Adhesion to railways</th>
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</thead>
<tbody>
<tr>
<td>Kassel</td>
<td><img src="image" alt="Yellow" /></td>
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<tr>
<td>Angers</td>
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<tr>
<td>Dijon</td>
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<tr>
<td>Le Mans</td>
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<tr>
<td>Rennes</td>
<td><img src="image" alt="Blue" /></td>
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</tr>
<tr>
<td>Tours</td>
<td><img src="image" alt="Blue" /></td>
<td><img src="image" alt="Yellow" /></td>
</tr>
</tbody>
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Source: Xavier Desjardins, SINTROPHER Workshop Presentation, Kassel, September 2012

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<th>Favorable to regional tram systems</th>
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<table>
<thead>
<tr>
<th>Unfavorable to regional tram systems</th>
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The BRT Revolution: Busway Cities

- Started in Latin America
- Metro systems less developed – especially 30 years ago (recent extensions)
- Money lacking - so, “make a virtue of necessity”
- Curitiba: “Bus Metro”
- Widely hailed, now imitated
- Bogotá, São Paulo, etc
- The key: integrated bus service/land use
- Now spread worldwide: Australian cities with sprawling suburbs
BRT: The Bogotá Revolution

- 7 million = London
- 1100 red express buses (270 passengers)
- 400 green feeder buses
- 1.6 million trips/day – nearly 25% journeys
- 84 kilometres exclusive bus lanes
- 60 km./hr (37 m.p.h.)
- Unsubsidised
- 46,000 passengers/day on busiest sections – more than many metros
Australian BRT: Adelaide, Brisbane
Brisbane South East Busway
Brisbane South East Busway
Busway Capacity: Curitiba

Table 1. Capacity of bus operations in Curitiba

<table>
<thead>
<tr>
<th>Bus Configuration</th>
<th>Capacity (passenger/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional bus on average street (80 passengers)</td>
<td>1,000</td>
</tr>
<tr>
<td>Conventional bus on bus way (150 passengers)</td>
<td>1,800</td>
</tr>
<tr>
<td>Double (Articulated) bus on bus way (150 passengers)</td>
<td>2,500</td>
</tr>
<tr>
<td>Direct route with boarding tubes (110 passengers)</td>
<td>3,200</td>
</tr>
<tr>
<td>Biarticulated bus on bus way with boarding tubes (270 passengers)</td>
<td>4,000</td>
</tr>
</tbody>
</table>

Note: These figures are a simplification of operational data, taking into account the capacity of the vehicles and their respective commercial running time.

Source: URBS, Urbanizacao de Curitiba

Illustrations: Lars Friberg
Transport Infrastructure Costs: Buses cheaper

Source: Golub 2004
Transport: Conclusions

• Bus-based cities do work
• Can deliver good service, high volumes, at low cost
• But can they do so everywhere?
• Especially: to the periphery?
• Will the transport problem get worse?
• No: *The Mega-City-Region* to the rescue!
Introducing the POLYNET study
Constituent FURs

Figure 2: Mega city region of the larger Randstad area
Population Change: Decentralisation
Dominant

- **South East England**: London growing, others even faster
- **Paris Region**: Paris, some distant FURs growing, others declining; W/E split
- **Randstad**: 4 big cities declining, suburbs growing
- **RhineRuhr**: core cities losing to suburbs; smaller cities growing
- **Rhine-Main**: Frankfurt, Mainz growing, rest stagnating/losing
Population & Employment Change 1990-2000
Comparisons: Population Change, 1980s/1990s
Employment Change

- Trends resemble population: *decentralisation*
- **SE England**: London growing, others growing faster
- **Paris Region**: Paris weak growth, some outer cities strong growth, eastern towns weak
- **Randstad**: growth in (some) cities, faster outside
- **Rhine-Ruhr**: Ruhr losing, Rhine gaining
- **Rhine-Main**: Frankfurt, Mainz growing, rest stagnating/losing
- **Northern Switzerland**: overall growth, but industrial towns losing
Commuting

- **General trends:**
  - (1) increased number/average length of commuter trips
  - (2) more trips “peripheral”: not to central core FUR

- **But some surprises:**
  - **South East England:** West/East contrast
  - **Paris Region:** highly monocentric, but local commuter fields too
Self-Containment 1999/2002

Figure 12: Self-Containment 2000
In Conclusion

• Growth + Deconcentration: a fact of life in OECD countries
• Key challenge: to serve the periphery by sustainable public transport
• 2 answers:
  • (1) Tram-Train and BRT along transport/land use corridors (TODs)
  • (2) In largest Metros (MCRs), develop more distant cities through urban extensions – encourage self-containment

THANK YOU!