Accelerating sustainable mobility and land-use transitions in rapidly growing cities: Identifying common patterns and enabling factors

ITF roundtable

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Horizon 2020 CREATE

Congestion Reduction in Europe: Advancing Transport Efficiency

www.create.eu
Urban development pathways

Source: analysis by Roger Teoh, MSc Dissertation Imperial/UCL 2016
UITP data 1995

Cluster 1 - Cities in Developing Countries
Cluster 2 - Cities in "Developing Pathway 1"
Cluster 3 - Cities in "Developing Pathway 2"
Why a focus on rapidly growing cities?
Rising issues linked with car-oriented developments

- Inequity
- Road accidents
- Greenhouse gas emissions
- Air pollution
- Community severance
- High energy consumption
- Loss of 'living space'
- GDP loss
- Noise & Vibrations
Sustainable urban mobility key to achieve the SDGs
CREATE has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement N°636573
## Regional differences

<table>
<thead>
<tr>
<th>Key differences between regions</th>
<th>Post-communist cities - Tallinn, Bucharest, Skopje</th>
<th>Middle Easter cities - Adana, Amman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban growth and urban sprawl at the metropolitan level</td>
<td>Gradual growth at the outskirts</td>
<td>Sudden &amp; substantial growth</td>
</tr>
<tr>
<td>Land-use and density</td>
<td>Less control over land-use &amp; density</td>
<td>In Turkey density requirements at the national level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Amman limited enforcement of rules</td>
</tr>
<tr>
<td>Public transport network</td>
<td>Extensive</td>
<td>Semi formal private operators = backbone of PT</td>
</tr>
<tr>
<td>External influence</td>
<td>Heavily influenced by EU</td>
<td>Amman influenced by oil rich countries</td>
</tr>
</tbody>
</table>
Which factors contribute to car-oriented developments?

- Unplanned population growth
- Increase in GDP
- Decreasing Fuel prices
- Increase in car use
- Highway investment
- Horizontal growth
- Lack of investment in PT, Walking & Cycling
- Lack of integrated land-use & transport plan

Macro factors (e.g. import of second hand cars)

Cultural & Behavioural factors (e.g. social status)

Car-dependent development
Rapid urban growth and urban sprawl

Population Growth in Adana, Amman, Skopje, Tallinn and Bucharest

Create
Land use changes - Adana

Common urban planning issues

<table>
<thead>
<tr>
<th>Most common urban planning issues</th>
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<tbody>
<tr>
<td>Lack of updated urban plans</td>
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<tr>
<td>Lack of regional/metropolitan urban plans</td>
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<tr>
<td>Lack of integration between land-use and transport plans</td>
</tr>
<tr>
<td>No density requirements</td>
</tr>
</tbody>
</table>

Tallinn
Decrease in fuel prices

North Macedonia - Fuel cost (in €/litre)

Increase in GDP per capita

Increase in car-use levels & investments accommodating the demand for car use

Number of registered private automobiles in Amman, Adana and Bucharest (metropolitan area).

- Orange: Number of registered automobile Amman
- Cyan: Number of registered automobile Adana
- Purple: Number of registered automobile Bucharest - Ilfov Region

Vertical axis: number of private vehicles registered in Adana; Horizontal axis: year. Source: Turkish Institute of Statistics
**Extent to which local authorities can influence/manage factors that lead to car-dependent urban developments**

<table>
<thead>
<tr>
<th>Factors affecting local authorities</th>
<th>Specific example</th>
<th>Level of policy influence/control (local authority)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Macro factors</strong></td>
<td>- GDP per capita</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>- population growth/demographic changes</td>
<td></td>
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<td></td>
<td>- cultural or behavioural factors (e.g. social status)</td>
<td></td>
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<tr>
<td><strong>National policies</strong></td>
<td>- decreasing fuel prices</td>
<td>Moderate</td>
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<tr>
<td></td>
<td>- import of second-hand vehicles</td>
<td></td>
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<tr>
<td><strong>Local policies</strong></td>
<td>- highway investment</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>- lack of investment in active travel</td>
<td></td>
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<tr>
<td></td>
<td>- lack of dedicated transport plans</td>
<td></td>
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<tr>
<td></td>
<td>- lack of density requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- urban sprawl</td>
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</table>
Preventing/addressing automobile-dependent urban developments

**Policy actions**

<table>
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<tr>
<th>Action</th>
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<tbody>
<tr>
<td>Apply cross-sectorial collaboration and system thinking</td>
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<tr>
<td>Focus on prioritising active travel and collective transport modes when building highway or road facilities</td>
</tr>
<tr>
<td>Harmonise planning decisions at the metropolitan level</td>
</tr>
<tr>
<td>Focus on vision-led planning</td>
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</table>
Thank you!

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Prof Peter Jones

CREATE: http://www.create-mobility.eu/
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Twitter: @tsum_africa

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Policy Perspectives Shape Cities

C: Car-oriented city
- Road building
- Car parking
- Lower density
- Decentralisation

M: Sustainable mobility city
- Public transport
- Cycle networks
- Roadspace reallocation

P: City of places
- Public realm
- Street activities
- Traffic restraint
- ToD/mixed use developments
Typical European Evolutionary Trajectory

Policy emphasis on meeting the needs of motor vehicles

Stage 1

Stage 2

Stage 3

Stage 4

Time - Development Cycle
Contrast in policy measures: C -> P

The pictures show how this area of London has been transformed from a large traffic roundabout into a vibrant public space at the heart of the community, due to a shift in policy perspectives and corresponding priorities.

London, Aldgate Square:

C
Put in gyratory to increase road capacity (1960s)

P
Remove, to enhance place and provide new community heartland (2018)
Changing Priorities: Removing vehicle infrastructure:

Stage C

rio

Stage P

Seoul
Car Driver Modal Shares, Over Time
How to avoid going through a car-oriented stage?

**Issue**

- Horizontal expansion
  - Urban sprawl
  - Low density
- Decrease in fuel prices / Low vehicle cost
- Behavioural issues
- Investments in highway infrastructure
- Increase in car-use
- Lack of investment in public transport & active travel

**Suggested solution**

- Integrate land-use & transport planning at the metropolitan level (e.g. metropolitan SUMP)
- Set up density requirements
- Tax fuel
- Tax vehicle purchase
- Run awareness campaigns
- Encourage role models to use alternatives to car use
- Limit investments in highway infrastructure & parking facilities
- Ensure that road network focuses on sustainable mobility & liveable cities (including public transport, active travel & place-making)
- Disincentivise car use (e.g. smart road pricing, parking management)
- Incentivize alternatives to car-use (e.g. subsidise bicycle use)
- Prioritise investments in public transport, active travel & place-making
- Generate revenue (through parking management, smart road pricing for instance)
T-SUM Transitions to Sustainable Urban Mobility

- ESRC GCRF funded
- 2.5 years
- Aims to identify the conditions under which pathways to sustainable and inclusive transport and land use development can be accelerated in growing cities in the Global South
- Maputo, Mozambique & Freetown, Sierra Leone
The Challenge for African Cities

Can this evolutionary/learning process be short-circuited?

Policy emphasis on meeting the needs of motor vehicles

Stage 1

Stage 2

Alternative development?
Can this evolutionary/learning process be short-circuited?

Time – Development Cycle -
Key findings

The CREATE partner cities

ADANA: the 2nd metro line is under construction
AMMAN: the population will double by 2025
BERLIN: almost 3,000 car sharing vehicles, including more than 400 electric vehicles are used
BUCHAREST: the public transport system is one of the largest in Europe
COPENHAGEN: cycling represents 45% of all commuter trips
LONDON: 26.1 million journeys per day
PARIS-ILE-DE FRANCE: walking represents 39% of modal share
SKOPJE: walking and public transport are almost equal in modal share
TALLINN: since 2013, residents from the Estonian capital can travel for free
VIENNA: the capital city with the highest public transport usage in Europe
Key challenges

• Limited understanding of transport demand & lack of evidence base policy-making

  “it is also about the political will to base our decision on actual scientific research...” Participants Tallinn

• Poor walking environment does not encourage people to walk

  “When it rains people take the car instead of the umbrella, and the city is congested”. Bucharest participant

• Car dependency & Behavioural change (e.g. Social status still linked to car ownership)

• Political recognition associated with highway construction
What are the current policy priorities for urban transport?

- Highway and bridges construction to relieve traffic congestion & Improving traffic flow
- Increase public transport coverage
- Park and ride
- Parking management
- Integrated transport systems
- Encourage bicycle use
- Electric vehicles

"We have a mixture of policies, on the one hand the use of motor vehicles is being encouraged by the construction of highways, and on the other end the city tries to encourage alternative mobilities". Skopje participant

There is a need to create a “metropolitan transport authority” Bucharest
What are the opportunities to short-circuit?

- Congestion & pollution
- Comprehensive transport and urban planning strategy within the city and in the metropolitan area
- Reducing the need to travel
- Initiating cross-sectorial collaborations. E.g. Public-private collaboration
- Providing alternatives to car use
- Smart demand-based, integrated, and accessible collective transport

“Creating a vision for the city”
Key recommendations

• Redefine congestion
• Develop a wider city vision
• Full integration of transport and land use planning, at the metropolitan level
• Foster cross-sector, multi-level governance
• Invest in institutional capacity
• Invest in enhanced data collection and data analytics
• Be bold: today’s radical policy can become tomorrow’s orthodoxy
• Introduce trials and demonstrations
• Run awareness raising, marketing and behaviour change campaigns
Rising issues linked with car-oriented developments