TECHNICAL NOTE Nº. 4

CROSS-CITY COMPARISON FOR CREATE STAGE 3 CITIES

TRAVEL BEHAVIOUR AND DRIVERS

CREATE PROJECT

Congestion Reduction in Europe, Advancing Transport Efficiency

TECHNICAL NOTE PREPARED BY:

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CHARACTERISTICS OF THE CREATE CASE STUDY CITIES

SPATIAL STRUCTURES, DENSITIES

Cross-city comparison covers travel behaviour and its drivers. Densities of residents and workplaces are essential characteristics of the built environment and shape travel behaviour. They were used for harmonising the spatial level of data analysis.

Densities of Residents

- Densities in the inner city are similar for Berlin, London and Vienna with each of these cities having substantially lower densities of residents in the outer part of the city.
- Densities for Copenhagen and Paris are similar in both the inner and outer city but at substantially different absolute levels.
- Inner cities in Berlin, London and Vienna seem to correspond to the overall cities Copenhagen and Paris in terms of relative densities.

Densities of Workplaces

- Densities of workplaces are similar in the inner cities of Berlin, Copenhagen, London and Vienna.
- Densities of workplaces in Paris are the highest.
- Densities of workplaces are substantially lower in the outer city compared to inner city in all cities.
- Workplaces are concentrated in the inner-city areas of all cities.

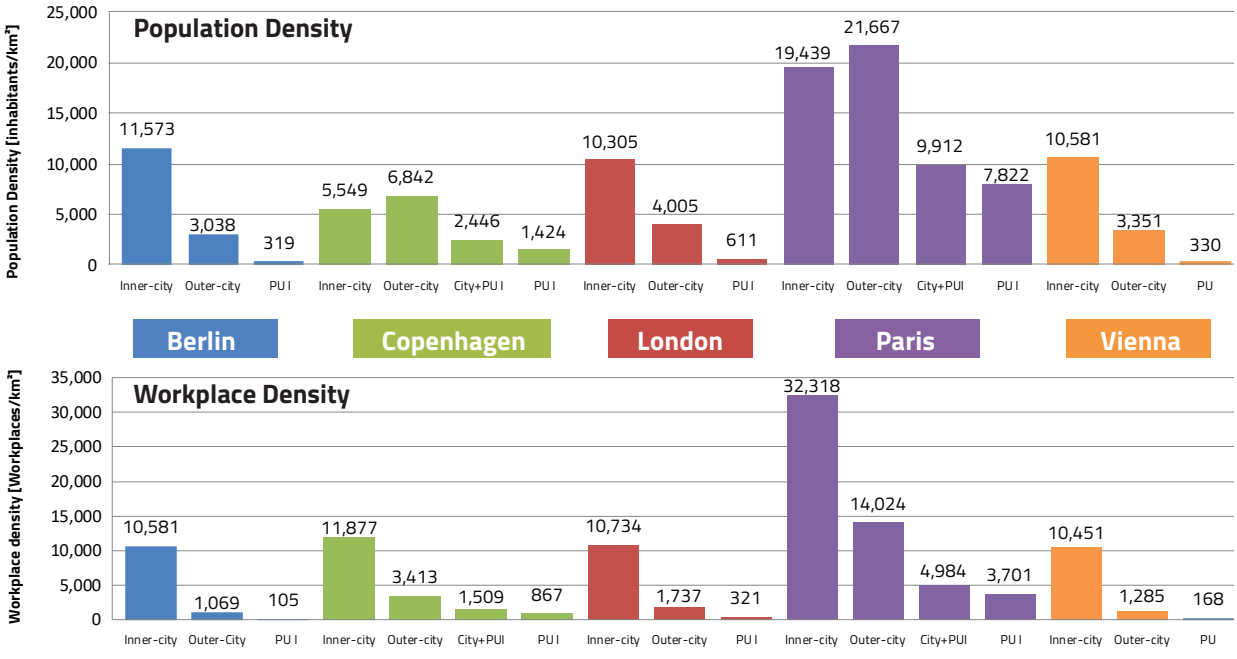
Peri-Urban Areas

- Densities of residents are low in all peri-urban areas except around Copenhagen and Paris; these areas seem to correspond to the outer-city areas in the other cities.
- Densities of workplaces are low in all peri-urban areas.

Densities and Spatial Structures Matter

- Density is a core determinant of travel behavior, especially of walking.
- Spatial determinants of travel behavior are often classified in terms of the "5 Ds": Density, Diversity, Destinations, Distance to transit and Design.
- Paris has the highest densities and share of walking trips.
- High travel volumes generated by high densities can only be managed at adequate comfort, safety and efficiency with dense and high-quality rail-based public transport systems.

Early 2010s Densities in the Study Areas



Note: The definition of functional area-types is included in Technical Note No. 1 - Conceptual Framework and Research Methods.

TRAVEL BEHAVIOUR: DIFFERENCES AND SIMILARITIES

RESULTS FROM THE FIVE STAGE 3 CITIES IN CREATE: TRAVEL BEHAVIOUR, MODE CHOICE

BERLIN	COPENHAGEN	LONDON	PARIS	VIENNA
BICYCLE AND PUBLIC TRANSPORT	CYCLING CITY	WALKING AND PUBLIC TRANSPORT	WALKING CITY	PUBLIC TRANSPORT CITY

General Travel Characteristics of Tripmakers

- Overall **trip rates** are stable (number of trips or tours), but with substantial differences between person groups.
- Daily **travel time** is either broadly stable (London, Vienna) or is increasing (Berlin, Copenhagen, Paris).
- Daily **travel distances** are stable (London, Paris, Vienna) or decreasing (Berlin, Copenhagen).
- One reason for changes in travel time/ distance is the **shift** to slower transport modes.

Mode Choice of Tripmakers

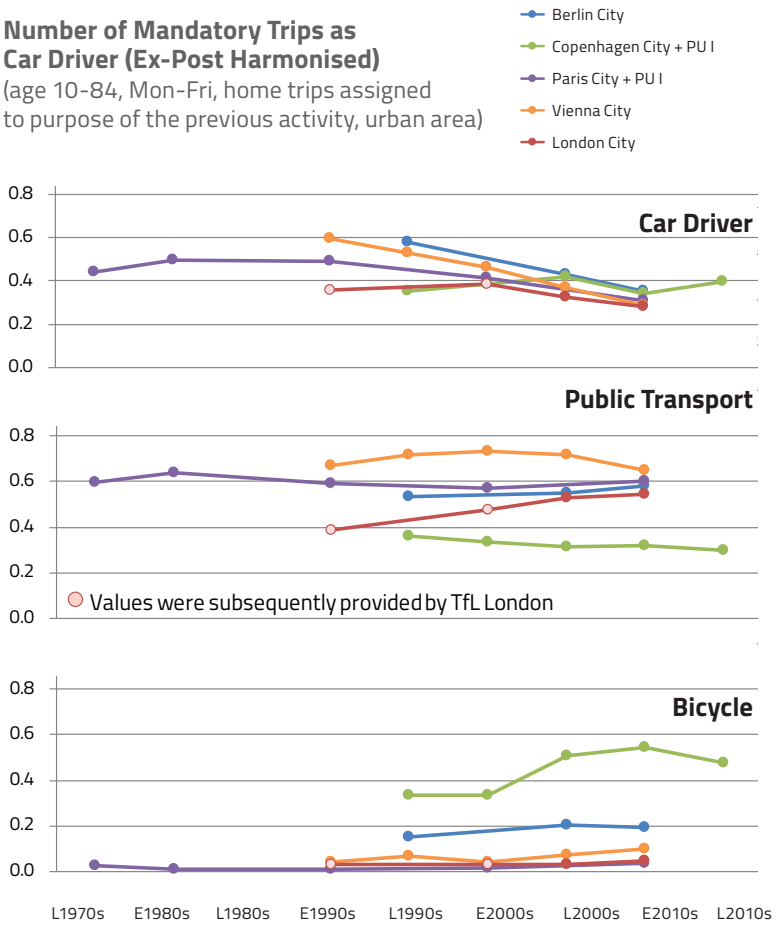
- Numbers of **car-driver trips** are decreasing in all cities, with low variation between cities in recent years (0.8-0.9 car driver trips per tripmaker and day in early 2010s).
- Reductions also in car driver trip **distances** and **travel times** per trip.
- Number of **public transport** trips has been stable or increasing at different absolute levels (1.4 in Vienna and 0.6 in Copenhagen in early 2010s).
- Number of **bicycle trips** is increasing in all cities at different absolute levels (1.1 in Copenhagen and 0.08 in Paris in early 2010s).
- Increases in **distances** and **travel times** for public transport and bicycle.
- Inconsistency in developments of **walking.**

Peak car happened in all cities but in different contexts, with different alternative modes

City Specifics

- The graph below shows typical **city-specific mode choice** with the example of mandatory trips (work, business, education).
- Absolute levels and change over time are surprisingly **similar** for car-driver trips in all cities, but substantial **differences** between cities exist for public transport and bicycle trips.

Number of Mandatory Trips as Car Driver (Ex-Post Harmonised)
(age 10-84, Mon-Fri, home trips assigned to purpose of the previous activity, urban area)



REDUCTIONS IN CAR USE: DRIVERS AND BARRIERS

Car-Driving Licence Ownership

- Car-Driving licence ownership is highest and is slightly increasing for working people (75%-90% in the early 2010s).
- Substantial increase for seniors' car-driving licence ownership (58%-80% in the early 2010s).
- Car-Driving licence ownership has been consistently lowest in London: 51% for the whole population in Inner London, 59% for Greater London.

Car Access

- Car access is defined as the combination of car-driving licence ownership and direct car availability in the household.
- Car access is substantially lower and in addition declining for young generations, also when controlling for employment.
- Car access is stable for working persons aged above 35 years.
- Car access is increasing for seniors.

Public Transport Season Ticket Availability

- Availability of PT season passes has increased over the last few decades.
- Working people of all age groups show a significant increase.
- Availability of PT season passes is highest among young employees (18-34).
- More than 50% of young employees have PT season passes in Berlin, Paris, and Vienna.
- London's Oyster Card is a similar successful offer as a PT season pass.

Specific Developments by Age Groups

- Peak car is mainly generated by young age groups.
- Differences between age groups are smaller when only looking at working persons; delayed life cycle stages and changed employment pattern is one main reason for generational differences.
- Seniors damp the peak-car effect.

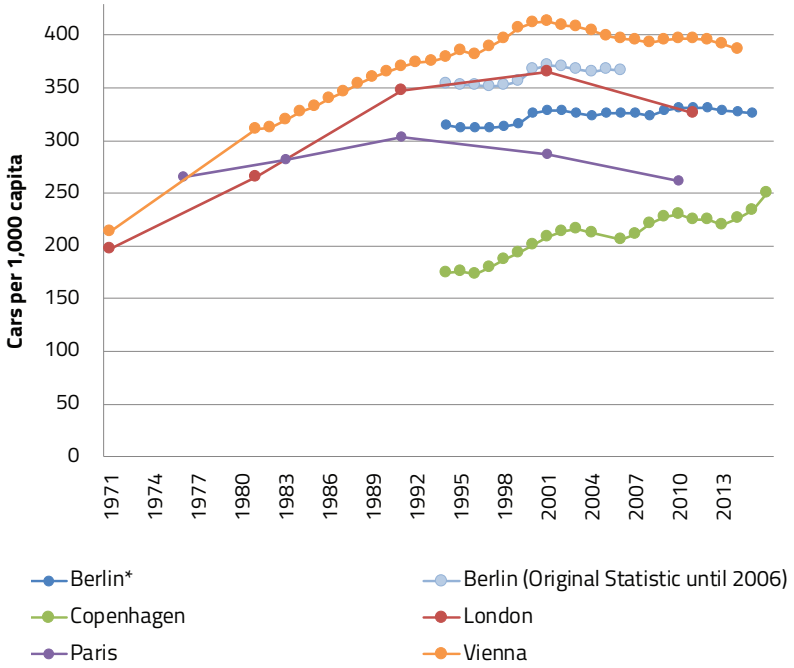
Gender Issues

- Driving licence ownership and car use for women increased in all cities, especially for female seniors.
- Car use of women is still lower than for men.
- Slight peak-car effect happened for working women, but at a much lower absolute level compared to men.

Education

- Share of people with a university degree has increased in all cities.
- Car use for people with university degree is higher compared to people without.
- Peak-car effect is only visible for people with university degree, developments for people without university degree are stable, slightly decreasing or even increasing.

Different from car use, no consistent peak in car ownership can be observed in the 5 cities. Car use peaked with stable or only slightly declining car ownership at substantially different absolute levels.



* Values until 2006 recalculated by the authors, recording method of registered cars was changed in 2007 (from 2007 onwards without temporary shudowns of cars)

IMPLICATIONS FOR TRANSPORT POLICY MAKING

SPECIFIC POLICIES FOR SPECIFIC PERSON GROUPS AND TRIP PURPOSES

Target Working Persons

- Strong public transport supply and / or cycling infrastructure are paramount.
- Prioritise connections to major residential and working areas
- Locate businesses preferably at locations with high quality / capacity PT supply

Promising: Mobility Management in Companies

- Support flexitime for spreading peak hours
- Support work-at-home when possible
- Offer special public transport tickets for employees
- Restrict and price parking supply when mode alternatives exist

Target Young Adults

- Provide education and training at schools (from primary schools onwards) and special public transport tickets for students
- Strengthen the supply of innovative services such as shared mobility services (should be available also for young drivers)
- Support persons in life-cycle changes (e.g. move house, marriage, have children)
- Work on avoiding rebound effects when well-being and economic situation substantially improve

Target Women

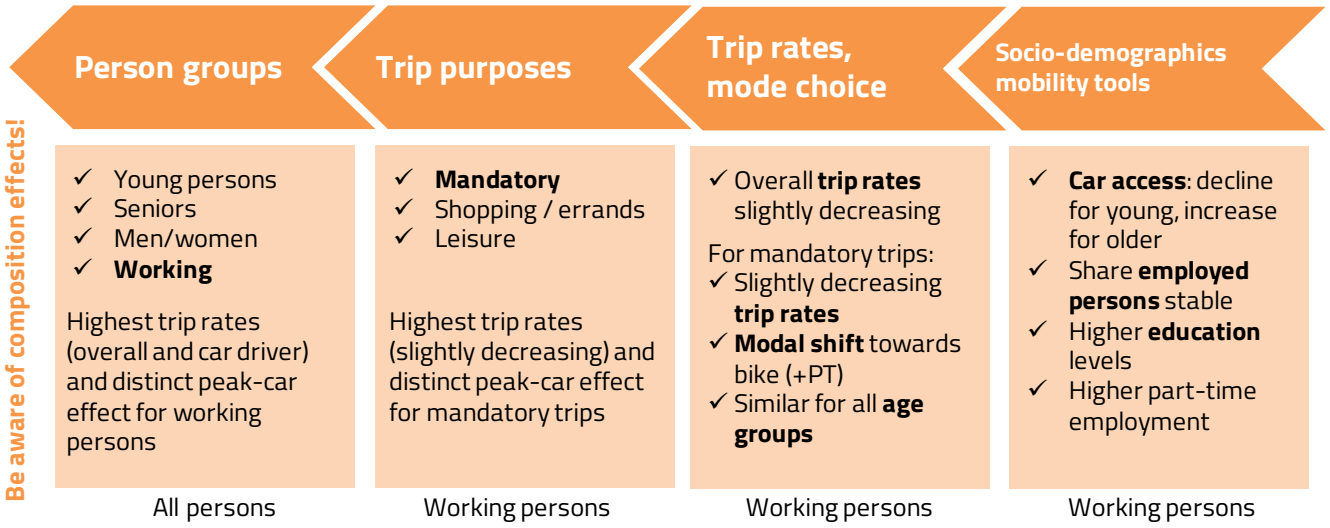
- Women are the person group with the most complex travel pattern.
- Women show increased participation in labour force and increased car access over time.
- Flexible alternative transport options are needed for enabling complex travel pattern without using the car.

Target Seniors

- Seniors show increased car access and car use, they have increasingly car oriented habits.
- 'Push' measures such as parking management at trip destinations are needed in combination with
- 'Pull' measures such as special public transport tickets, public transport training, individualised marketing, cycling training.

Target Specific Trip Purposes

- Substantial reduction in car use for mandatory trips was achieved in all cities.
- Car use is high also for shopping/errands trips without substantial reductions, examples for policy options: parking management at the destination, promoting home delivery services, ICT based shopping/errands.
- Car use for leisure trips is lowest and stable, the flexibility to chose alternative destinations, departure times, modes, routes should be high.



This note reflects only the authors' view and the agency is not responsible for any use that may be made of the information it contains.

THIS SUMMARY IS BASED ON: WITTWER & GERIKE (2018). REPORT OF CROSS-CITY COMPARISON (D3.3).

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