## How to make people travel less by car and plane?

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# Mobility trends in Europe Depending on urban-rural and density highway network 



## Travel time ratio PT/car determines share PT Personal preferences differ somewhat



## PT takes door-to-door mostly more time than the car Nine times more trips by car than by PT



## Travel time ratio train/plane determines share train Personal preferences differ somewhat



# 70\% of intra-European air travel is > 1000 km or island trip 10-15\% of intra-European aviation can be avoided by better rail 



## Speed causes mobility growth

## Constant travel time: average 1.1 h per person per day



## Higher speed generates new mobility Besides a modal shift



## Average car speed constant for 20 years Leads to end of car growth



## Rise and stagnation of car mobility Speed explains most



# Stagnation of car mobility Selected countries, regions and London 



# Urbanization determines mobility behavior <br> Low car speed, good PT, short distances, cycling and walking 

|  | METROPOLIS | MAJOR CITY | RURALAREAS | COUNTRY AVERAGE |
| ---: | :---: | :---: | :---: | :---: |
| Trip distance | 5 km | 10 km | 15 km | 10 km |
| Commuting distance | 10 km | 15 km | 20 km | 15 km |
| Speed | $15 \mathrm{~km} / \mathrm{h}$ | $25 \mathrm{~km} / \mathrm{h}$ | $35 \mathrm{~km} / \mathrm{h}$ | $30 \mathrm{~km} / \mathrm{h}$ |
| Car speed | $20 \mathrm{~km} / \mathrm{h}$ | $35 \mathrm{~km} / \mathrm{h}$ | $50 \mathrm{~km} / \mathrm{h}$ | $45 \mathrm{~km} / \mathrm{h}$ |
| Trip share of car | $15 \%$ | $50 \%$ | $70 \%$ | $60 \%$ |

## By car, people go everywhere; by PT to city centers Urban density around stations



## Urbanization determines mobility behavior Each mode has its own spatial pattern



## How to make people travel less by car?



|  | Car share | Mobility |
| :--- | :--- | :--- |
| Increased urban density | $\approx$ | $\approx$ |
| Less road space | $\approx$ |  |
| Faster public transport | $\approx$ |  |
| Higher car taxes |  |  |

## How to make people travel less by plane?

|  | Plane share |
| :--- | :--- |
| Higher aviation taxes |  |
| Lower airport density |  |
| Lower airport capacity |  |
| Laster trains |  |

## Thanks for your attention

## Questions? <br> Discussion!

## More reading

Paper 'The transport-urbanization dialectic' Study 'Air2Rail'
Book 'New mobility - beyond the car era'
Article 'Speed - it's what drives mobility'

