

## Preferred citation style for this presentation

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Erath, Alex (2013) Mobility and Transport – an overview, Singapore, March 2013.

# Mobility and Transport – an overview

Future Cities Laboratory  
Singapore ETH Centre  
Singapore

April 2013

(FCL) FUTURE CITIES LABORATORY 未来城市实验室

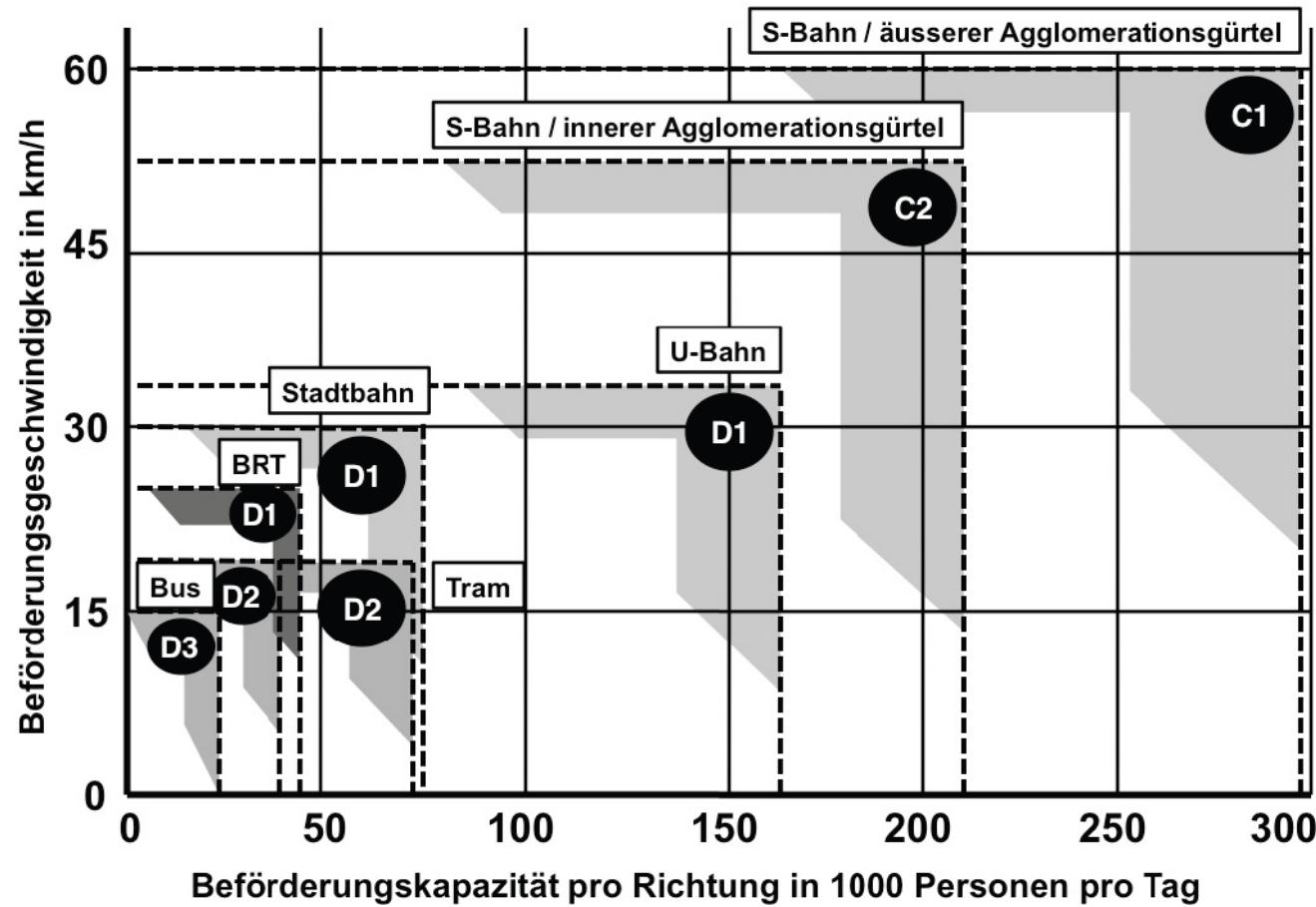
(SEC) SINGAPORE-ETH CENTRE 新加坡-ETH 研究中心

# Transport systems

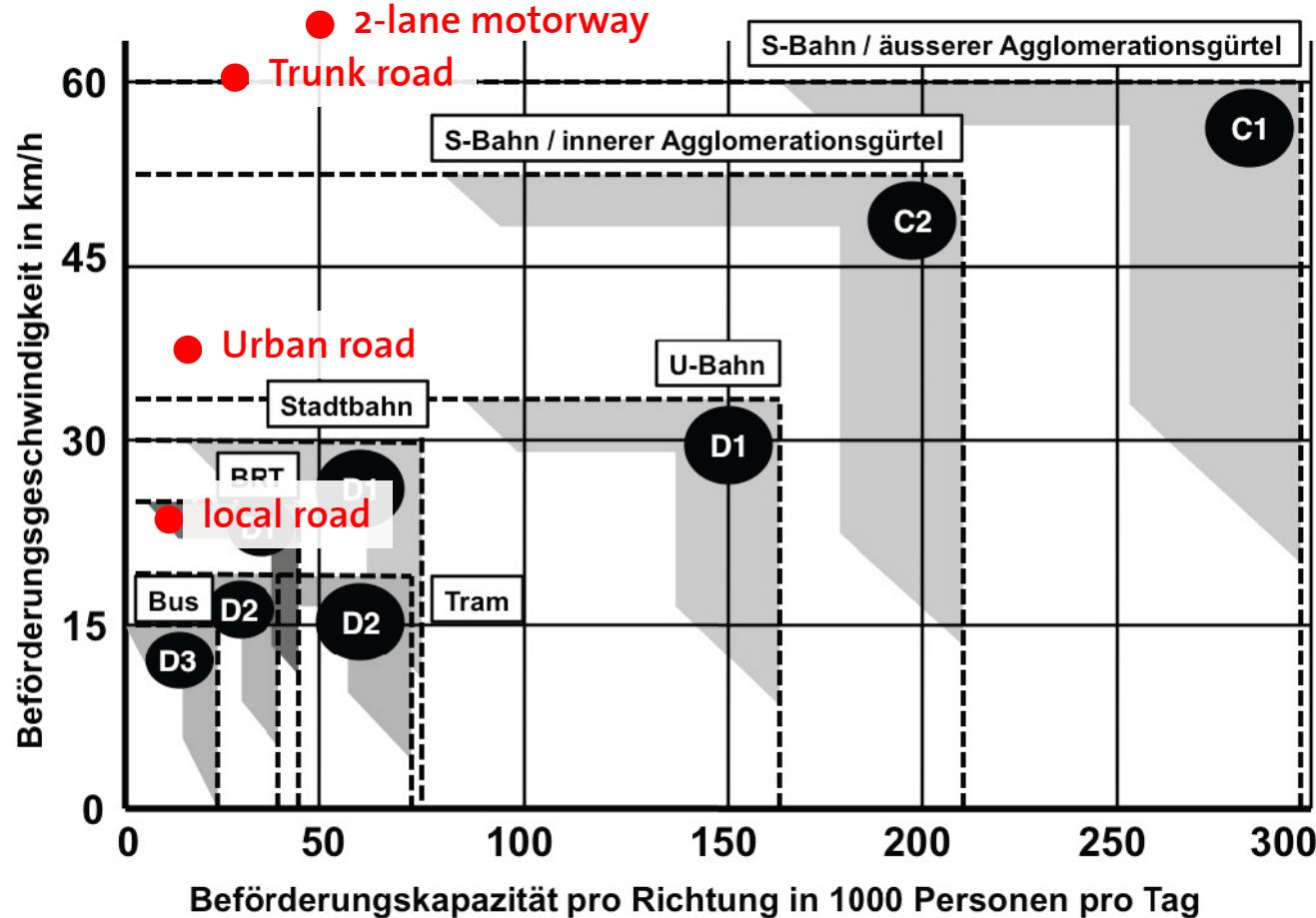
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# Optimal usage: speed vs capacity



# Optimal usage: speed vs capacity

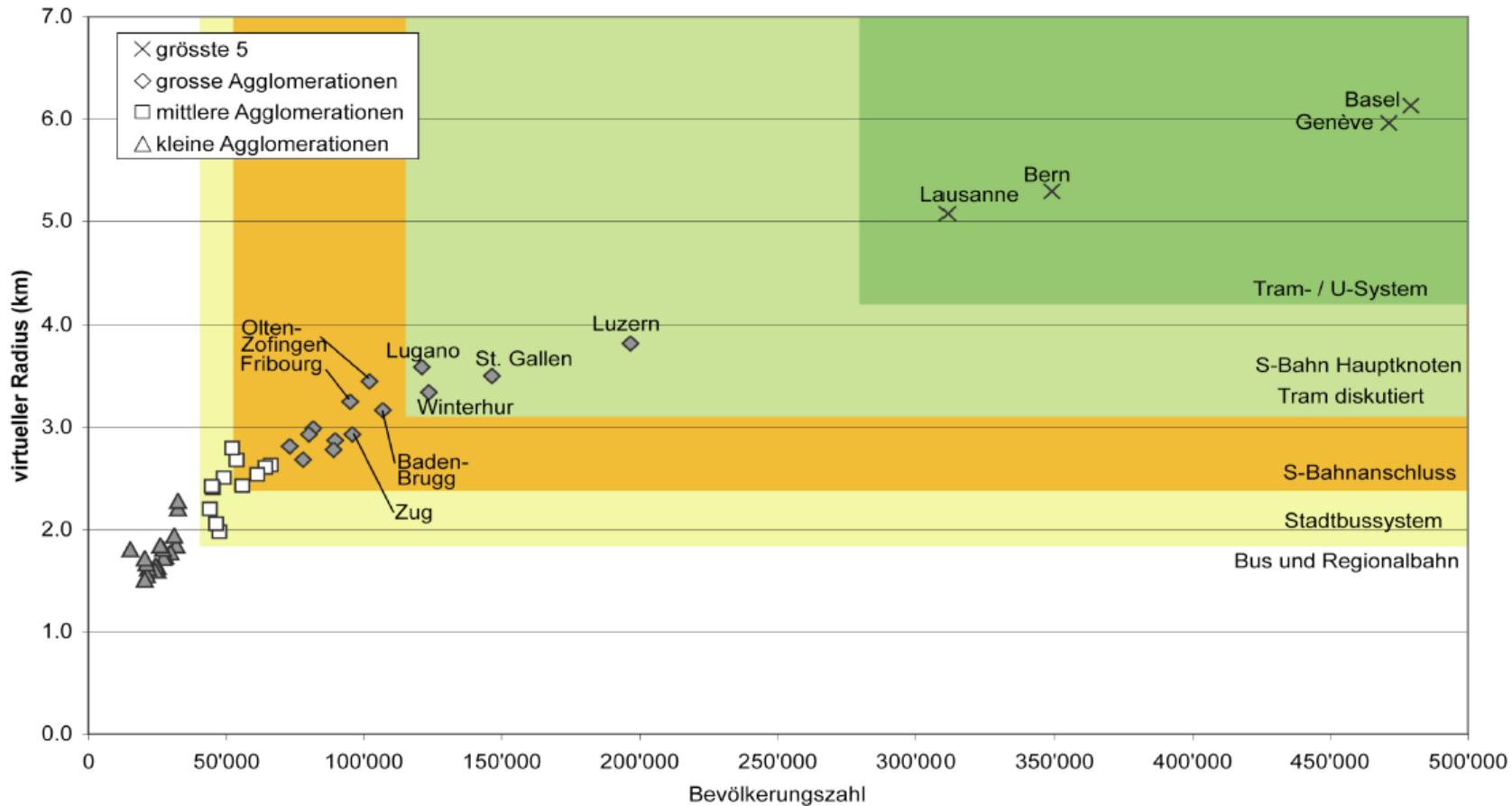


# Space efficiency of transport systems

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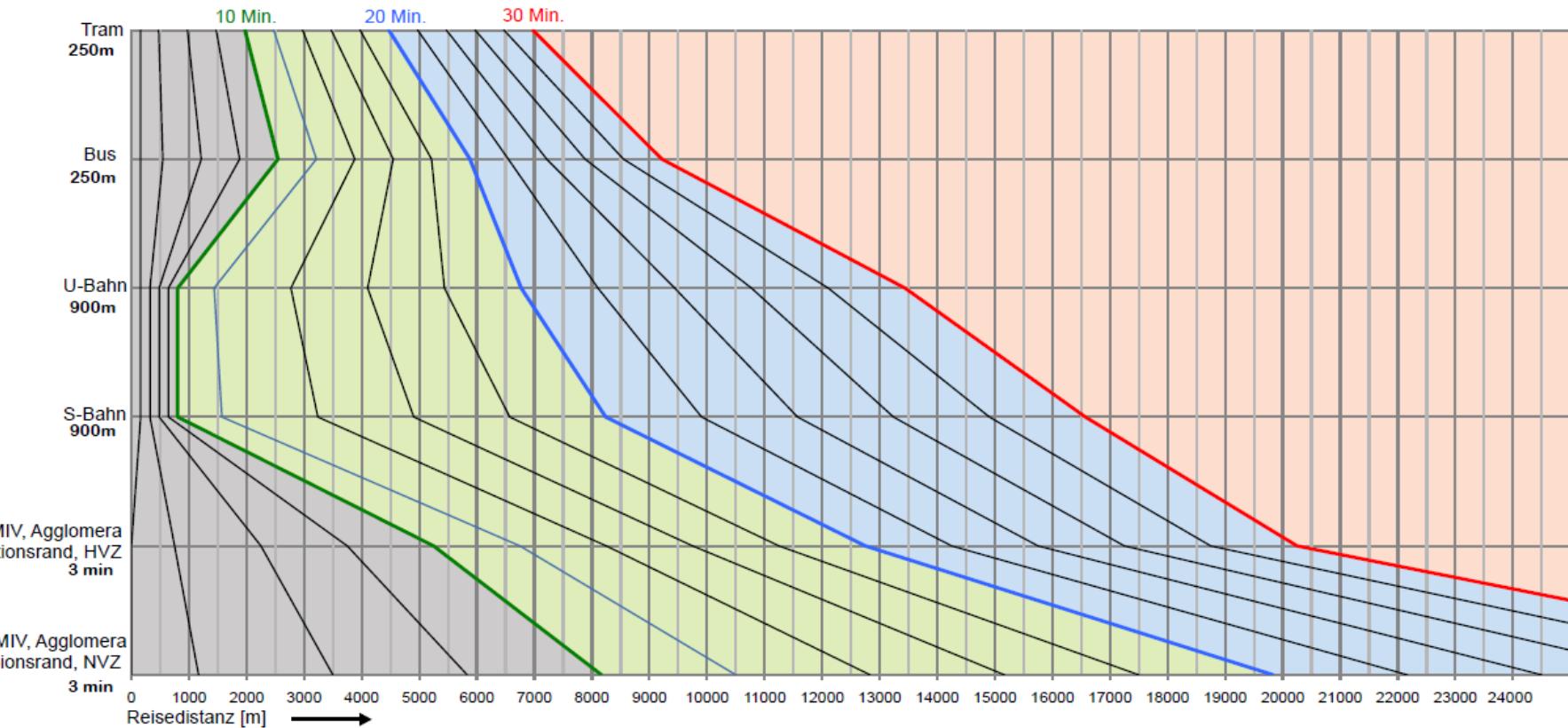


# Public transport system in Swiss agglomerations

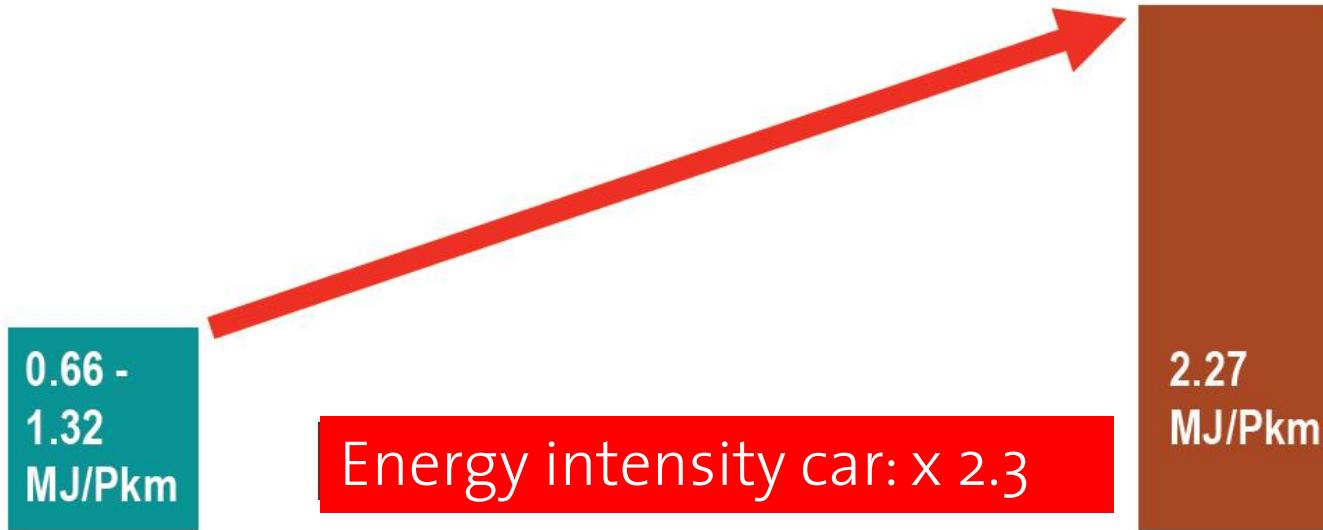


# Speed hierarchy of transport systems

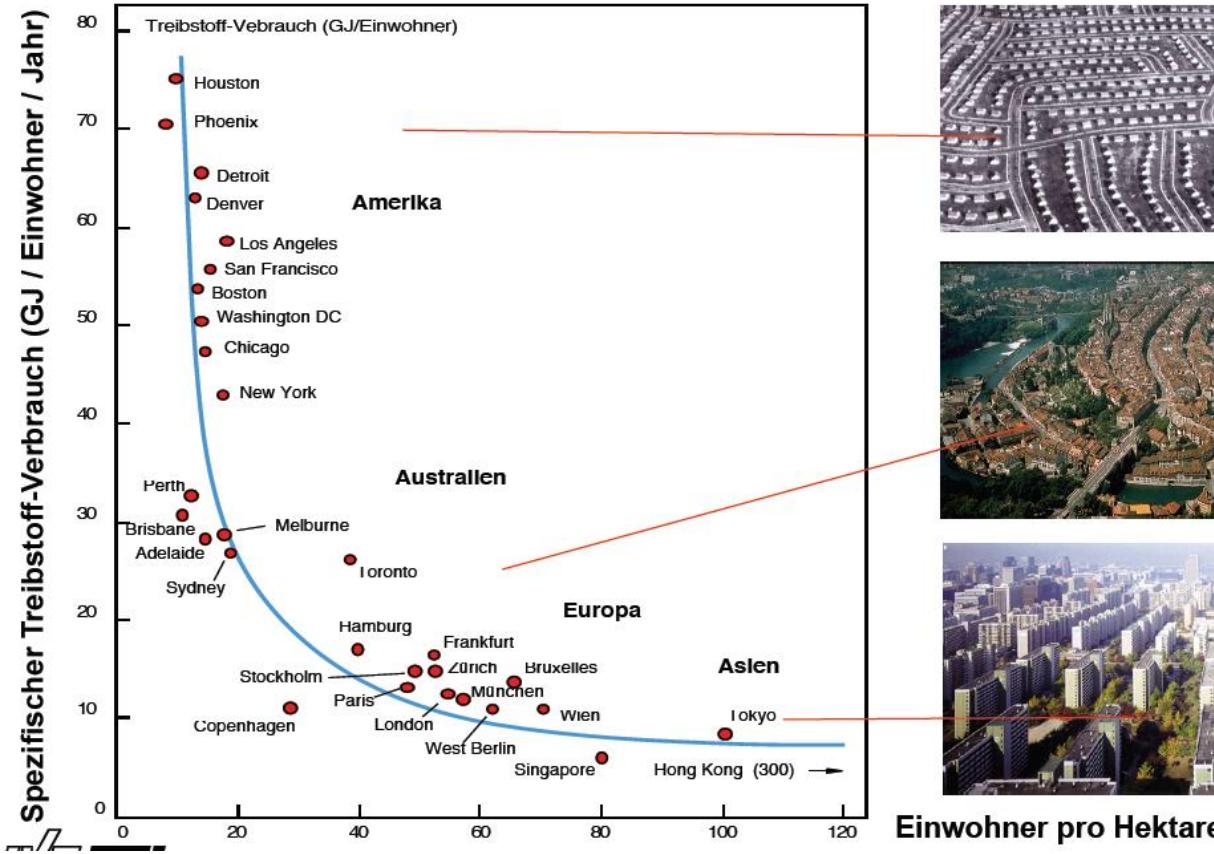
Source: U. Weidmann (2012) Vorlesungsskript "Verkehrssysteme",  
Institut für Verkehrsplanung und Transportsysteme, ETH Zurich, Zurich



# Energy demand for mobility

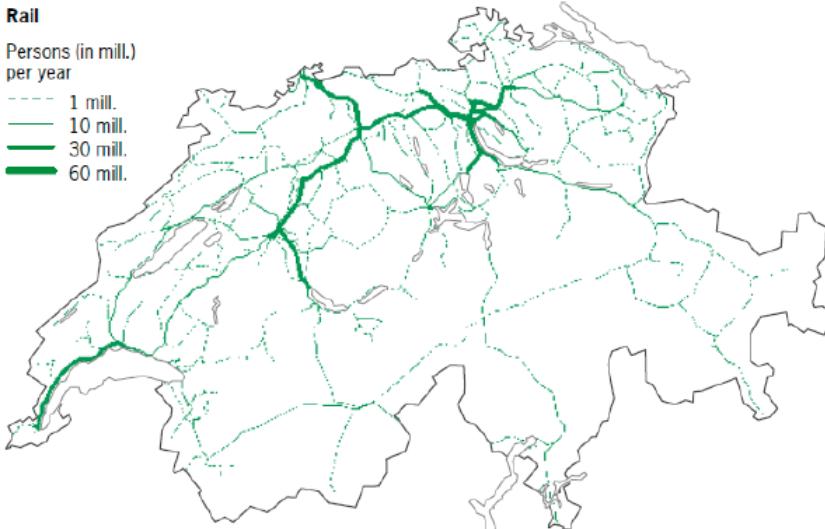
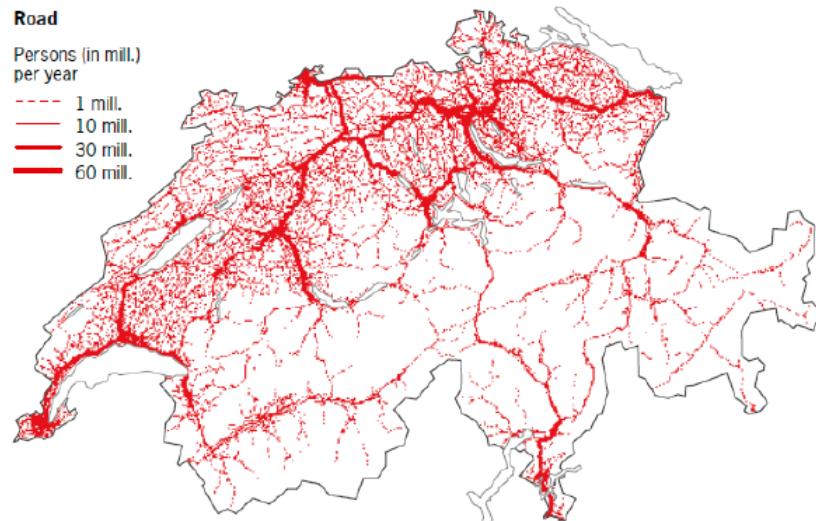


# Urban form and energy demand for mobility



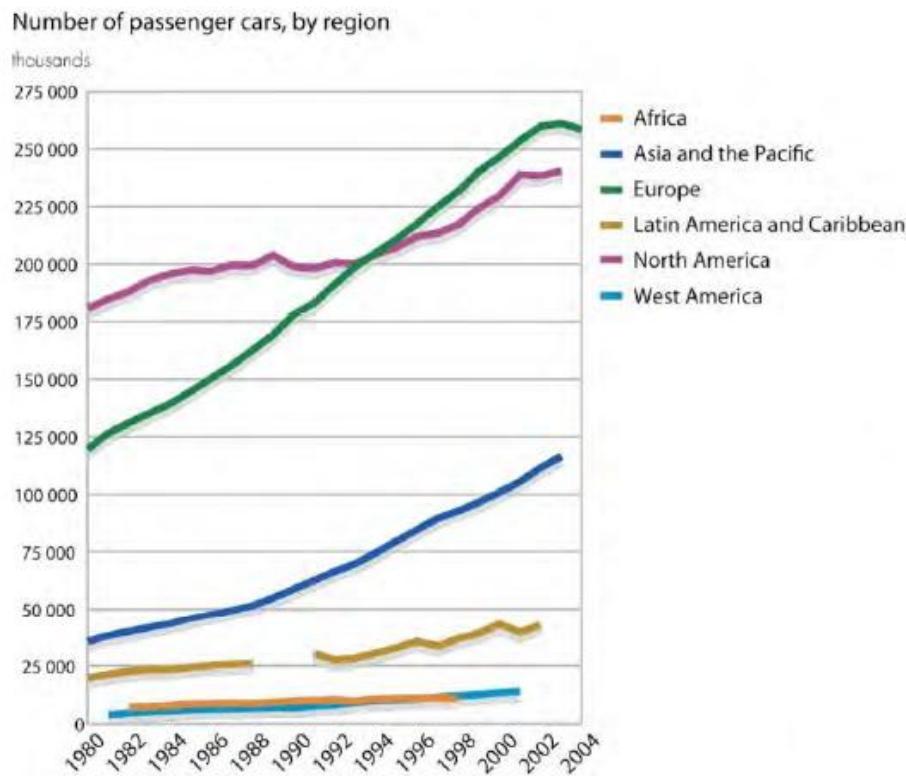
(Prof. Scholl / ETH  
Zürich nach  
Kenworthy and  
Newman 1989)

# Usage of road and public transport in Switzerland



Source: Swiss Federal Statistical Office, "Mobility and Transport: pocket statistics" (2010)

# Car population: global development



# Transport planning: objectives

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Understanding mobility

Predicting reactions to various changes

- Population
- Infrastructure
- Policy
- Urban form

Support decision making

- Cost benefit analysis
- Winner and losers
- Diverse stakeholders (urban planners, transport operators, politicians, voters, NGOs, wildlife)

# Transport planning models: Task

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They are

(Average) daily life

reproducing

who is travelling/present

where (location/route/connection)

when

with which vehicle (bike, car, bus, train etc.;)

with whom

for how long

for what purpose

in which daily schedule

# Principles of agent-based transport modeling

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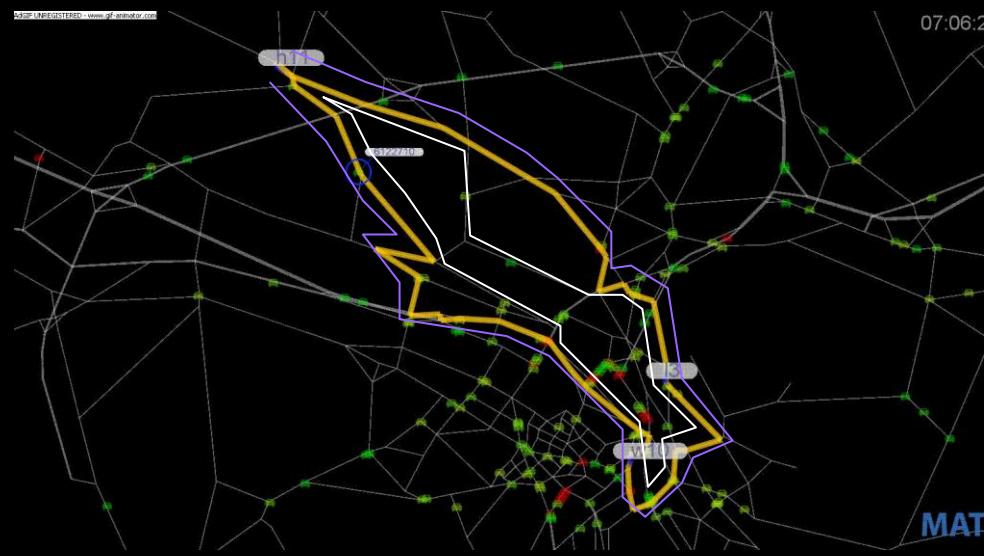


# Reactions to short term policy change in MATSim

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  </leg>
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```

Choice dimensions for policy analysis, .e.g. toll

- Route
- Mode (tour based)
- Timing of activities and trips
- Location of activities



# MATSim Singapore

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Vehicles: # 0 / 285347

**MATSim**  
Multi-Agent Transport Simulation  
**senozon**