



ÉCOLE POLYTECHNIQUE  
FÉDÉRALE DE LAUSANNE

# SustainCity

Land use models for sustainable  
cities in Europe

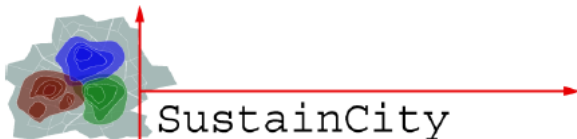
Ricardo Hurtubia

École Polytechnique Fédérale de Lausanne

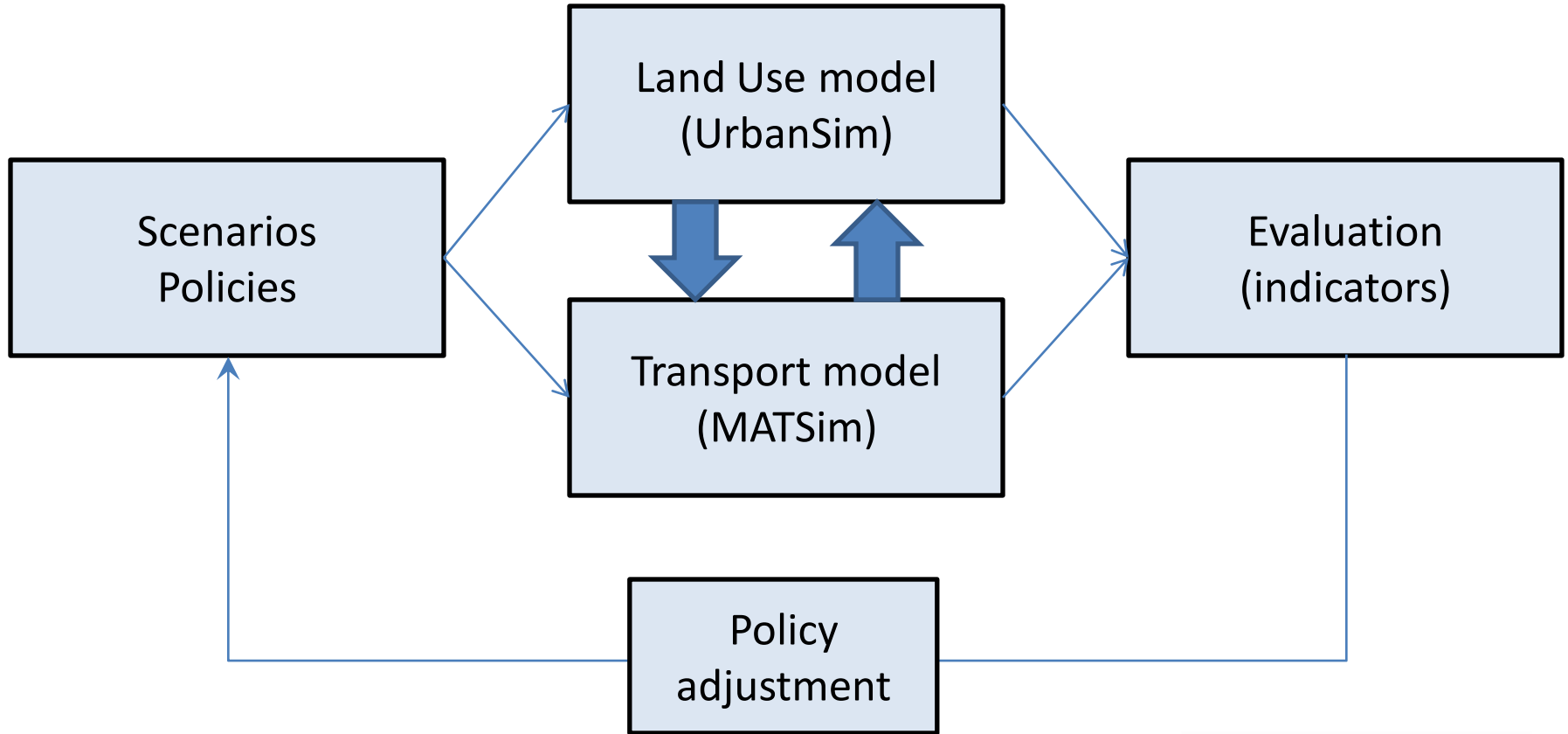


# SustainCity

- Financed by the European Commission
- Objectives:
  - Develop a quantitative tool to model cities, adapted to the European context
  - Test different sustainability-oriented policies for different scenarios
- Case studies for the cities of
  - Brussels
  - Paris
  - Zurich

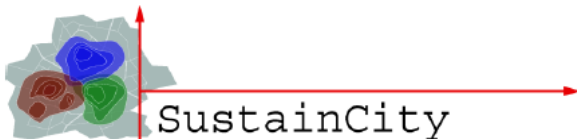


# SustainCity

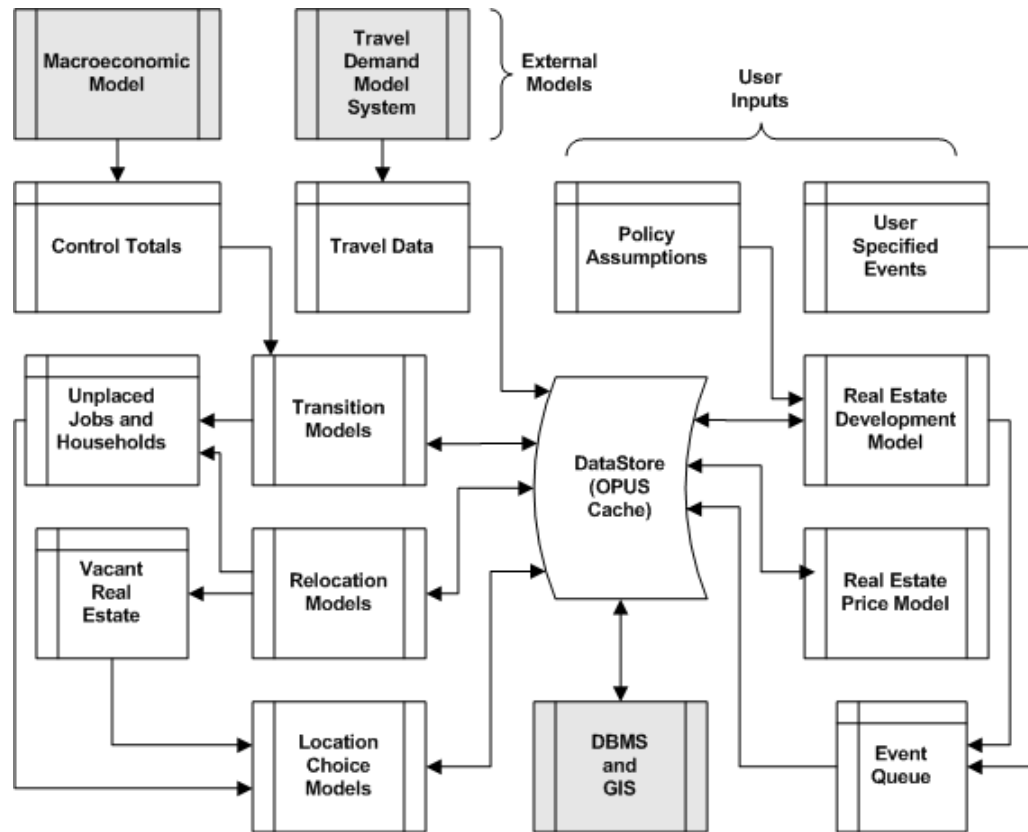


# Tools: UrbanSim

- Developed at U. Washington and UC. Berkeley
- Agent-based urban (land use) simulator
- System of models accounting for behavior of different agents in the city
  - Households
  - Jobs
  - Real estate suppliers
- Open source
- Modified and improved

The logo for UrbanSim, featuring a stylized grey city skyline above the text "UrbanSim" in a bold, sans-serif font.

# Tools: UrbanSim



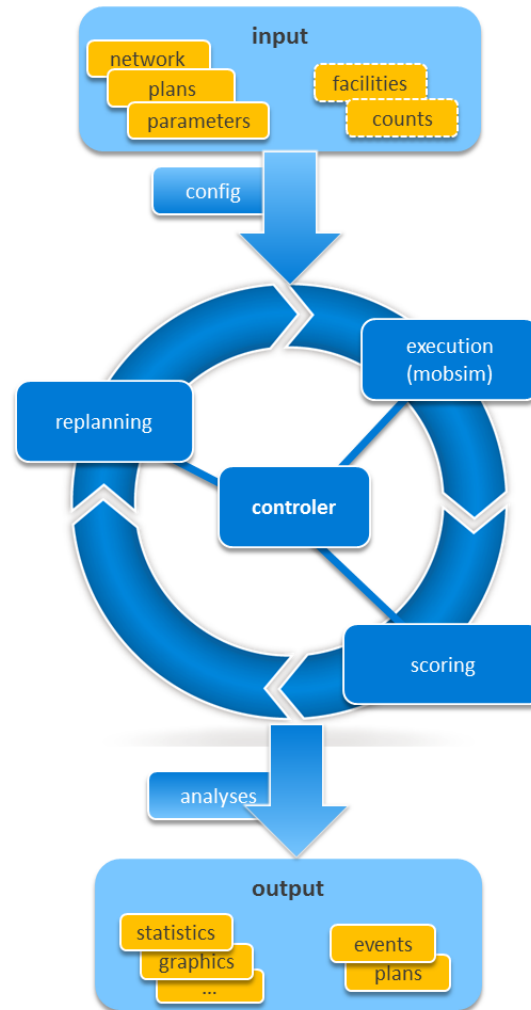
# Tools: MATSim

- Developed at TU Berlin and ETH Zurich
- Agent-based transport simulator
- Activity based approach
  - Tours with different activities involved
  - Learning process of travelers (dep time, routes)
- Open source

**MATSim**  
Multi-Agent Transport Simulation

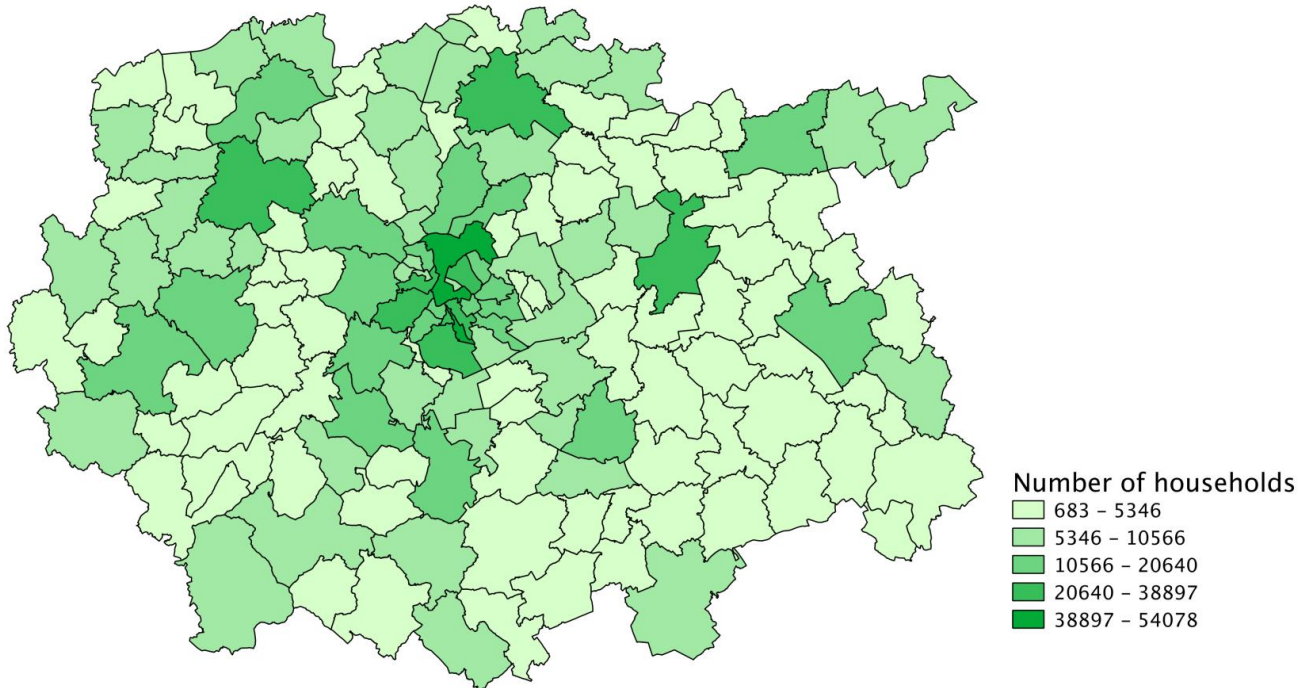


# Tools: MATSim



# Case study – Area of study

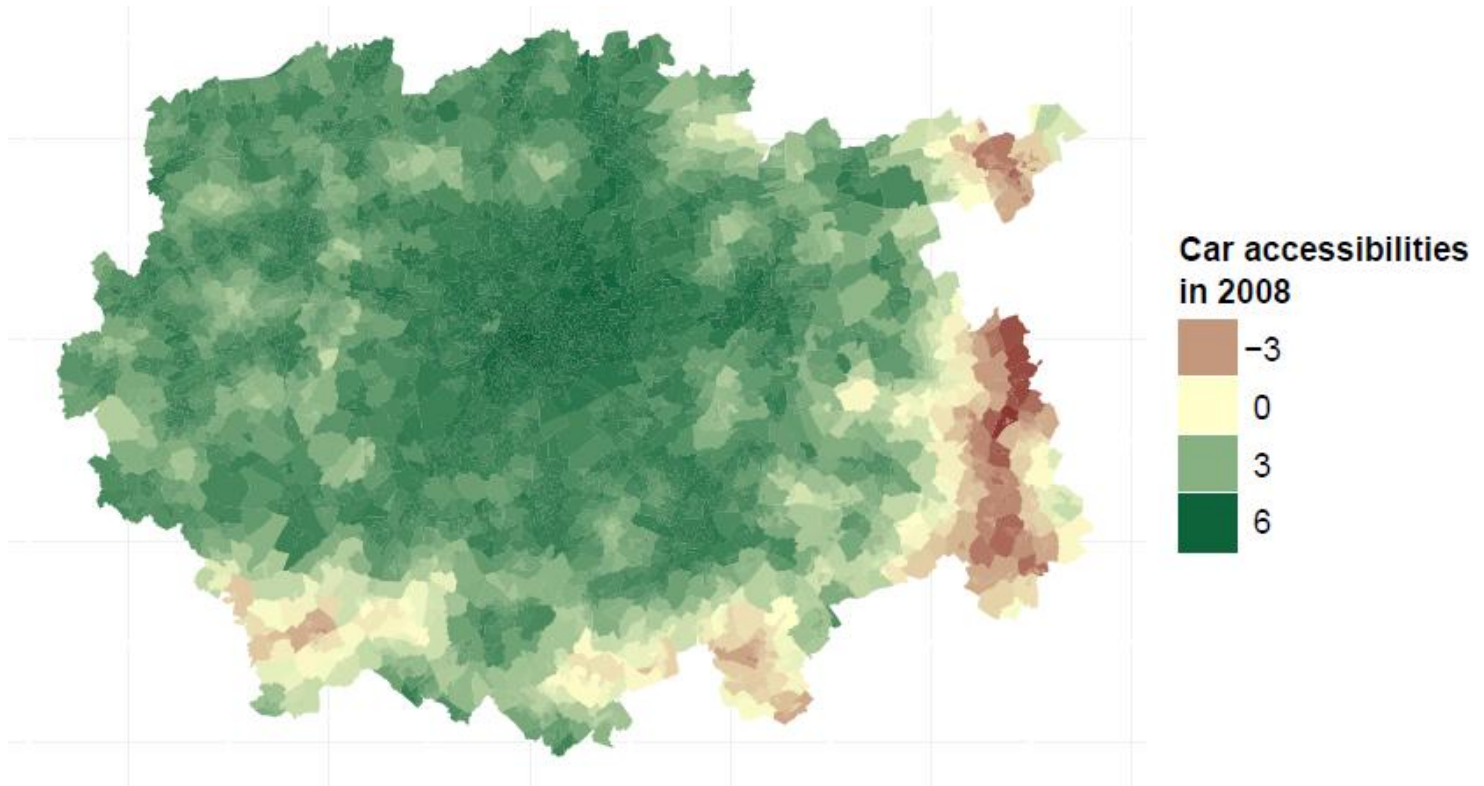
151 communes and 4945 zones around Brussels





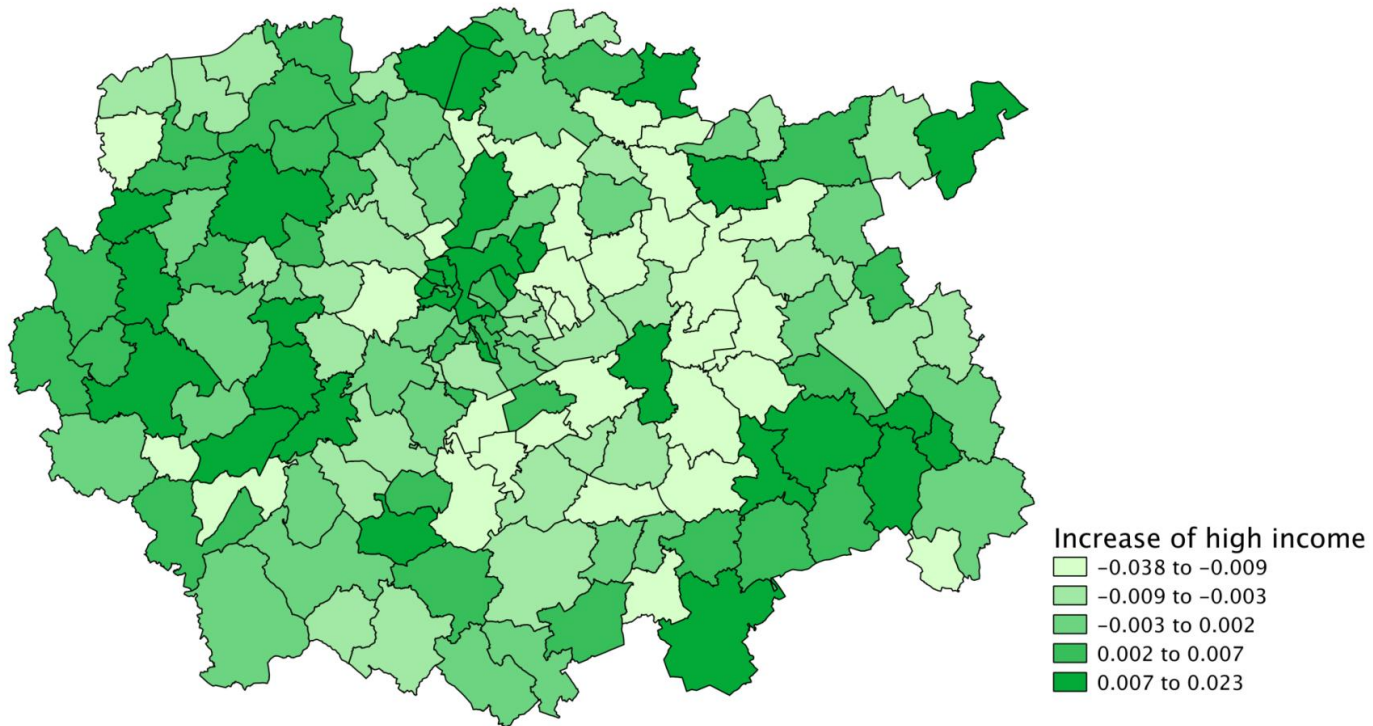
# Preliminary results

## Accessibility to workplaces by car



# Preliminary results

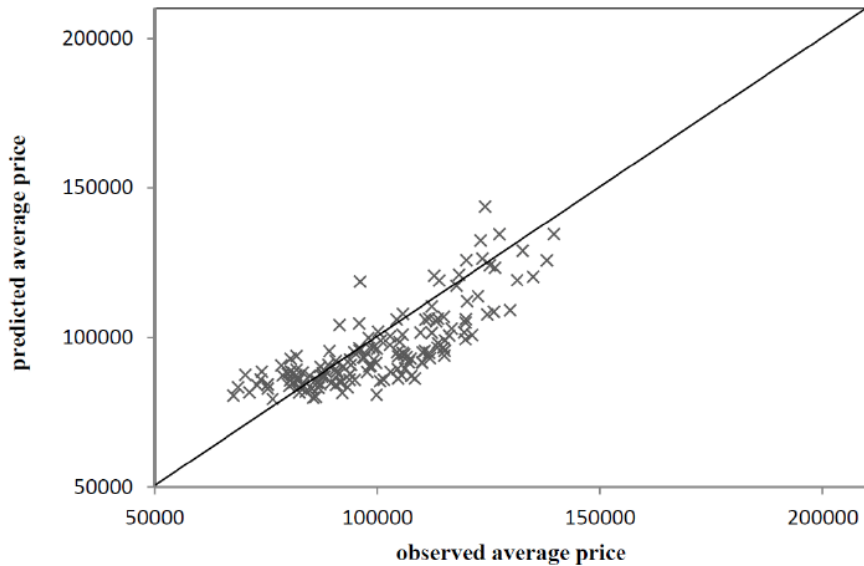
## Change in income distribution



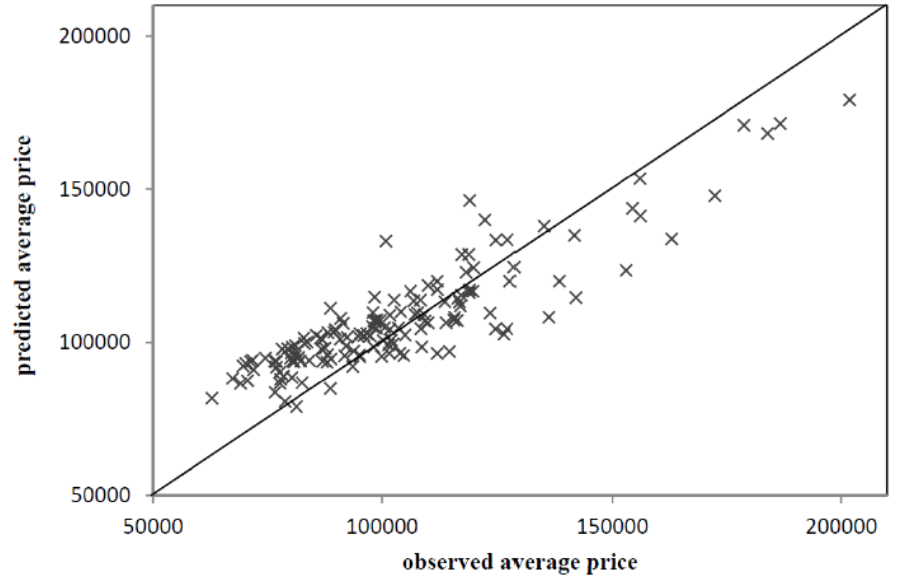
# Preliminary results

Average real estate price by commune

2001



2008



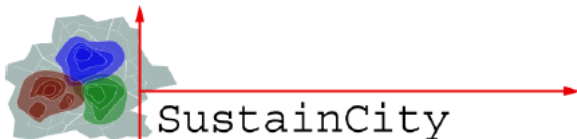
# Scenarios and policies

## Policies:

- Congestion pricing / toll rings
- Real estate subsidies / taxes
- Changes in land use regulations

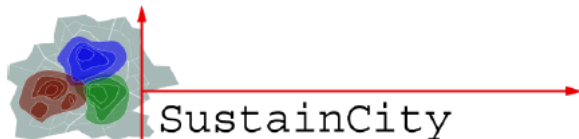
## Scenarios:

- Climate change
- Demographic/economic shocks



# Involved teams

- ETHZ – Zurich, Switzerland
  - EPFL – Lausanne, Switzerland
  - KUL – Leuven, Belgium
  - UCL – Louvain, Belgium
  - TUB – Berlin, Germany
  - ENSC – Cachan, France
  - UCP – Cergy Pontoise, France
  - NTUA – Athens, Greece
  - INED – Paris, France
  - STRATEC – Brussels, Belgium
- Prof. K.W. Axhausen  
Prof. M. Bierlaire  
Prof. S. Proost  
Prof. I. Thomas  
Prof. K. Nagel  
Prof. A. De Palma  
Prof. N. Piccard  
Prof. C. Antoniou  
E. Morand  
H. Duchateau



Thanks

[www.sustaincity.org](http://www.sustaincity.org)

