Preferred citation style for this presentation

Daily Flows: (M)edium and (L)ong Term
Urban Sustainability R&D Congress

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FCL
SEC
Singapore

June 2011
Transport and Urban Sustainability

- Economic
  - Cost-benefit analysis
  - Congestion

- Environmental
  - Resources
  - Noise & Emissions
  - Division of neighborhoods

- Social
  - Equity
  - Safety
  - Accessibility
Challenge: Understand people’s transport needs and behaviour
... and simulate them agent-based and large scale

Visualisation courtesy of senozon AG, Zürich
The MATSim framework

Network data
Facilities

Population
Demand

Plans

Execution

Scoring

Replanning

Behaviour

Analysis
Research Project at Future Cities Laboratory

- Preparatory work

  Implementation of MATSim Singapore

- Research

  (M)edium Term  <->  (L)ong Term
Simulation based optimisation
  • Optimal pricing and optimal ATMS
  • Extend MATSim route choice model
  • Optimal bus operations

MATSim+:
  • Design of weekly scheduling model with non-equilibrium updating
  • Survey on weekly scheduling process
  • Implementation in MATSim Singapore
(L)ong Term

- Initial demand year n+1
- Information year n+2
  - new housing
  - new work places
  - new service locations

- Residential location choice
  - object-fine
  - social network informed
  - secondary location choice

- Service provider agent
  - location choice
  - choice of location size
  - regulations

- Social network
  - evolution
  - ageing

Hedonic regressions/facilities

Processing

Analysis, figures, evaluation
Current work progress realised in 4 months
Network: Simulation of public transport vehicles

Video available at www.vimeo.com/25122496
Behaviour— Public transport trip starts

Video available at www.vimeo.com/25166828
Behaviour – Public transport trip starts

Trip starts: 7863
Time: 18:18

Trip starts: 6404
Time: 08:07
Demand: Initial Results

Video available at www.vimeo.com/24822377
Revealed preferences – REALIS (private / sales / last 12 months)
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