

# Preferred citation style for this presentation

---

Erath, A (2011) Daily Flows: (M)edium and (L)ong Term, Urban Sustainability R&D Congress, Biopolis, Singapore.

# Daily Flows: (M)edium and (L)ong Term

## Urban Sustainability R&D Congress

ERATH, Alexander

FCL

SEC

Singapore

June 2011

**FUTURE CITIES**  
LABORATORY

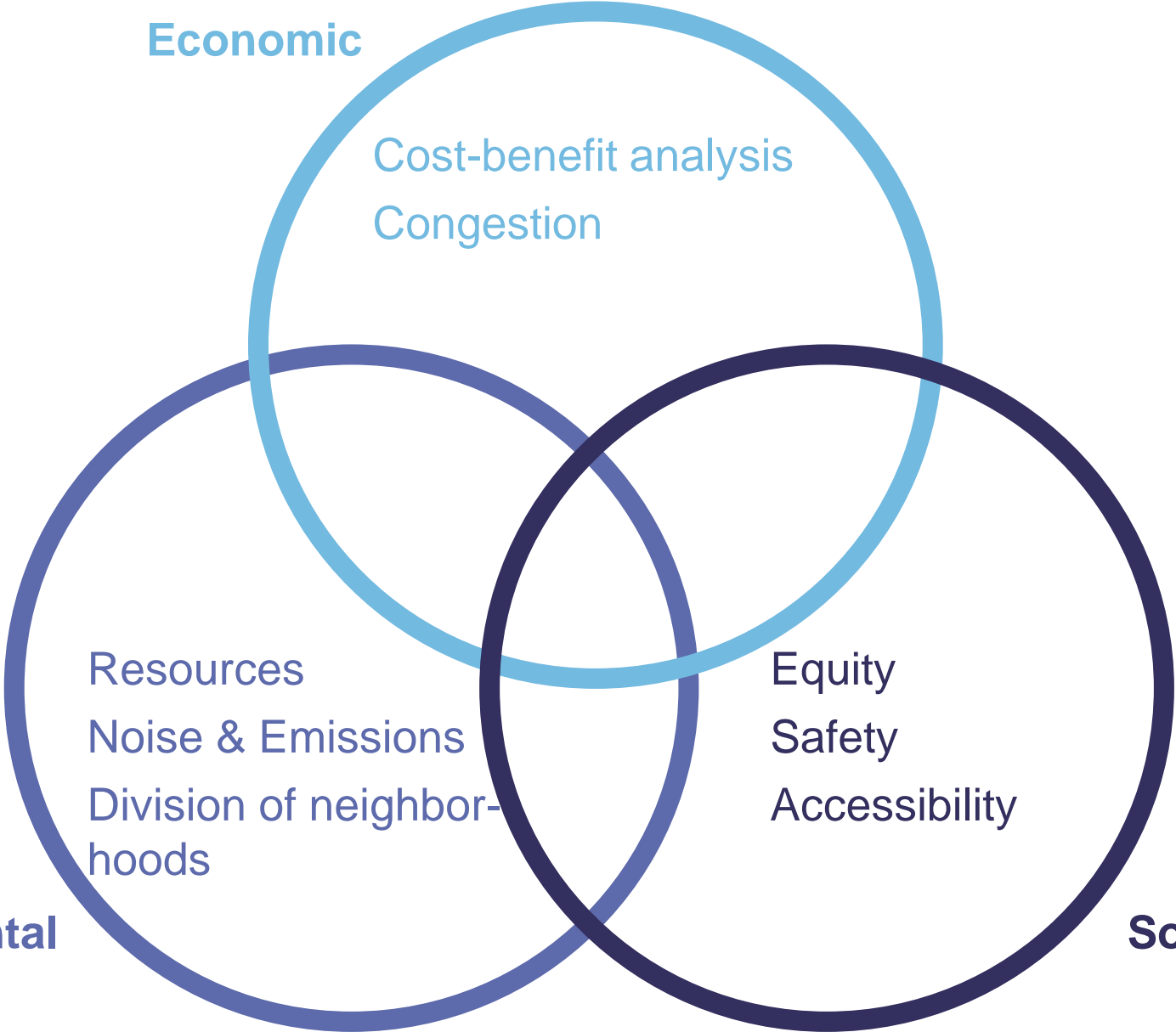
 *Institut für Verkehrsplanung und Transportsysteme*  
*Institute for Transport Planning and Systems*

**ETH**

Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich

# Transport and Urban Sustainability

---



**Environmental**

**Social**

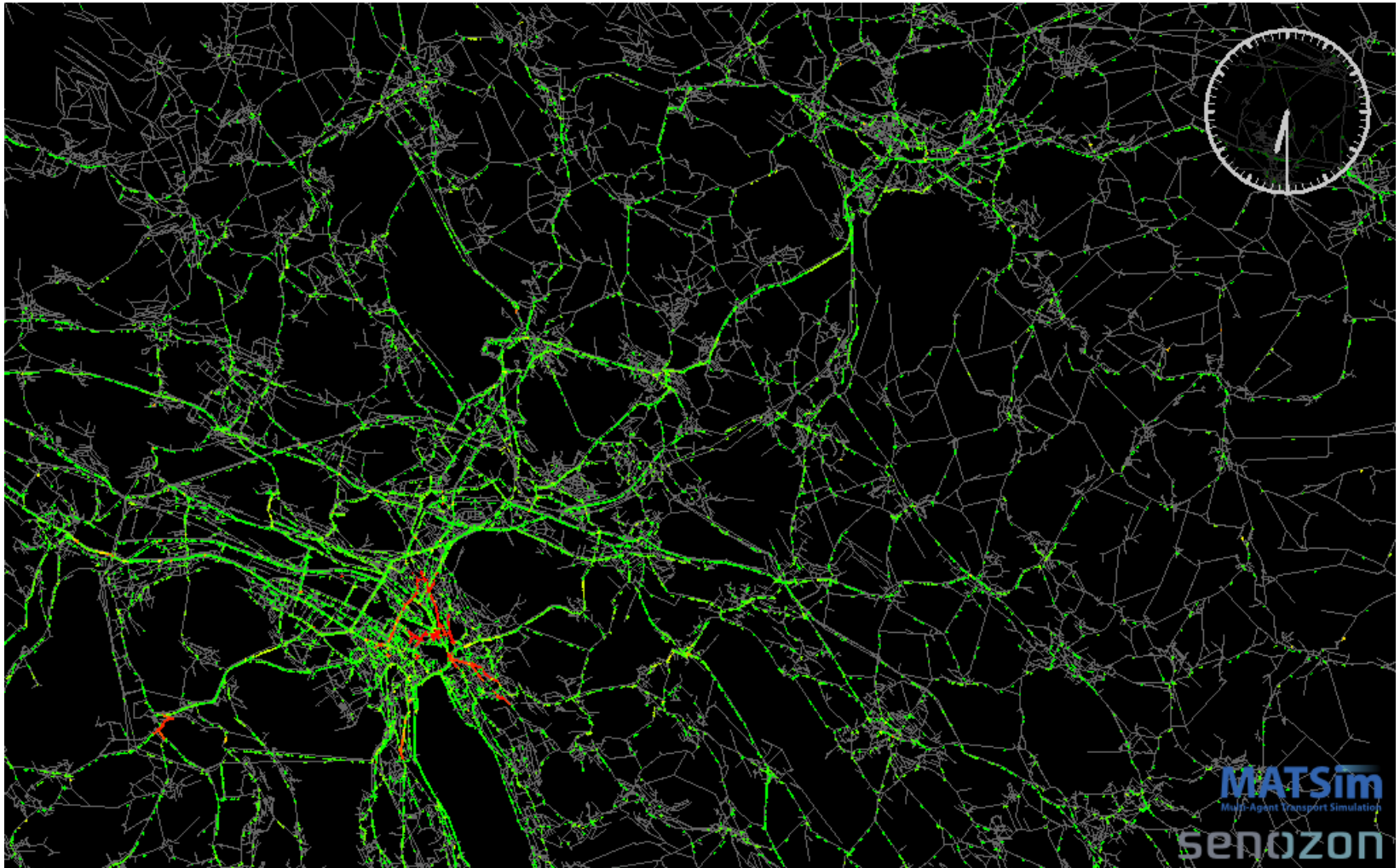
# Challenge: Understand people's transport needs and behaviour

---



# ... and simulate them agent-based and large scale

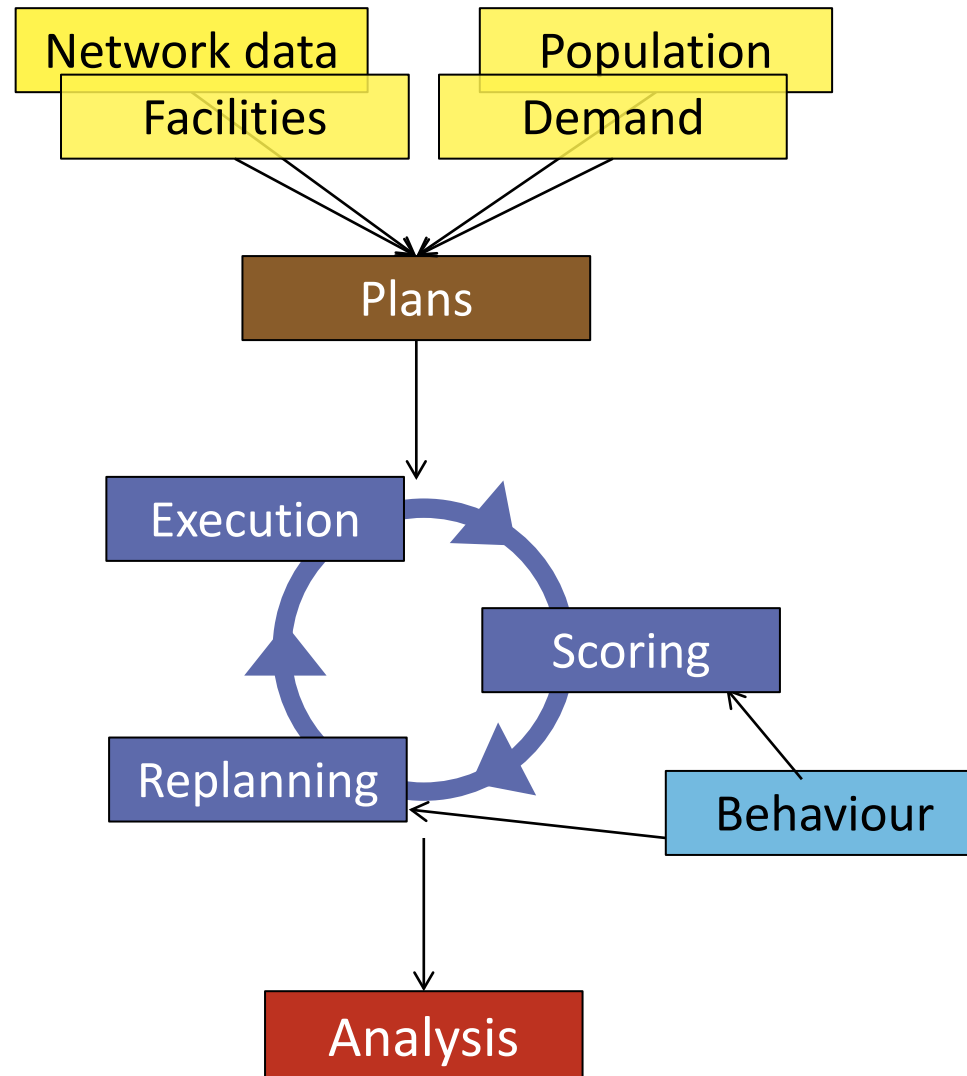
---



Visualisation courtesy of senozon AG, Zürich

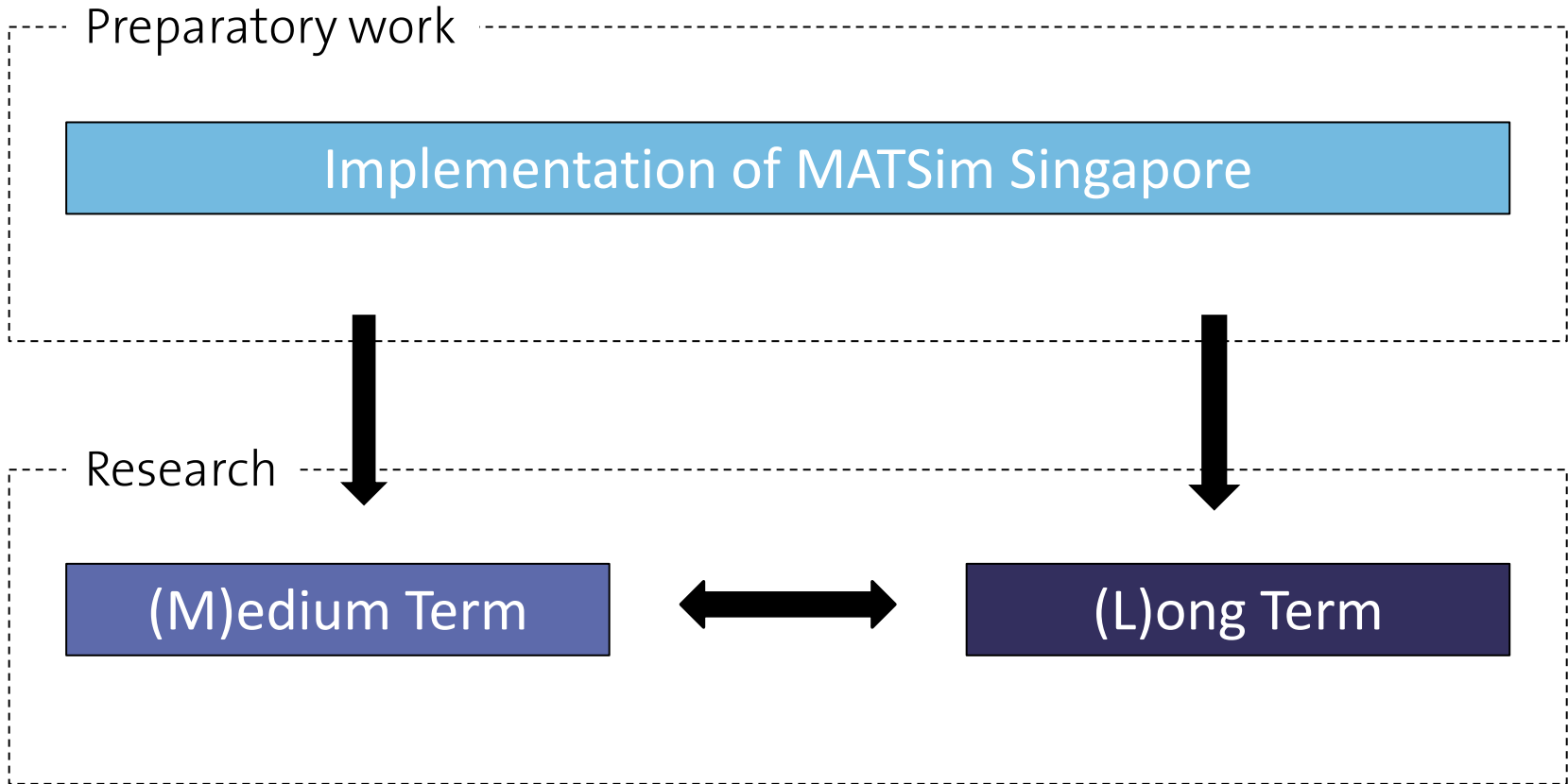
# The MATSim framework

---



# Research Project at Future Cities Laboratory

---



# (M)edium term

---

## Simulation based optimisation

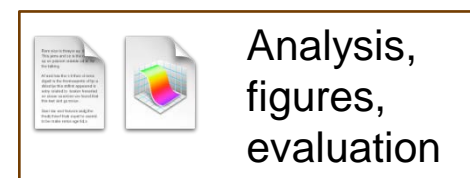
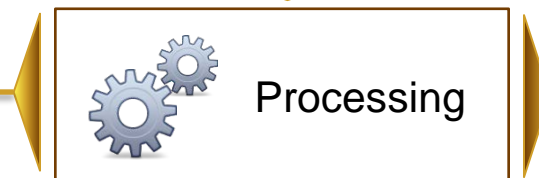
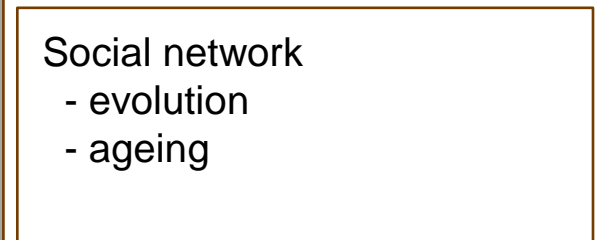
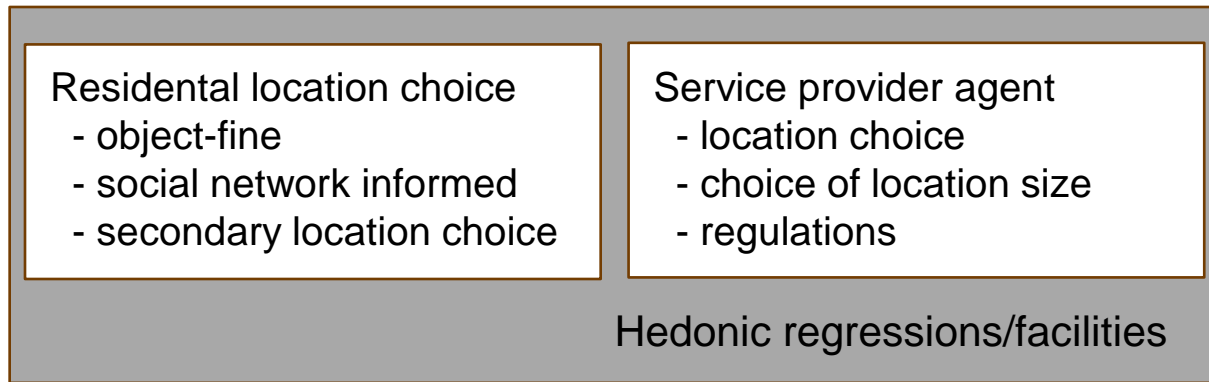
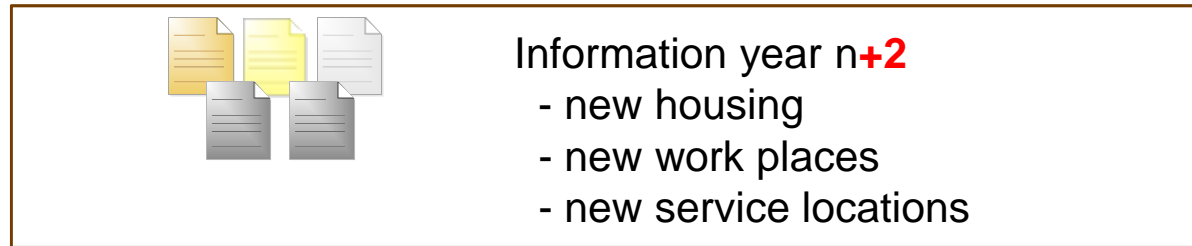
- Optimal pricing and optimal ATMS
- Extend MATSim route choice model
- Optimal bus operations

## MATSim+:

- Design of weekly scheduling model with non-equilibrium updating
- Survey on weekly scheduling process
- Implementation in MATSim Singapore



# (L)ong Term



# Current work progress realised in 4 months

---

# Network: Simulation of public transport vehicles

---



Video available at [www.vimeo.com/25122496](http://www.vimeo.com/25122496)

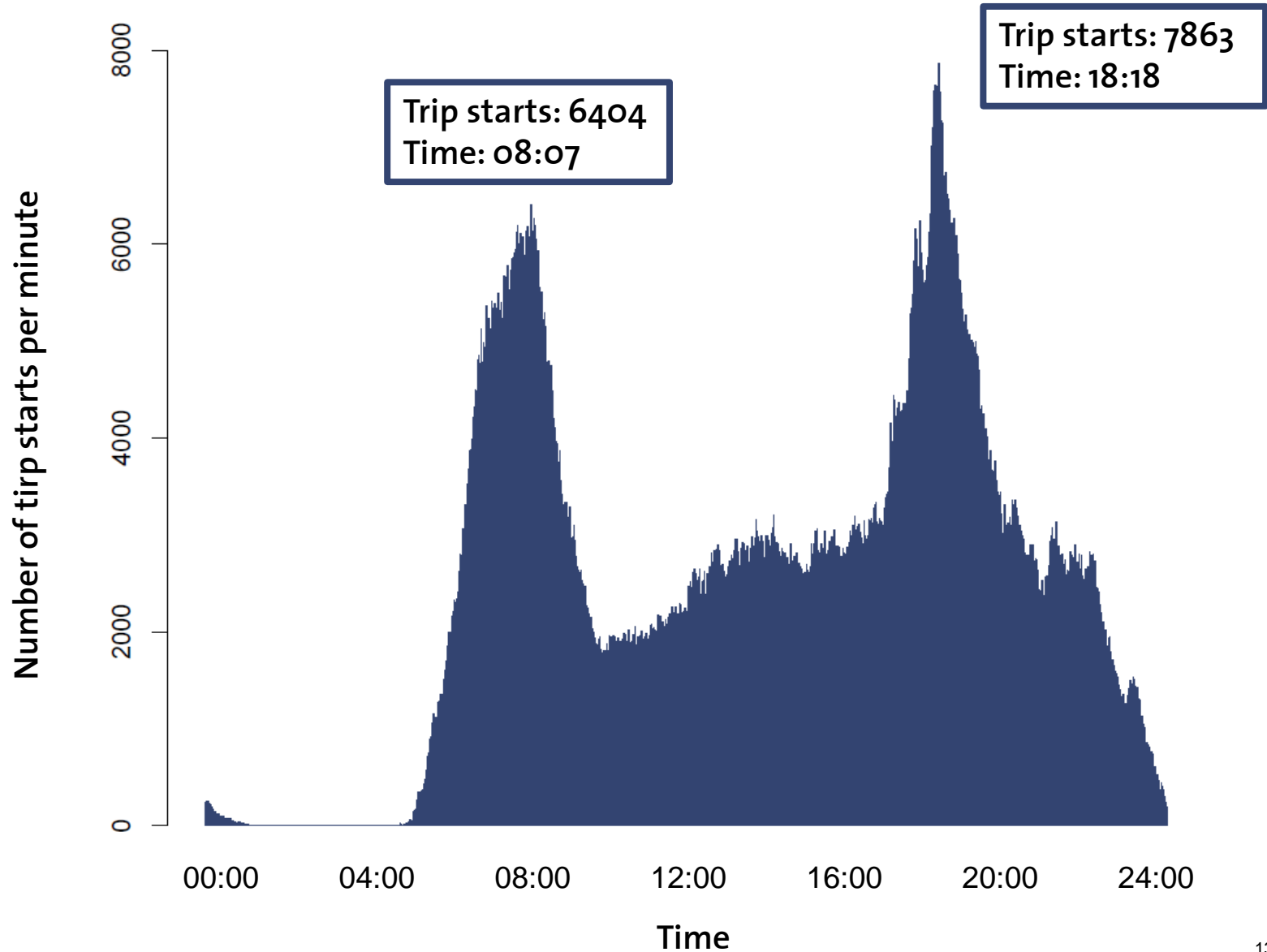
# Behaviour– Public transport trip starts

---



Video available at [www.vimeo.com/25166828](http://www.vimeo.com/25166828)

# Behaviour– Public transport trip starts



# Demand: Initial Results

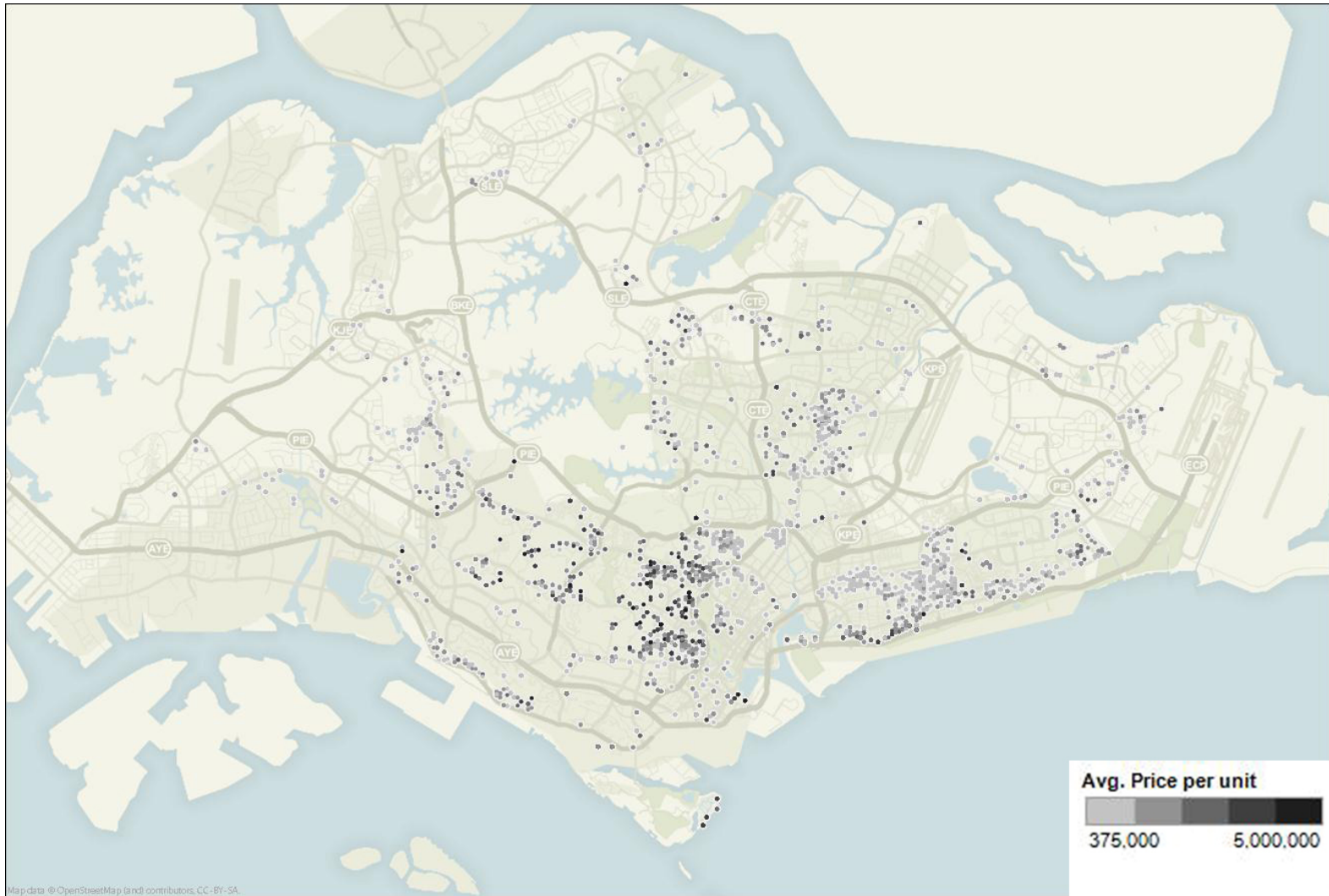
---



Video available at [www.vimeo.com/24822377](http://www.vimeo.com/24822377)

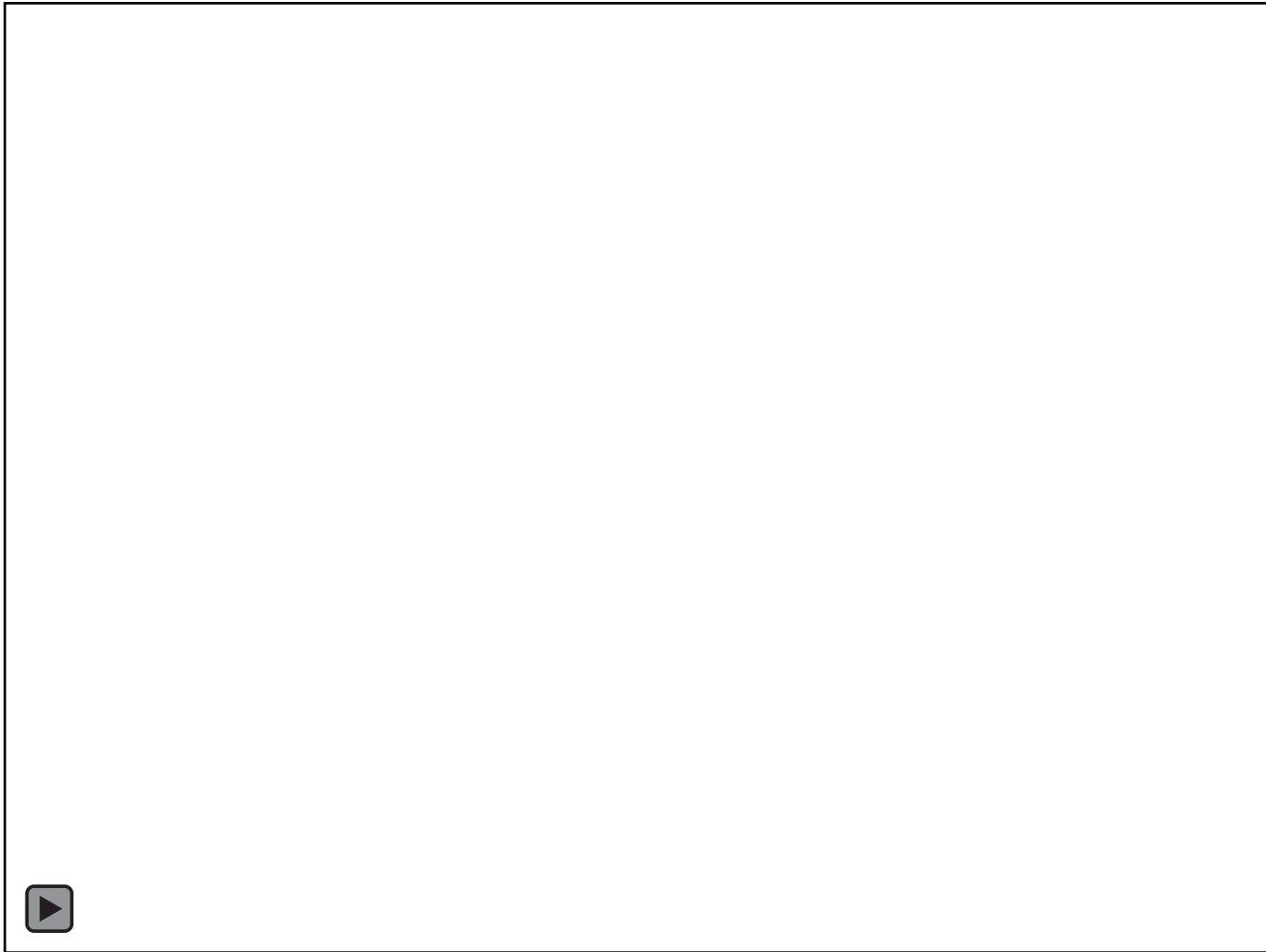


# Revealed preferences – REALIS (private / sales / last 12 months)



# Transport and Urban Sustainability

---





Dr. Michael Balmer

Dr. David Charypar

Dr. Nurhan Cetin

**Artem Chakirov**

Yu Chen

Francesco Ciari

Christoph Dobler

**Dr. Alexander Erath**

Dr. Matthias Feil

Dr. Gunnar Flötteröd

**Pieter Fourie**

Dr. Christian Gloor

Dominik Grether

Dr. Jeremy K. Hackney

Andreas Horni

Johannes Illenberger

Gregor Lämmel

Nicolas Lefebvre

Konrad Meister

Manuel Moyo

Kirill Müller

Andreas Neumann

Thomas Nicolai

Benjamin Kickhöfer

**Sergio Ordonez**

Dr. Bryan Raney

Dr. Marcel Rieser

Dr. Nadine Schüssler

Dr. David Strippgen

**Michael Van Eggermond**

Rashid Waraich

Michael Zilske