

Open Data in Transport Modeling

Lessons Learned from Santiago de Chile



Wissen für Morgen



Some Thoughts on Open Data



Open Data: What?

- "Open data is the idea that some data should be **freely available** to everyone to **use and republish** as they wish, without restrictions from copyright, patents or other mechanisms of control." (Auer et al., 2007)
- The idea comes along with other "open movements" such as **open source** for computer code or **open access** for scientific material.
- Goals include **transparency**, the generation of **social and commercial value**, as well as **participation and engagement**. (Open Data Handbook, 2016)



Open Data: Where?



FEATURES SOLUTIONS TRY IT FOR FREE BLOG CONTACT ENGLISH

DATA.GOV DATA TOPICS IMPACT API

OPEN GOVERNMENT

Since his first full day in office, President Obama has prioritized making government more steps to increase citizen participation, collaboration, and transparency in government. Data.gov, the central site for U.S. Government data, is an important part of the Administration's Open Government Policy.

Open Data in the United States

A large number of cities, counties, and states have open data sites.

- Cities.Data.gov
- Counties.Data.gov
- States.Data.gov

U.S. States	U.S. Cities and Counties	International Countries
40	48	52

A COMPREHENSIVE LIST OF 2500+ OPEN DATA PORTALS AROUND THE WORLD

Home Data Apps Interact

RELEASE OF DATA FUND

One small step for local...

continued.....

Data packages for bulk downloads

ZIP

BERLIN OPEN DATA

Startseite Datensätze Dokumente Anwen Interaktion

Geodaten
Die Geodaten-Portal
Westere

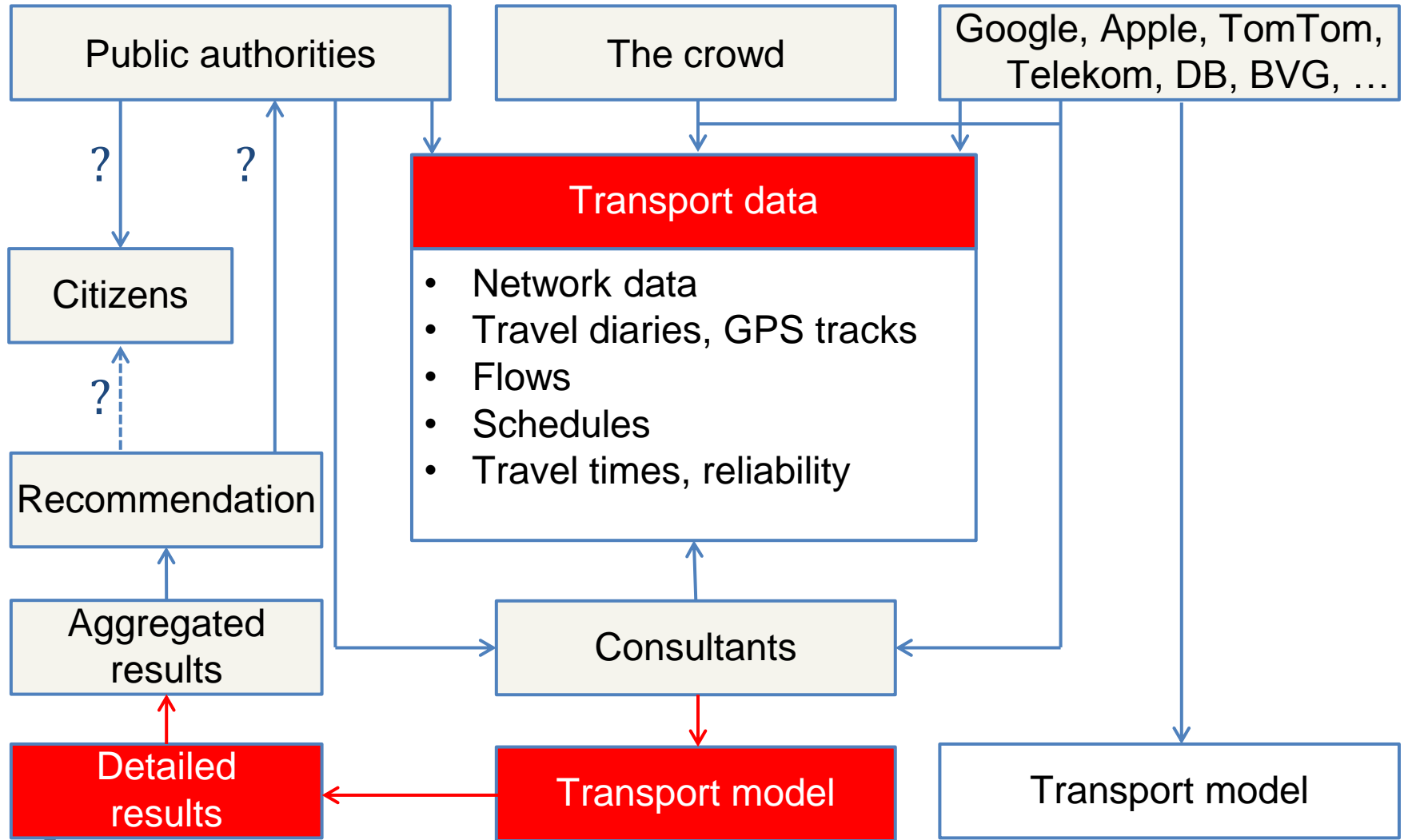
Blickwechsel erhalten



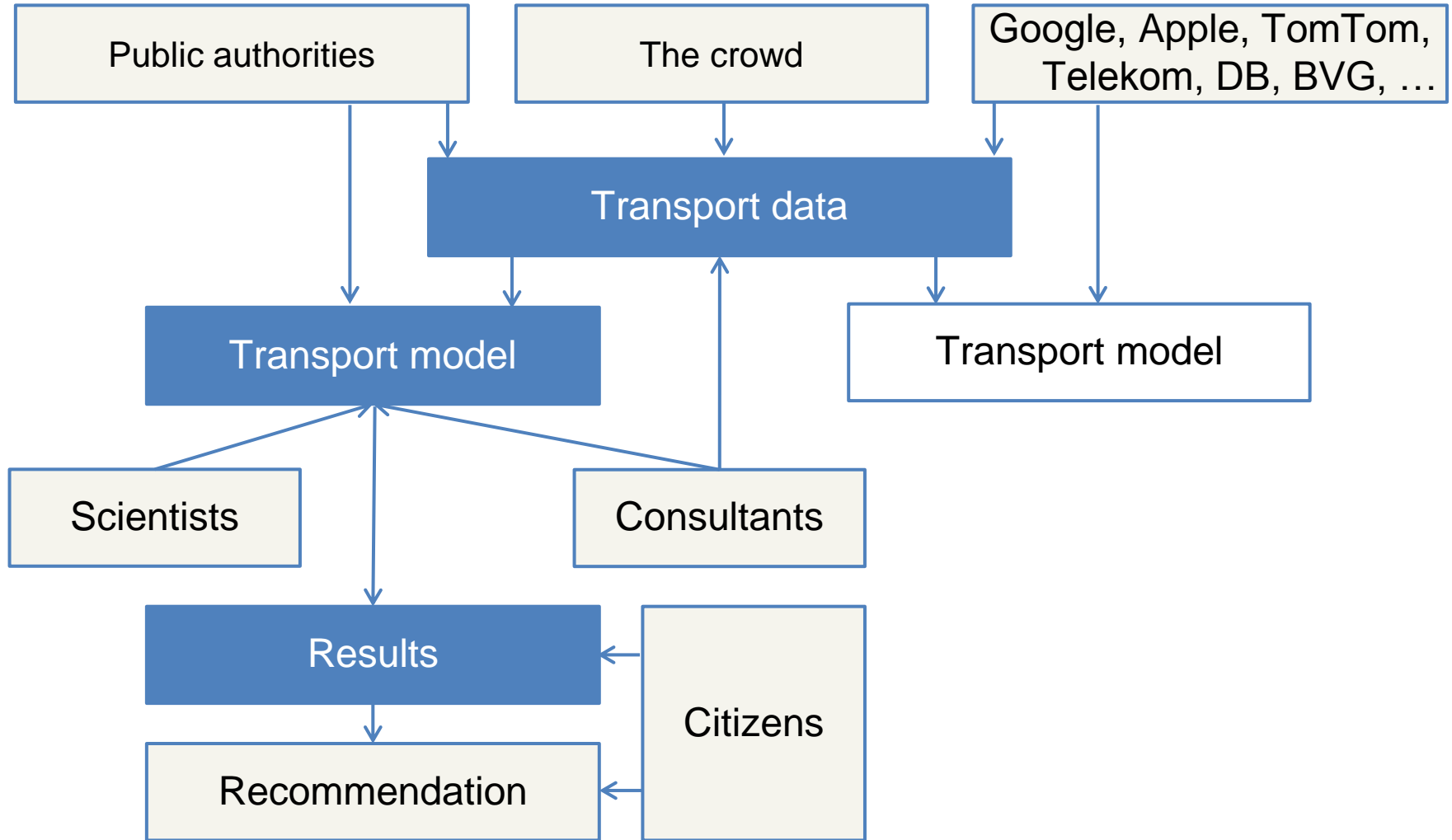
```
'http');  
data.deutschebahn.  
  
function (res) {  
function (chunk) {  
function () { console.log('');
```



Transport Data and Models in Germany



Transport Data and Models in Chile (and other countries)



Showcase: MATSim Santiago de Chile

Credits to:

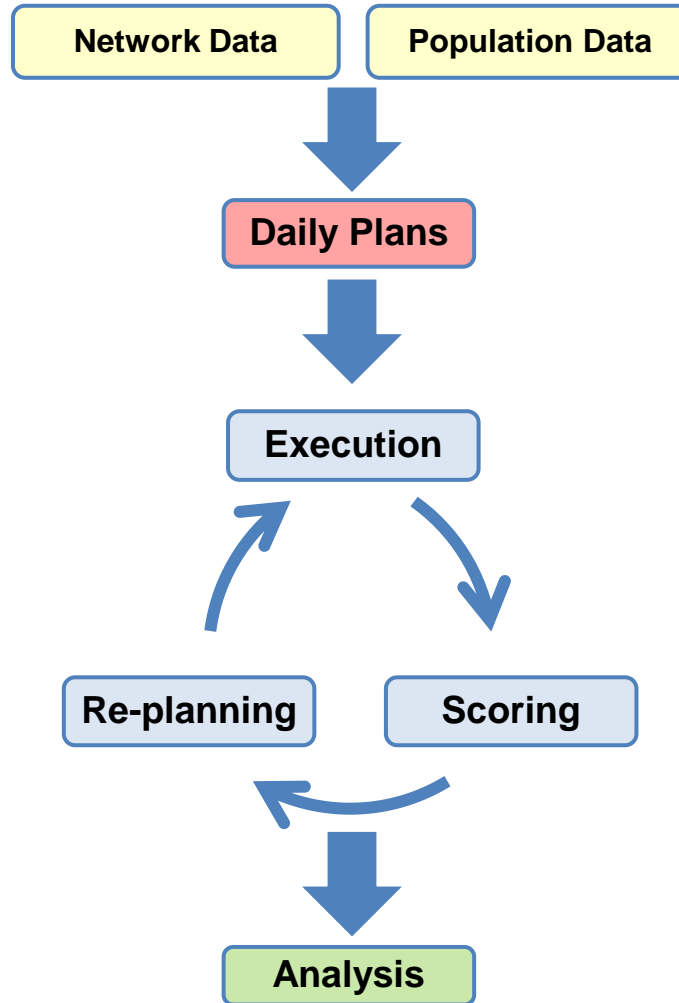
Daniel Hosse

Kai Turner

Alejandro Tirachini



MATSim Santiago: Open Data Requirements



- **Car supply:** Openstreetmap (“The crowd”)
- **PT supply:** Google Transit Feed (“Google”)
- **Travel demand:** Travel diaries etc. (“Public authority”)

- Large-scale (8m+ individuals)
- Activity-based demand
- Dynamic traffic flow model
- Utility-based learning cycle



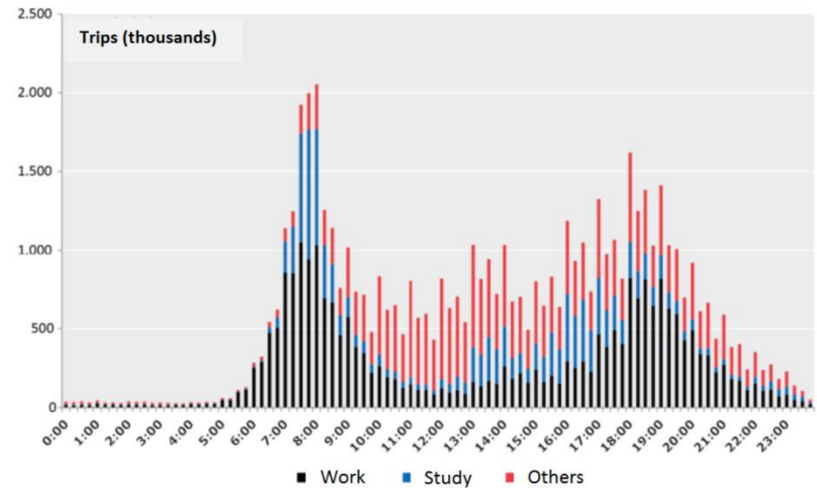
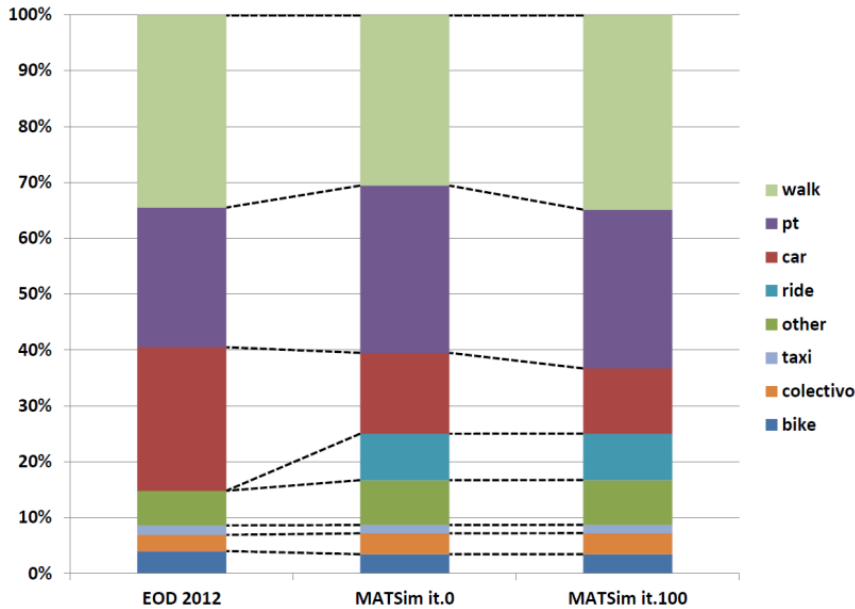
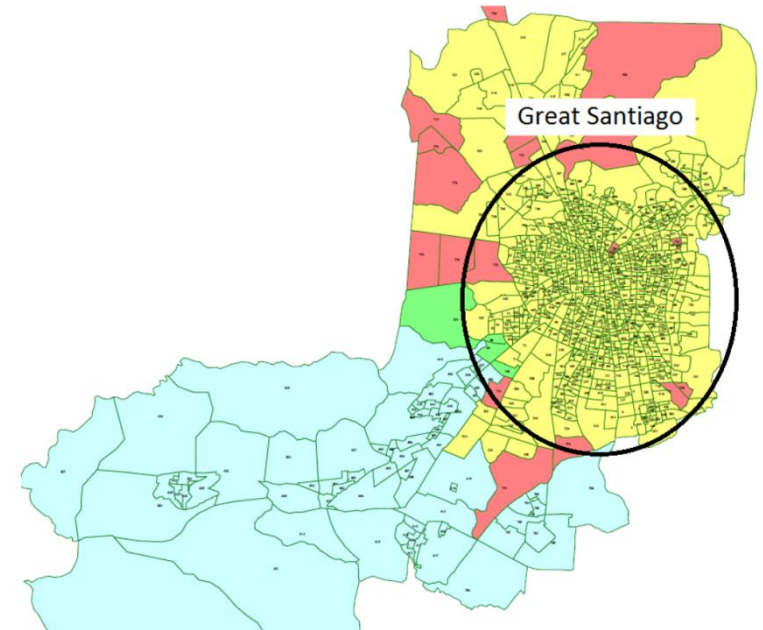
MATSim Santiago: Overview

Raw data:

- 60'054 individuals (~1%)
- 113'591 trips

MATSim:

- 42'459 individuals
- 103'055 trips



MATSim Santiago: Movies

Activity distribution:

[\[show movie\]](#)

Car traffic:

[\[show movie\]](#)

Public transport:

[\[show movie\]](#)



MATSim Santiago: Further Steps

- You can run the scenario, improve it, play around (see <https://svn.vsp.tu-berlin.de/repos/public-svn/publications/vspwp/2016/16-02/>)
- Ideal for BSc or MSc theses; the idea is to integrate every improvement into the current state (feeding back)
- Studies on policy interventions, business cases



Summary



Open Data in Transport Modeling : Opportunities

- Increase in transparency
- Better citizen engagement/empowerment?
- **Social value:** better transport planning through competition
 - identification of weak spots in the system
 - policy studies (e.g. provision of public infrastructure)
 - environmental/social analysis
 - ...
- **Commercial value:** creating a platform for innovative mobility-based services
 - car sharing systems
 - supply chain/location planning
 - delivery/logistic planning, navigation
 - ...



Open Data in Transport Modeling: Challenges

- **Privacy:** Anonymization of data at the source?
- **Quality:** Development of standards for data, data provision and simulation results; Who?
- **Feedback:** Unclear how to integrate improvements (performed by different stakeholders) back into the open data
- Need for a shift from confrontation (holding back information) to cooperation (sharing information) between authorities, citizens and private companies
- Increasing vulnerability to attacks?



Conclusions

- It is possible to create a freely available transport planning scenario within a few months **if open data is available**.
- For **stimulating competition** and innovation in transport modeling, **the provision of open data seems a necessary mission** for the public sector (e.g. through a clearinghouse).
- **Better standards for data** and data provision would save a lot of time (see Ben Wellington @TEDxNY). **Standards** are also necessary **for the provision of simulation results**.
- Public authorities could/should additionally **maintain a (reference) simulator** including technical staff (common but not everywhere, see BMVI).
- There is potential to **generate social and commercial value**: better transport planning, citizen engagement and the development of new businesses.





Thank you.

TARIFARIO
PRICE LIST

Fin de servicios de venta en boleterías

Lunes a Viernes: 23:00 hrs. Sábado: 23:00 hrs. Domingo y festivos: 23:30 hrs.

	RODRIGO POYTS BOYB SIDE	RODRIGO VILLO MONTE	RODRIGO SAJO LIV
Boleterías	07:00 - 09:59** 18:00 - 19:59**	06:30 - 08:59** 19:30 - 21:59**	06:00 - 08:29** 20:00 - 23:00**
Metro	\$ 720	\$ 660	\$ 610
Sub + Metro	\$ 720	\$ 660	\$ 640
Estudiante	\$ 210	\$ 210	\$ 210
Adulto Mayor	\$ 210	\$ 210	\$ 210



Sources: Open MATSim Scenario of Santiago de Chile

- Documentation: <https://svn.vsp.tu-berlin.de/repos/public-svn/publications/vspwp/2016/16-02/>
- Runnable MATSim scenario, no MATSim installation necessary: <https://svn.vsp.tu-berlin.de/repos/public-svn/matsim/scenarios/countries/cl/santiago/>
- Code: <https://github.com/matsim-org/matsim/tree/master/playgrounds/santiago/src/main/java/playground/santiago>
- Further data sets available:
 - Operational data for colectivos, real PT (GPS), ...
 - Smartcard tap-on data
 - ...



Sources: Definitions and Open Data Portals

- http://link.springer.com/chapter/10.1007%2F978-3-540-76298-0_52
- <http://opendatahandbook.org/>
- <https://www.data.gov/open-gov/>
- <https://data.gov.uk/>
- <https://www.govdata.de/>
- <http://daten.berlin.de/>
- <http://data.deutschebahn.com/>
- <http://transitfeeds.com/>
- <https://www.opendatasoft.com/a-comprehensive-list-of-all-open-data-portals-around-the-world/>
- <https://youtu.be/6BTg8OXhEZk>

