

Systematic evaluation of new services at mobility hubs

Birgit Kohla

birgit.kohla@tugraz.at

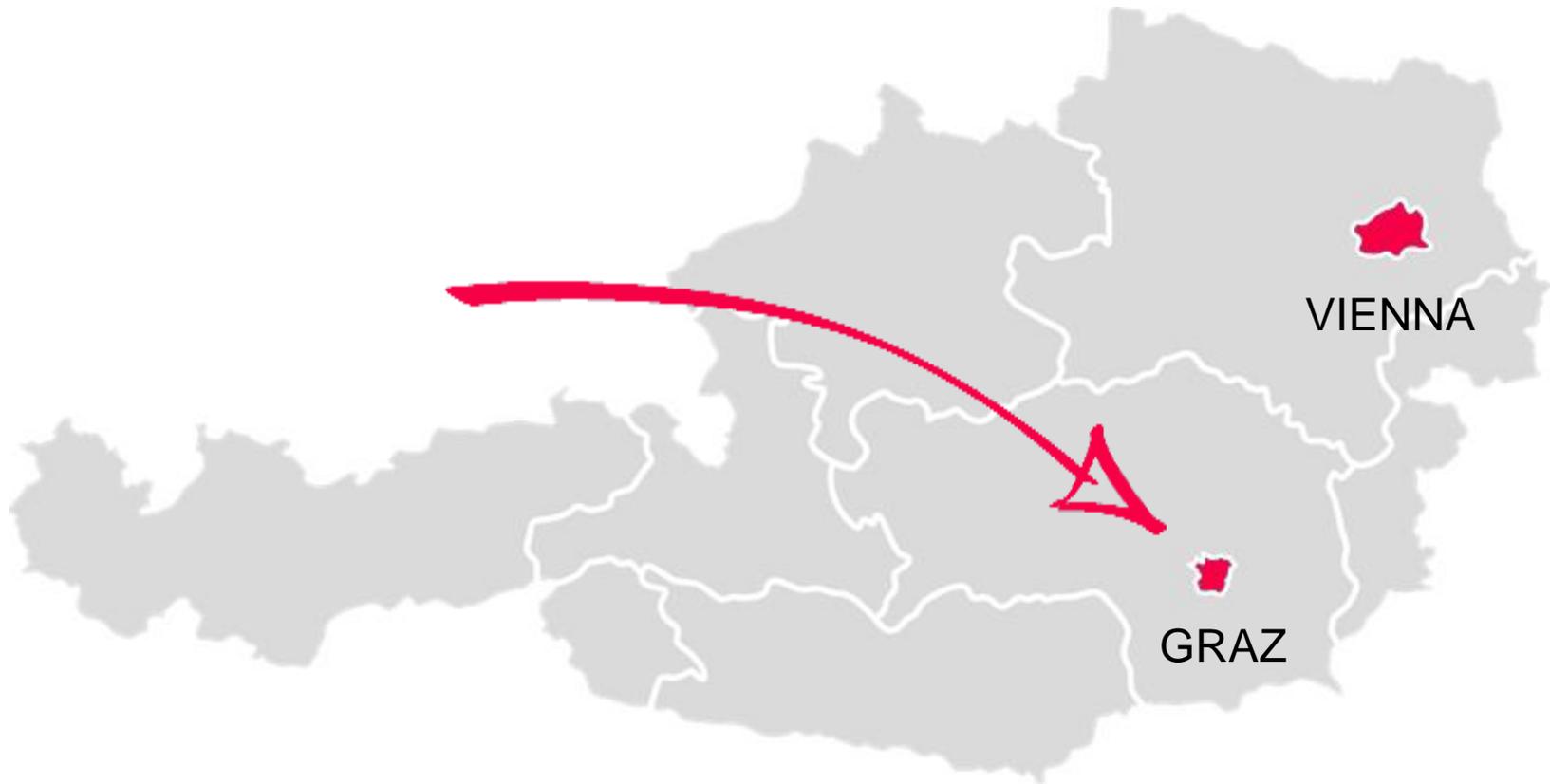
Jürgen Fabian, Martin Fellendorf, Elena Just-Moczygamba

Mobil.TUM, Munich

15.06.2016

A short history about mobility hubs in the city of Graz





Vienna: 1 750 000 

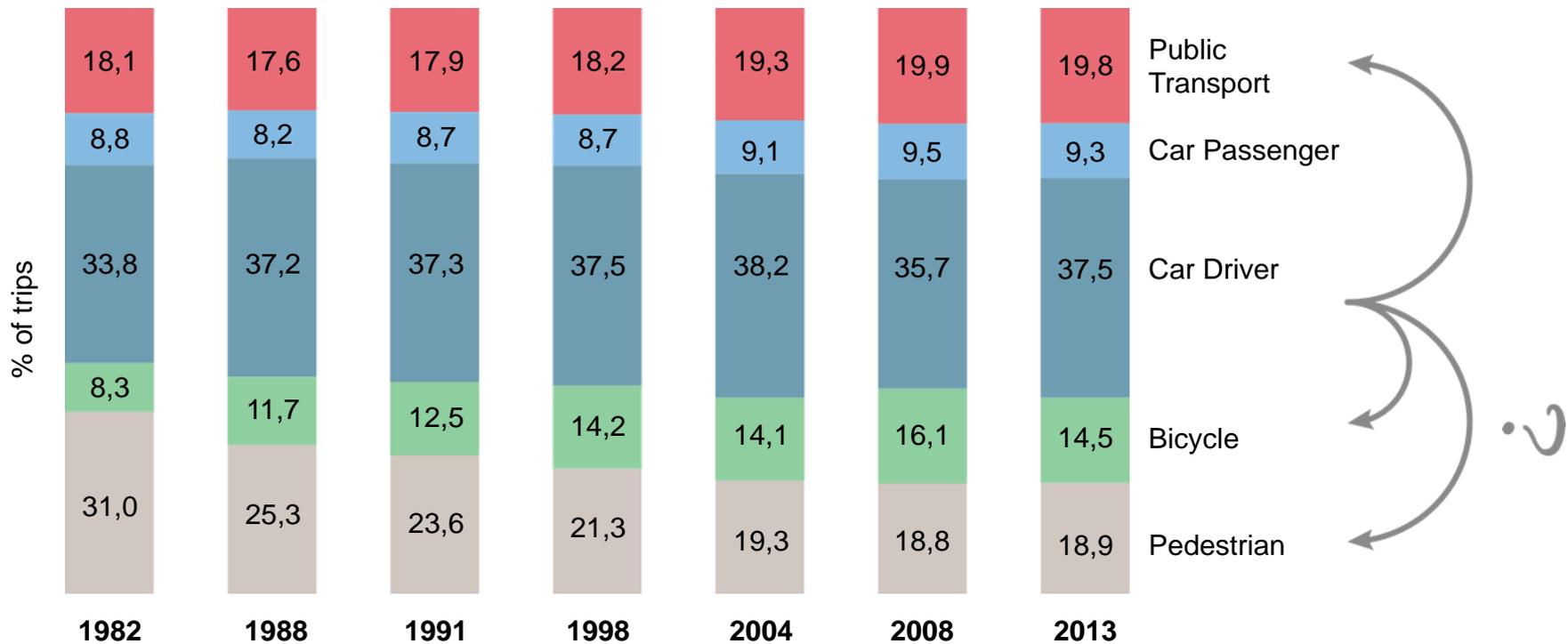
Graz: 280 000 

why?



modal split

Graz



Data source: City of Graz

dusty, dusty, dusty...

Challenges in the City of Graz

- Increasing population (2031: 290.000 )
- Topographic basin location
 - building land is limited
 - local climate challenges (e.g. fine dust pollution)

smart CITY graz

Strategy Process 2010-2013

- Smart City Development principle in local planning processes

Vision Graz 2050

- dynamic and compact city
- mixed urban land use, attractive public space
- high quality of life

smart CITY WAAGNER-BIRO graz

First Austrian Smart City Key Project (2012-2017)

- + 3800 people to live, + 1500 places of employment
- € 330 million investments
- Set of component demonstration actions
- Sustainable technologies in the areas of
 - Energy
 - Building technology
 - Mobility

smart CITY graz

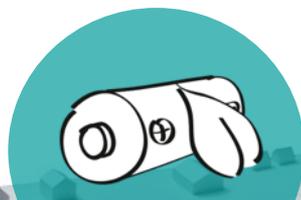
WAAGNER-BIRO



Sustainable
mobility



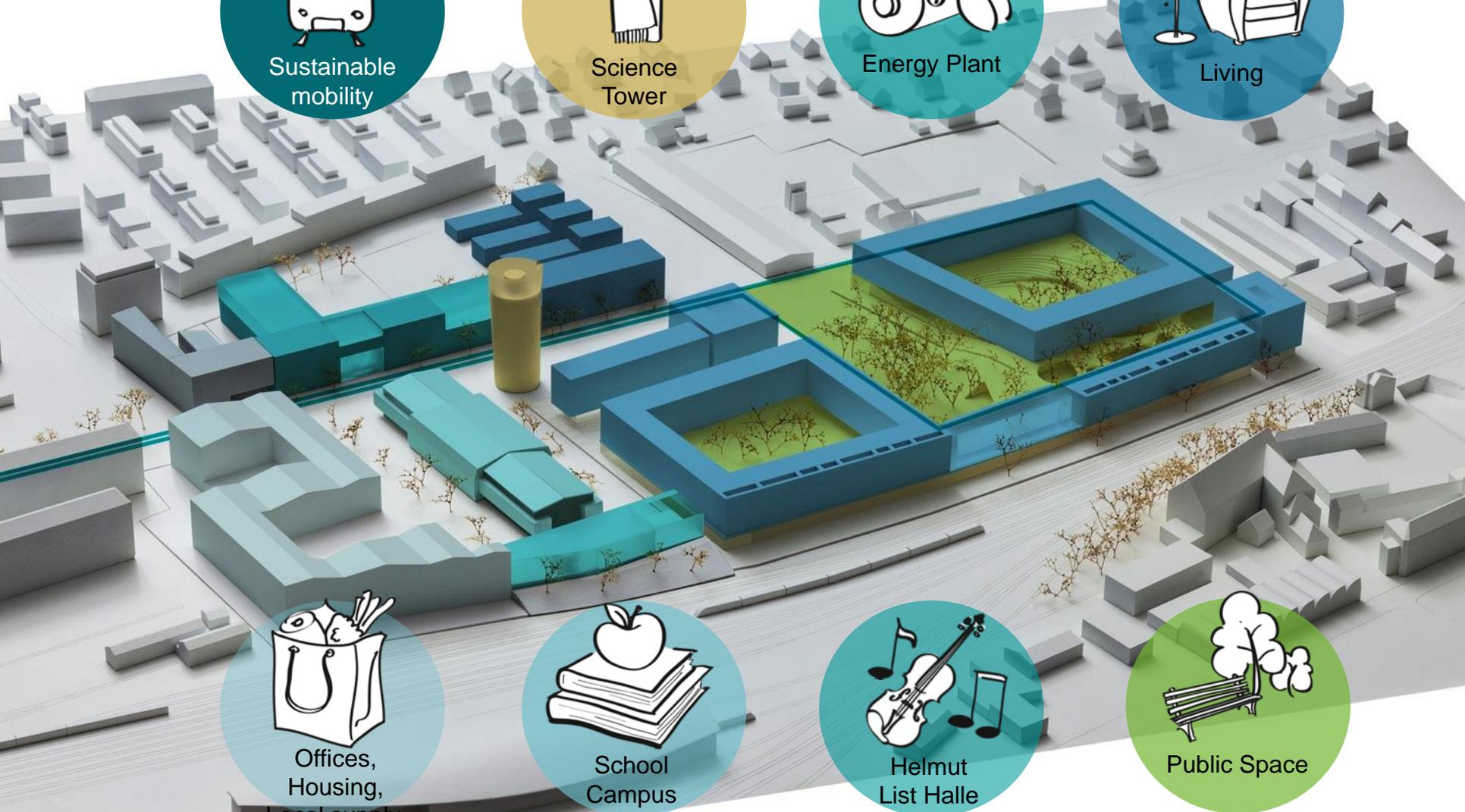
Science
Tower



Energy Plant



Living



Offices,
Housing,
Local supply,



School
Campus



Helmut
List Halle



Public Space

student competition

Generating first ideas of urban mobility hubs

- 2 Universities
- 3 civic institutions
- 2 fields of expertise
- 7 teams
- 3 places

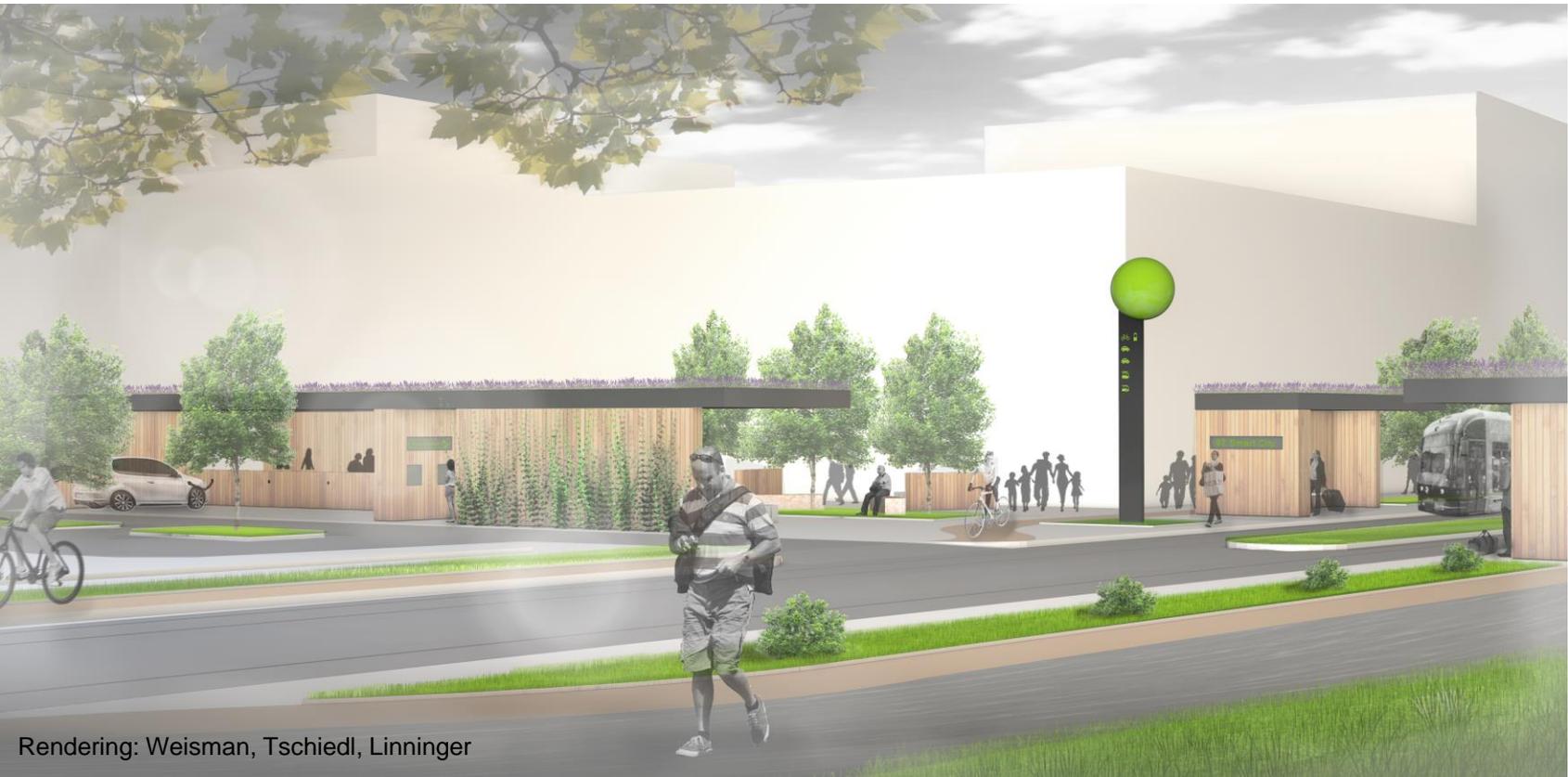


student competition

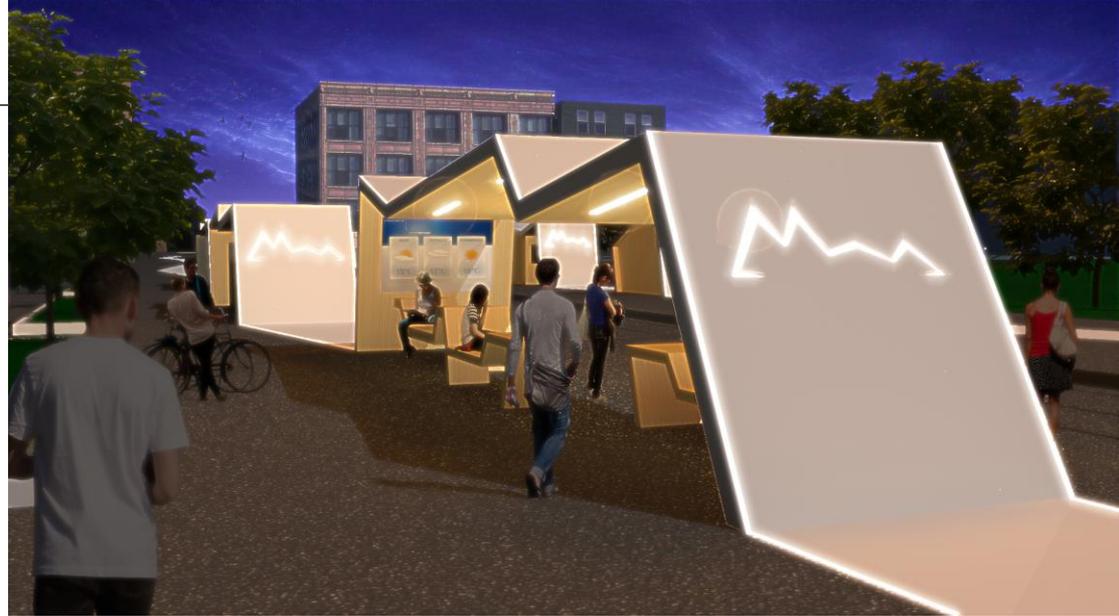
Design requirements

- Public transport: tram & bus
- Mobility services: bicycle parking, E-car sharing, car rental, bike sharing, E-Taxi, private charging, bicycle service station
- Transit function, urban space & new buildings
- Information & guidance concept, cooperate identity
- Weather protection
- Additional elements: multifunction boxes, kiosk, beverage dispenser, sustainable energy concept

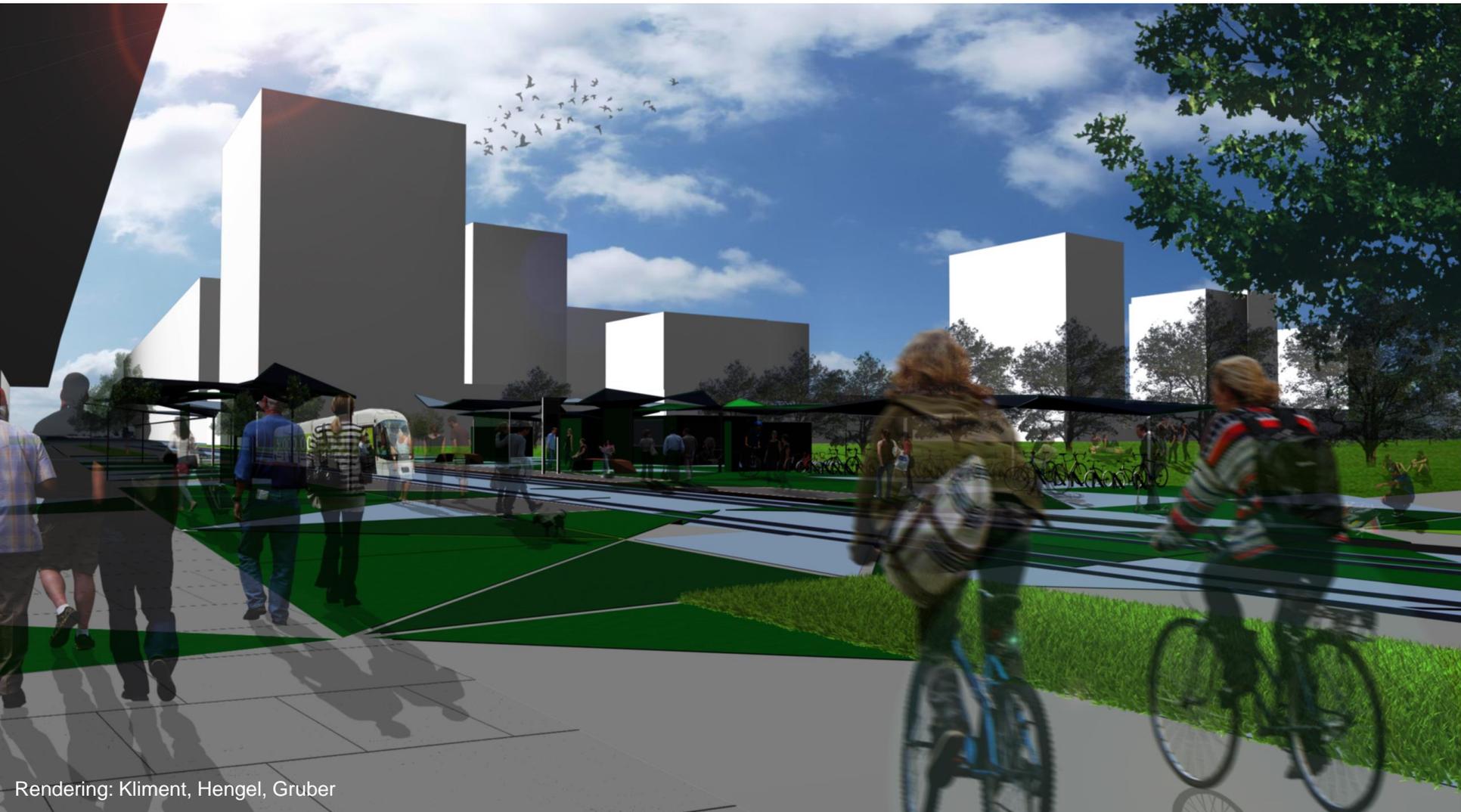
E-Point



Mobility stripe



Round the triangles



demo project

Combined mobility in the city of Graz

- 2015 – 2018
- 6.5 million Euro

- 5 mobility hubs
- 7 E-Taxi stands
- 4 superchargers
- 25 E-Taxis



targets

Why combined mobility services?

- Provide attractive and user-friendly mobility services
- Encourage multimodal travel behavior
- Reduce car ownership
- Reduce car trips
- Reduce travel time
- Reduce (local) emissions
- Provide attractive urban space

mobility hubs

Combined mobility in the city of Graz

kombinierte
mobilität /
für graz



Public charging



E-Carsharing



(E-)Bikes



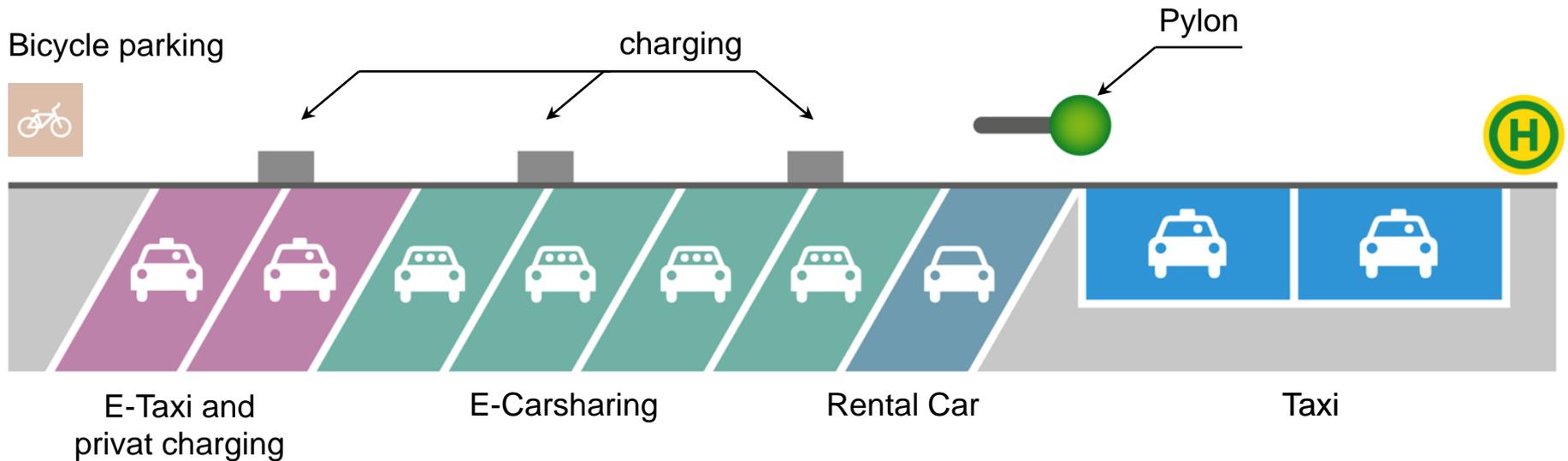
E-Taxis



mobility hubs

Organization & Scalability

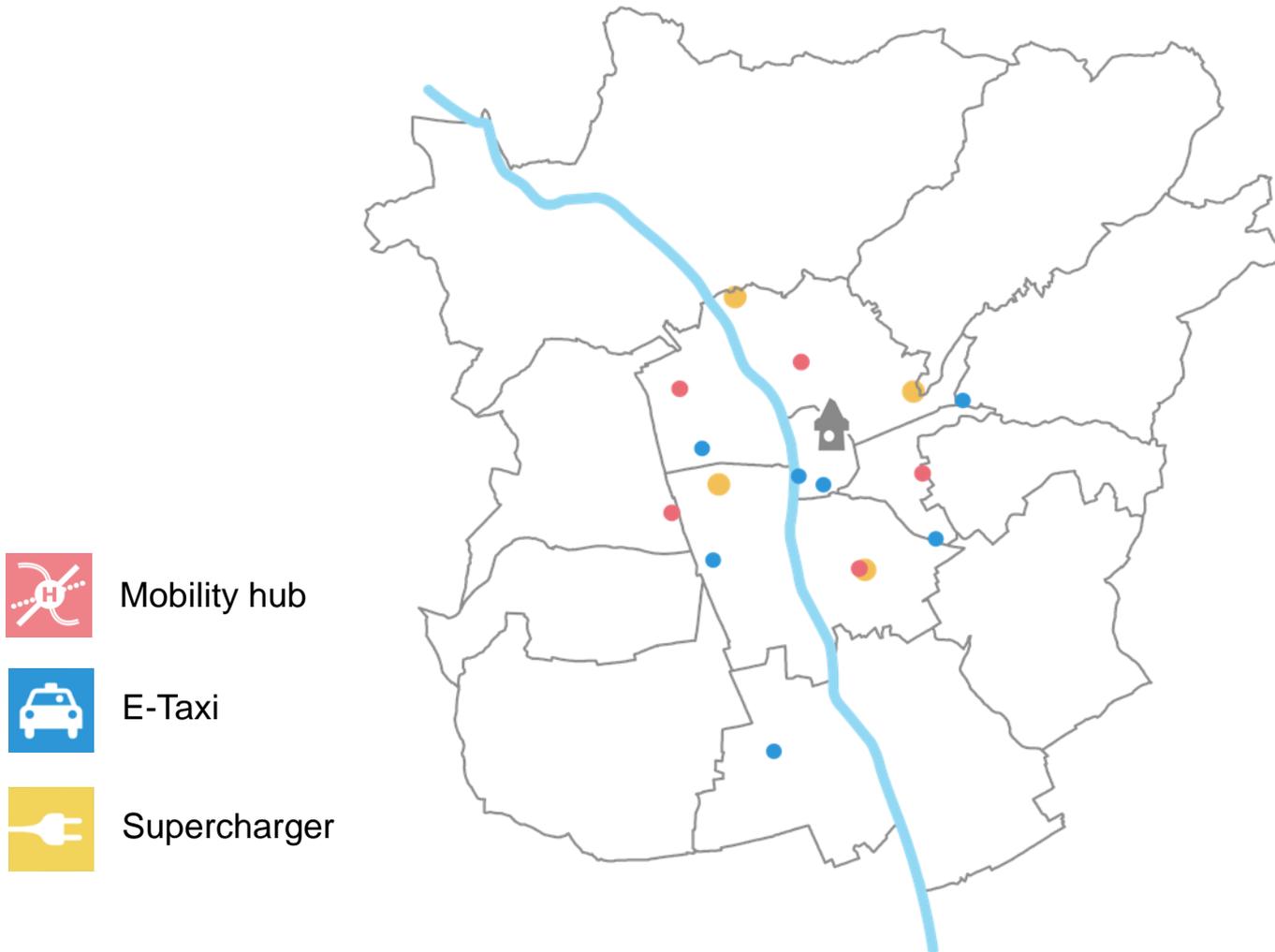
kombinierte
mobilität
für graz



new services

in the City of Graz

kombinierte
mobilität /
für graz



let's share!

Carsharing



- Public transport operator
- Station-based and user-open system
- Time-based fare system
- 2 E-cars and 2 fossil cars at each hub
- User-friendly booking platform
- Personal user support

e-taxi

Targets and benefits

- Additional mobility service
- Local taxi operator
- 25 e-taxis
- Exclusive parking and charging infrastructure
- Integration in mobility hubs

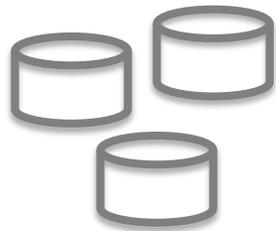
research

3 main topics

- User acceptance,
User behavior
- Environmental impacts:
energy, emissions, noise
- From field test to live,
Lessons learned,
Next steps.

research

Data and Methods



Data sources

User analysis
Pilot region E-Mobility
Passenger statistics
Digital maps
Transport model
...

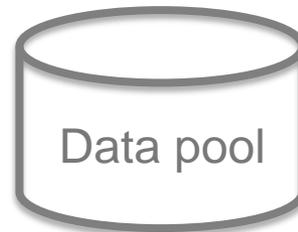


3D-Simulation and Eye tracking



Literature research

Monitoring Counting



Monitoring

(E-) Car data
GPS tracking
Map-Matching



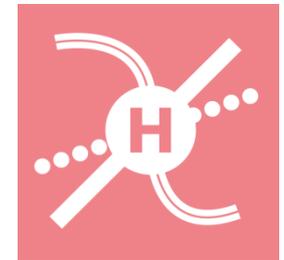
User survey

User of Car sharing
User of E-Taxi



Monitoring

Charging activities



User survey

Users at hubs



User survey

Households
Companies
Personas



research

Pre-survey

- Reference Data
- 3 places
- 1 day
- 3 x 2 hours
- 75 students

- Traffic count
- Personal interviews



research

Pre-survey



Traffic count

- Parking Bicycles
- Cyclists arriving and departing
- Passenger transfers

research

Pre-survey



Personal Interviews in the street

- Current trip:
origin, destination, travel mode, trip purpose
- Socio-demographic data
- Accessibility of travel modes:
driver license, car ownership, season ticket
- Travel behavior:
mode choice, travel distance
- Attitude towards travel modes
- Satisfaction with current mobility services

research

Pre-survey - Impressions

kombinierte
mobilität /
für graz



research

Pre-survey - Impressions

kombinierte
mobilität /
für graz



partner

kombinierte
mobilität /
für graz



thank
you!