

CYCLE COMPETENCE
AUSTRIA



Scientific Research

Cyclists Data Analysis

Navigation & Data Collection

Evaluate Cycle Networks

Cycling Master Plans

National Goals & Funding

SCIENTIFIC RESEARCH

enabling safe, comfortable cycling & green, efficient logistics

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AIT, Center for Mobility Systems, Dynamic Transportation Systems



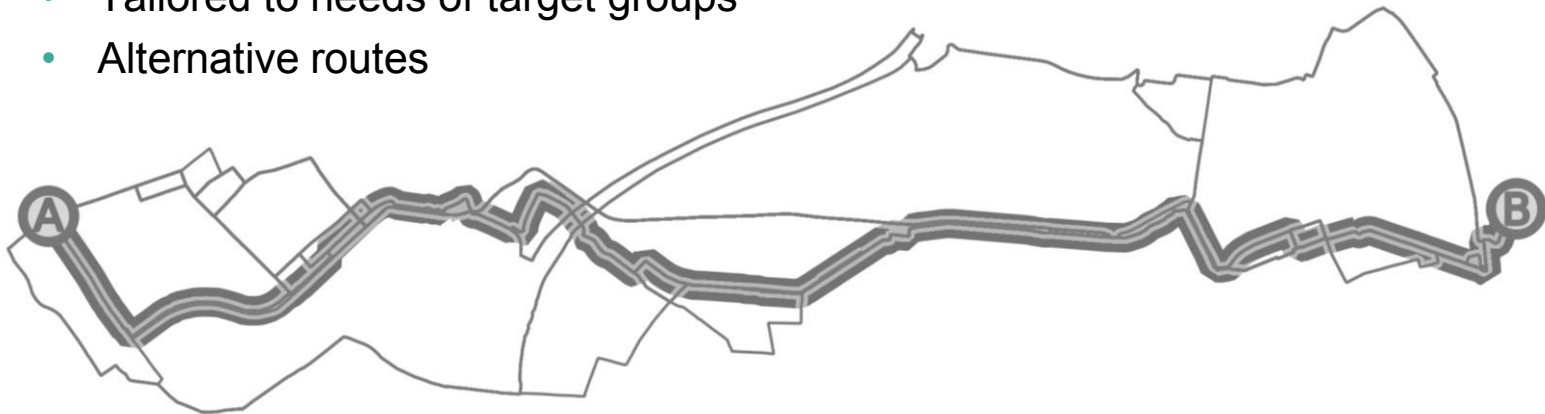
CYCLING RESEARCH @ AIT

- Logistics & Tour Planning
 - Parcel delivery
 - Redistribution in bike-sharing systems



CYCLING RESEARCH @ AIT

- Human Factors & Route Choice
 - Analysis of potential
 - Active mobility
 - Behaviour changes
 - Routing
 - Intermodal (one route can consist of several modes)
 - Tailored to needs of target groups
 - Alternative routes



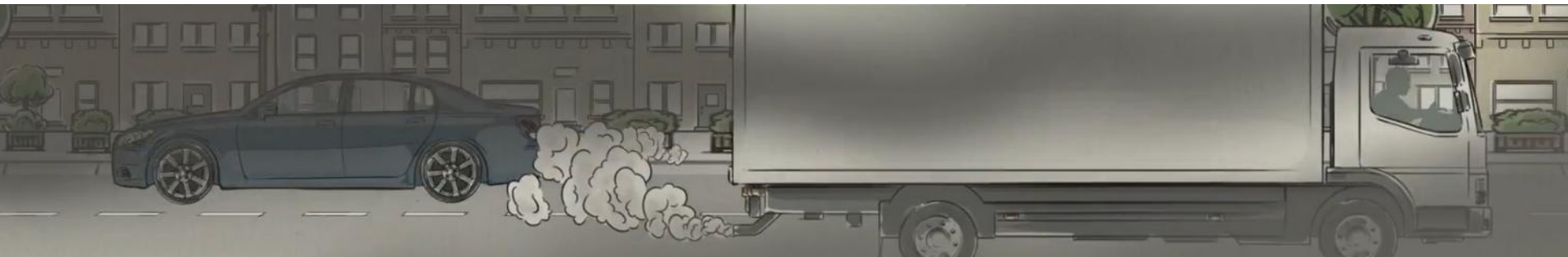
CYCLING RESEARCH @ AIT

- Urban Planning
 - Survey and analysis of bicycle traffic
 - **Location planning for bike-sharing systems**
 - Impact assessment



LOGISTICS & TOUR PLANNING

two-stage parcel delivery with city hubs & cargo bikes





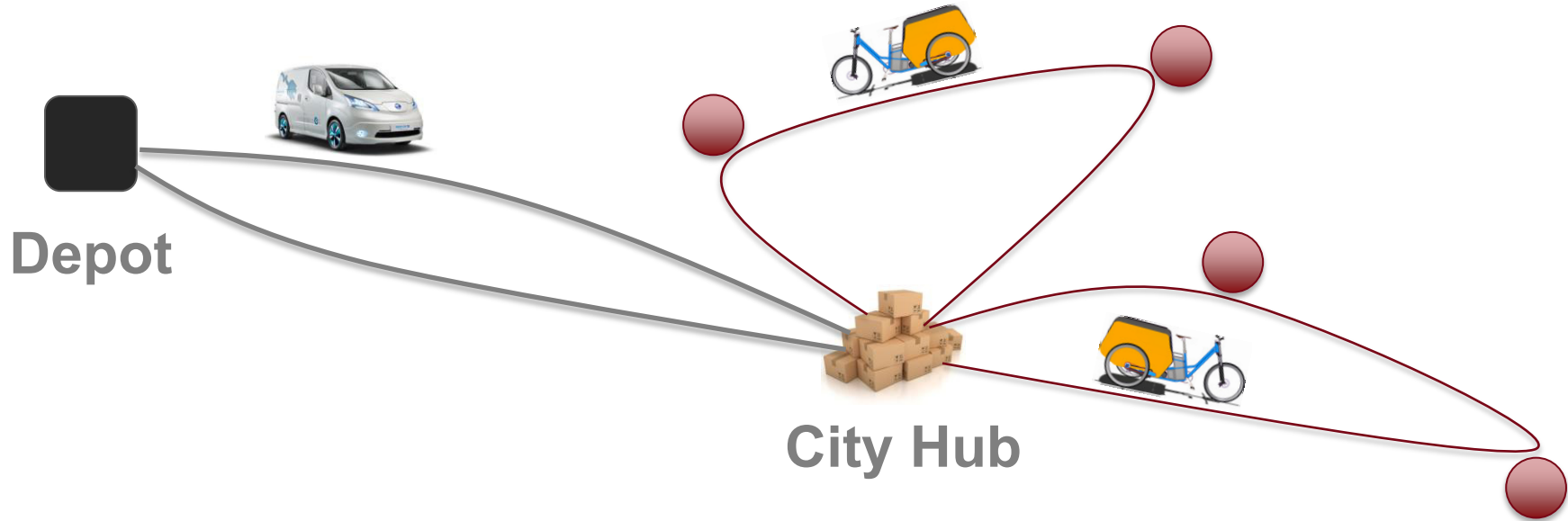
EMILIA

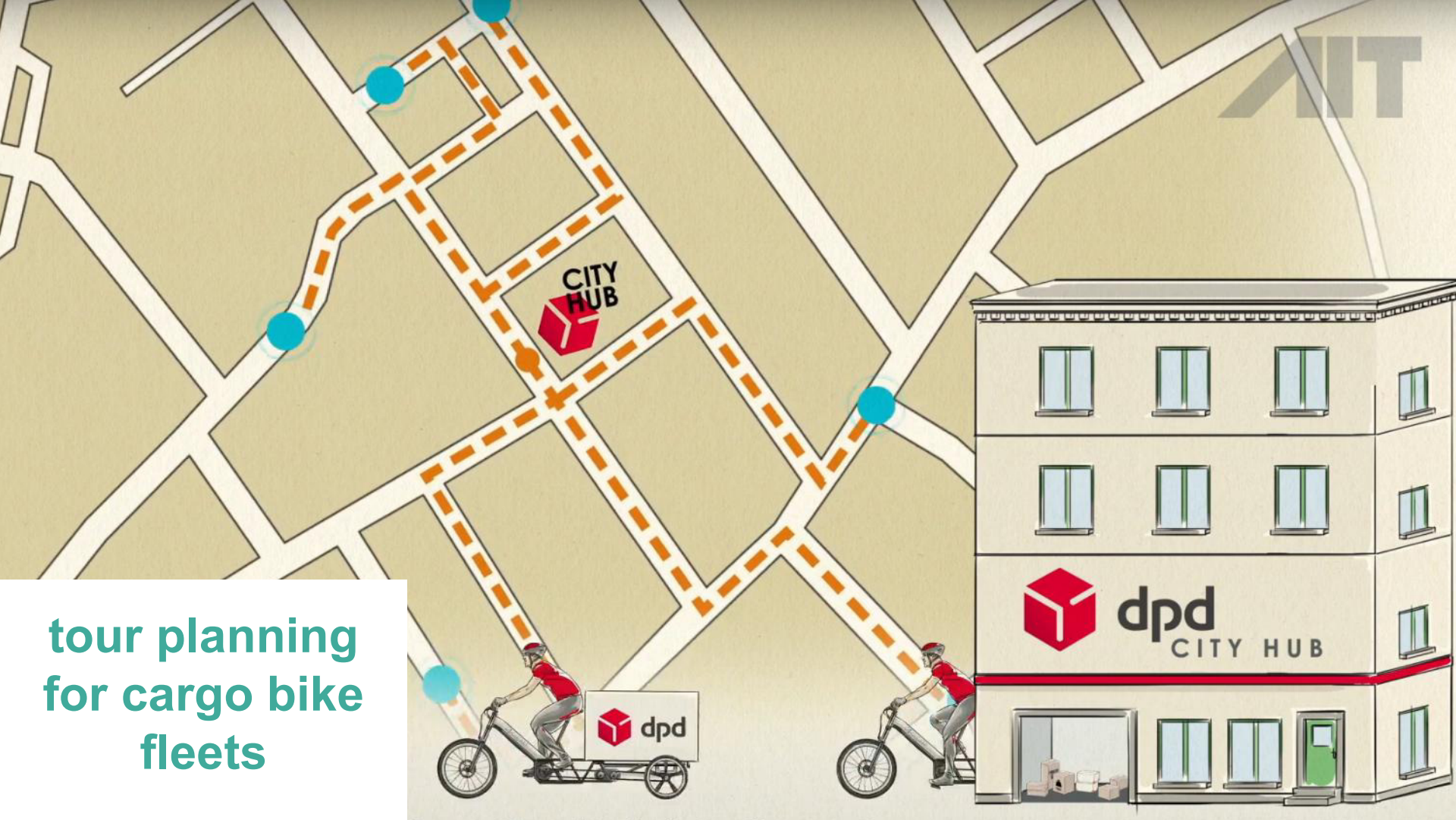


The word "EMILIA" is centered in a white, rounded rectangular box. The letter "E" is green, while the other letters are grey. A green square is positioned between the "I" and "L". The background of the image features a cityscape with buildings, a sun, clouds, and green circuit-like lines.

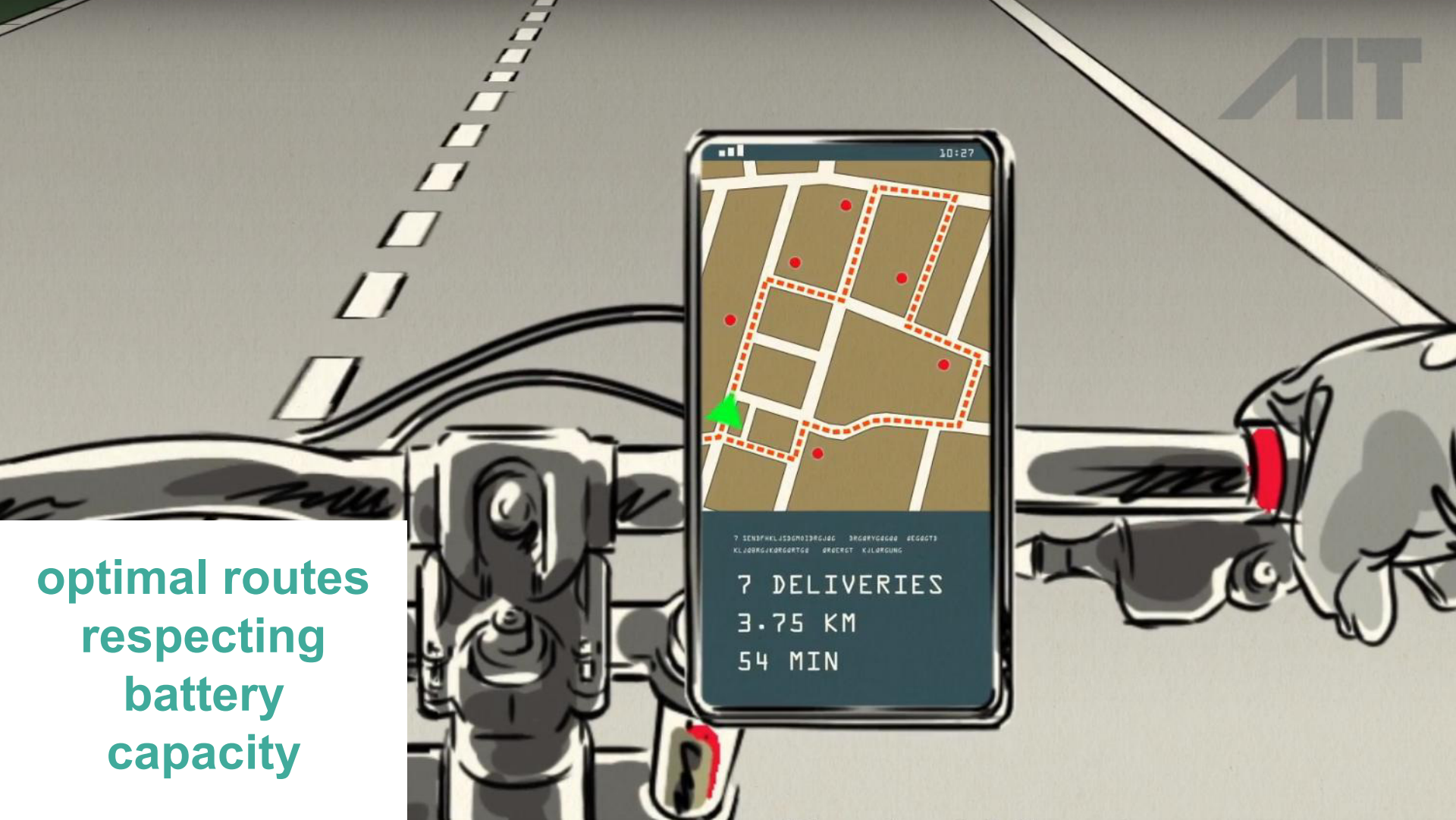
The logo for EMILIA is centered in the image. It features the word "EMILIA" in a clean, modern, sans-serif typeface. The letter "I" is replaced by a square icon that is split diagonally, with the top-left half in green and the bottom-right half in grey. The logo is set against a light green rectangular background that has a subtle, wavy pattern.







tour planning
for cargo bike
fleets



optimal routes
respecting
battery
capacity



BICYCLE DESIGN

custom bicycles for logistics, families with children, the elderly,...





**tilting cargo
tricycle for
parcel delivery**

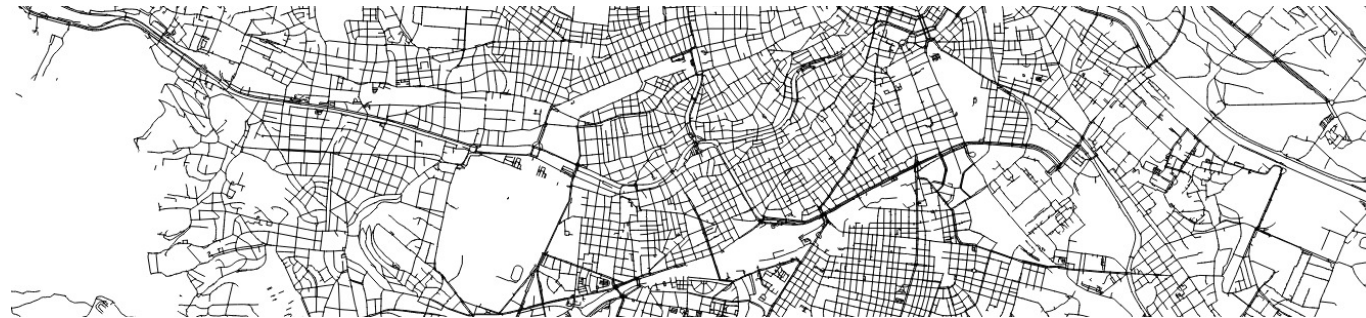


tilting cargo
tricycle concept
for
families with
children



URBAN PLANNING

location planning for bike sharing systems



raw
street graph



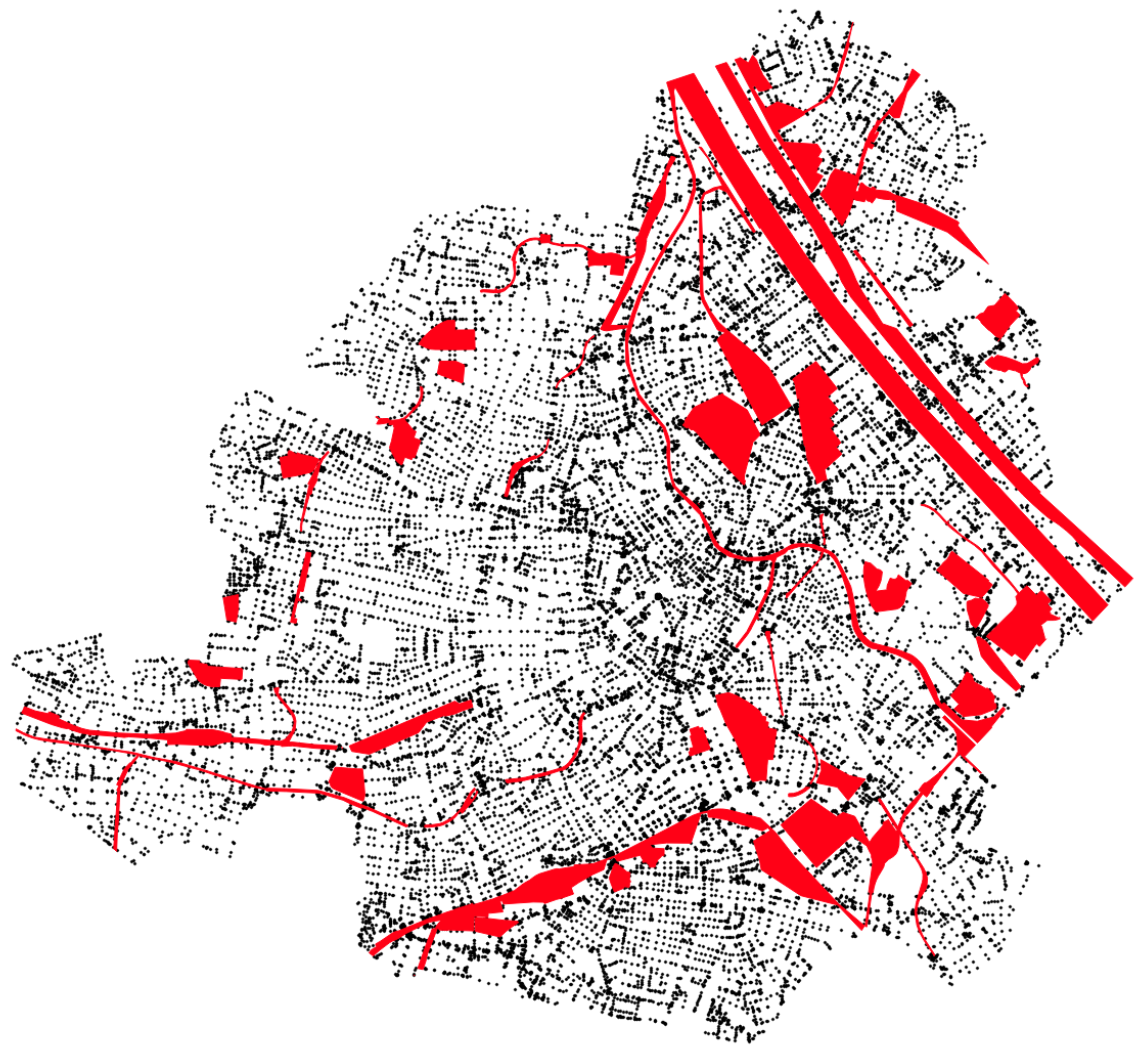
**planner defines
maximum
extent of bike-
sharing system**



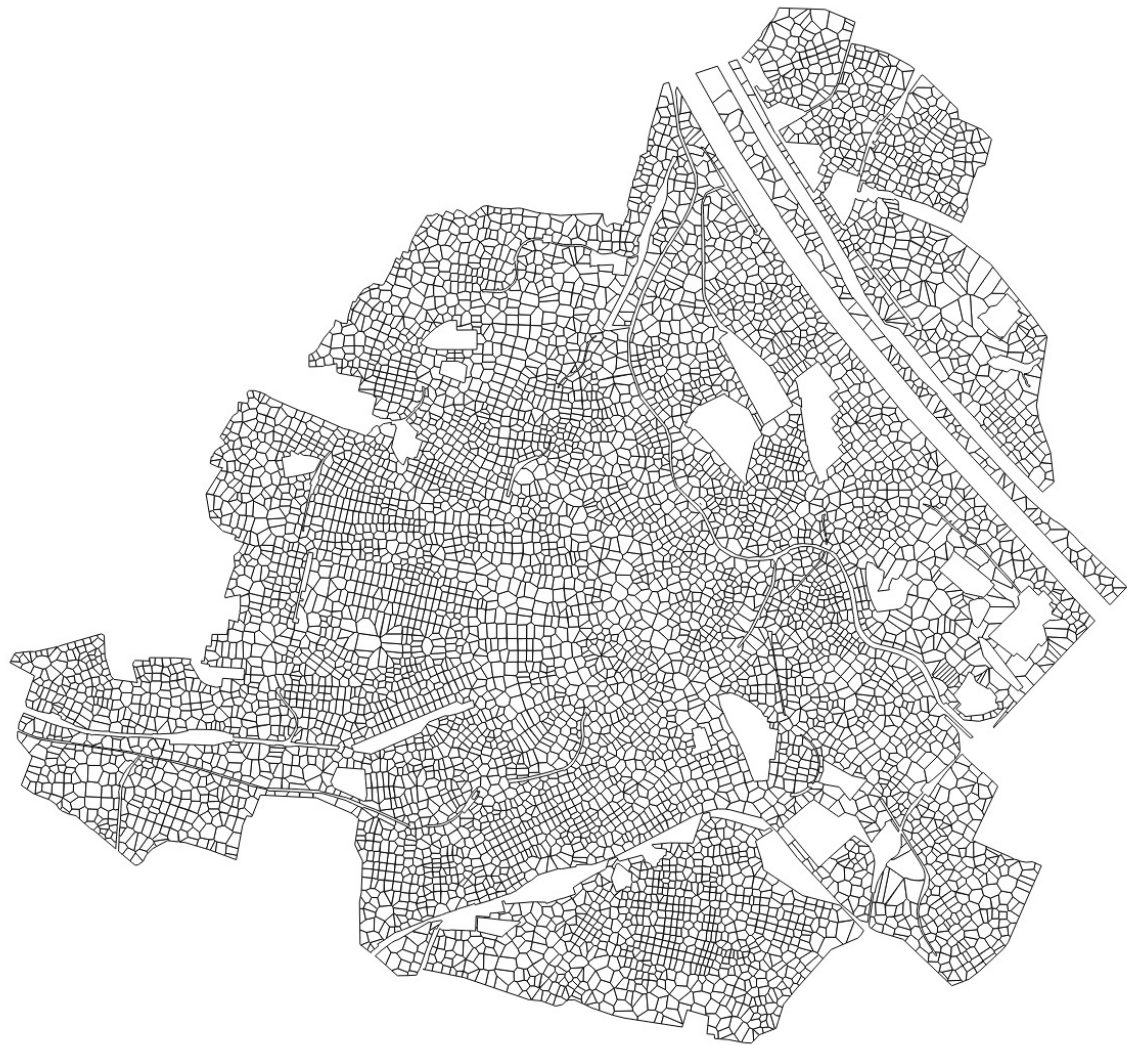
**extraction of
junctions**



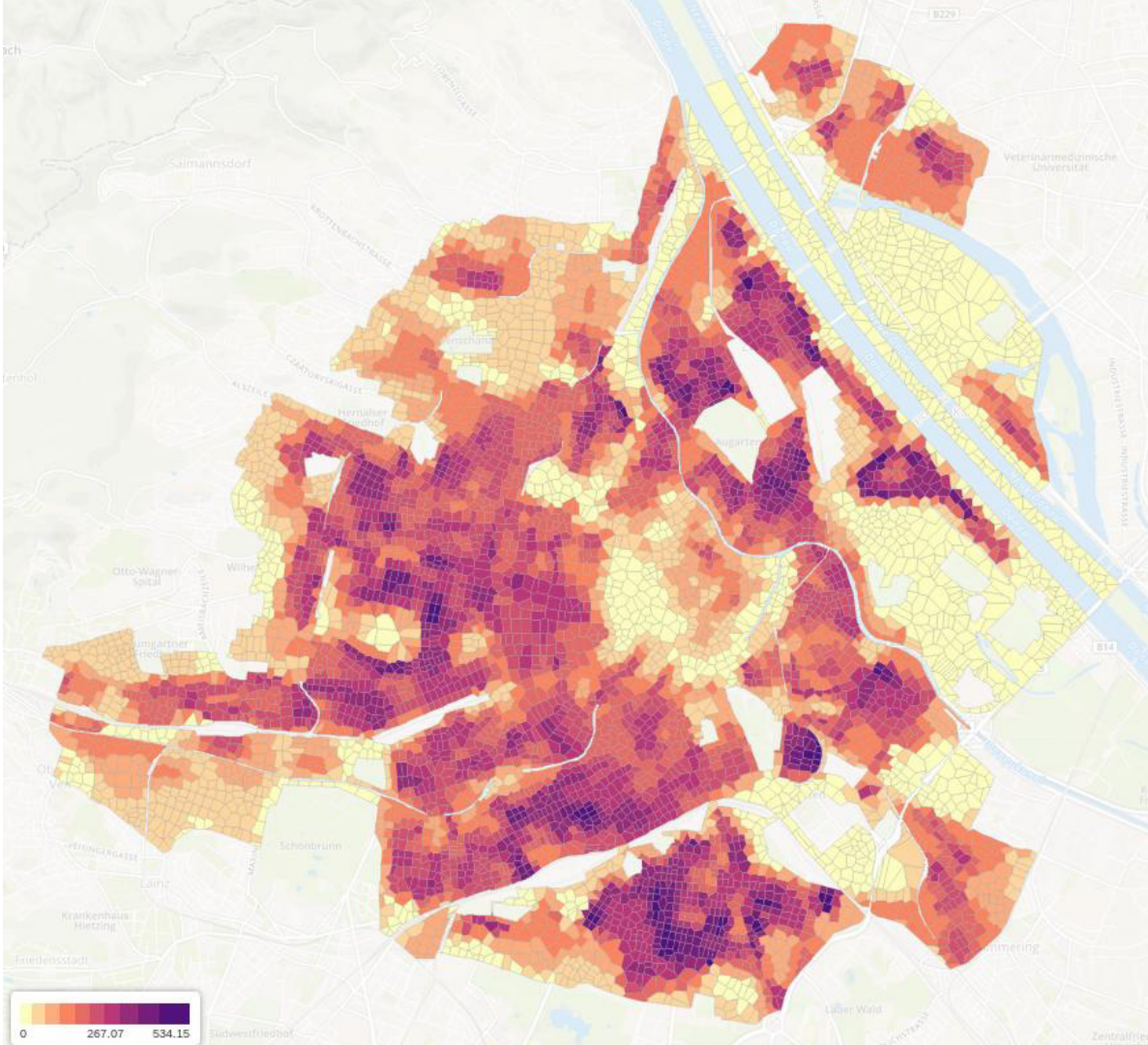
**planner defines
barriers
(areas without
stations)**



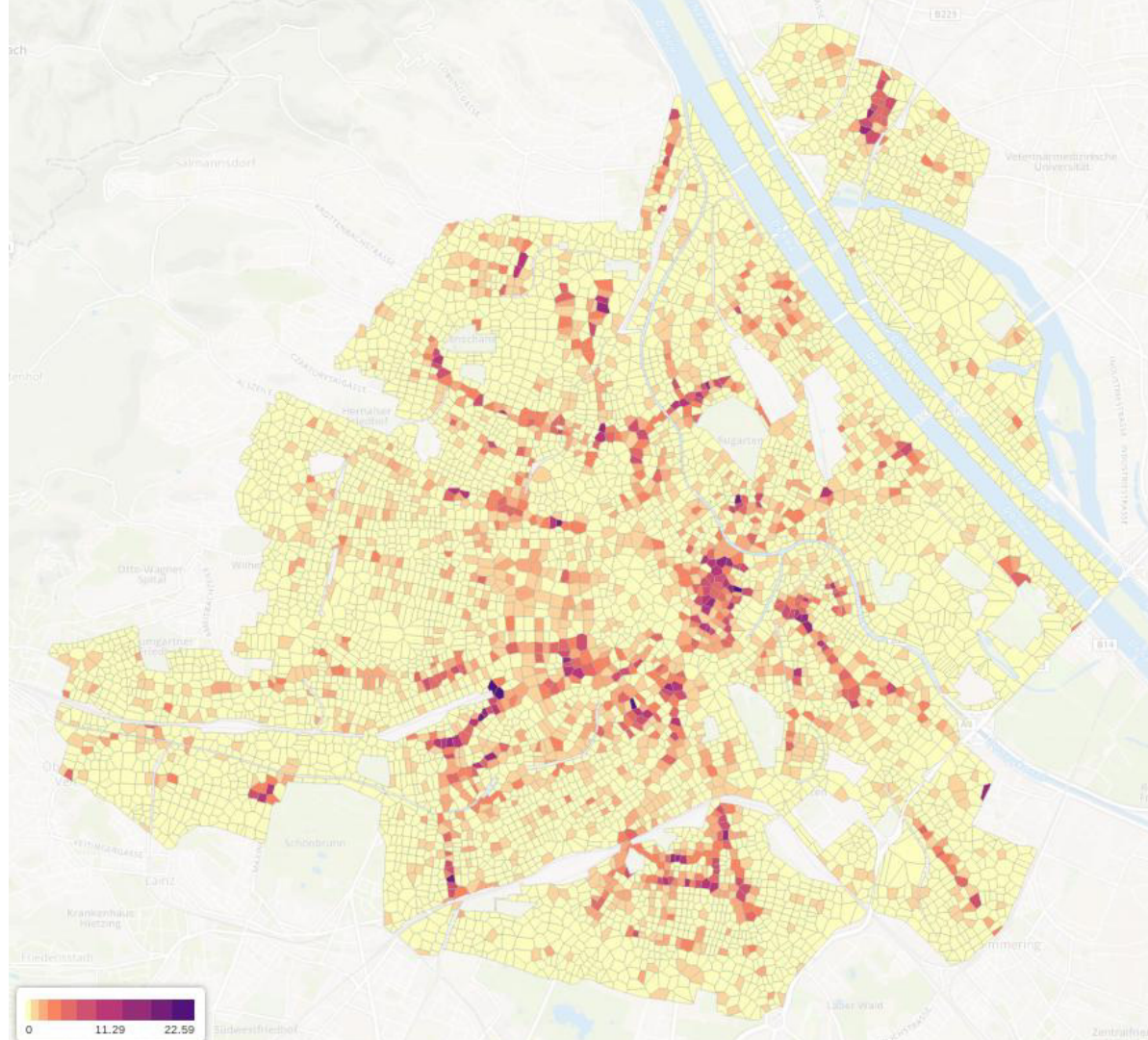
7140
planning cells



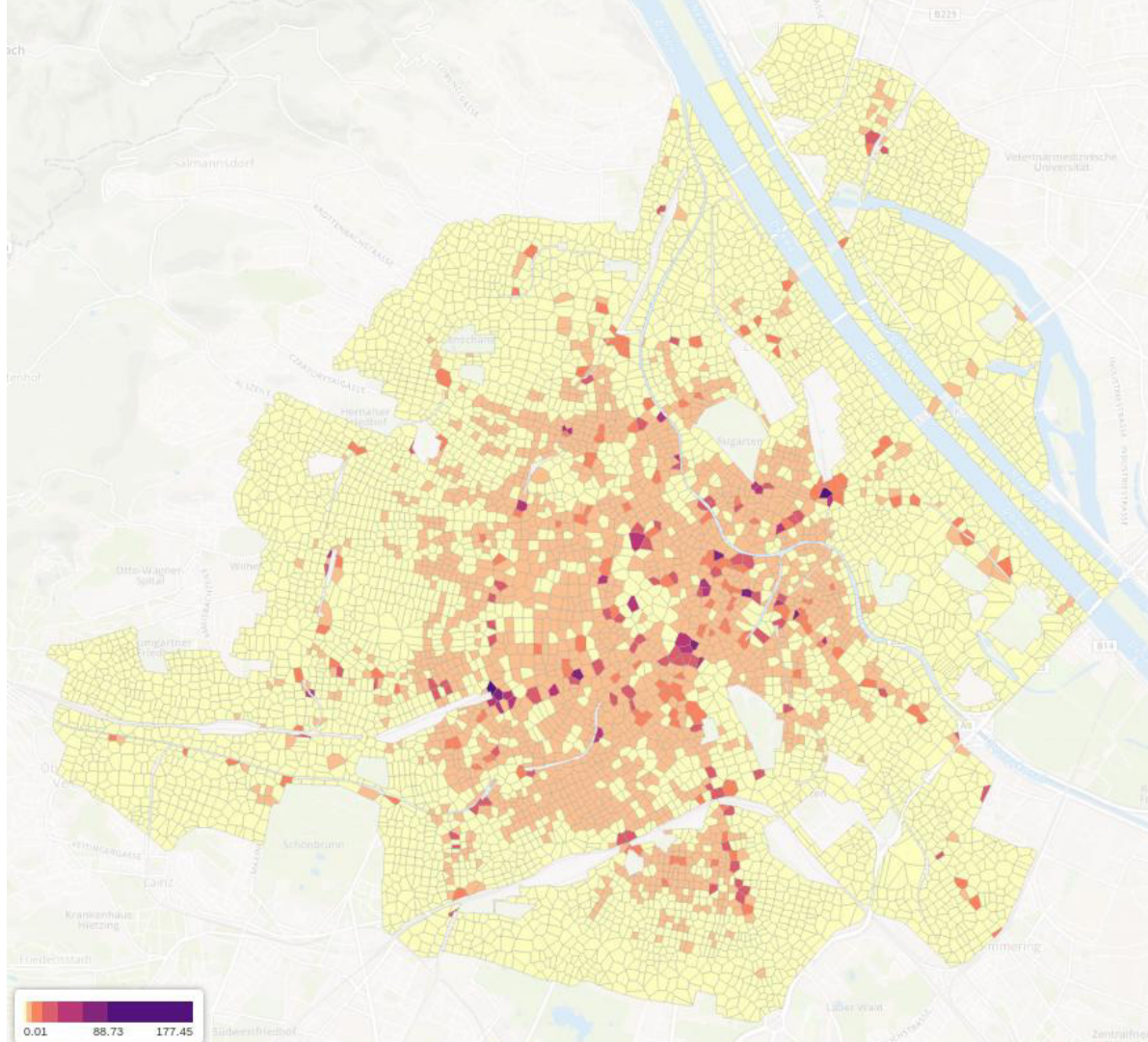
input data:
population
density



input data
shopping POIs

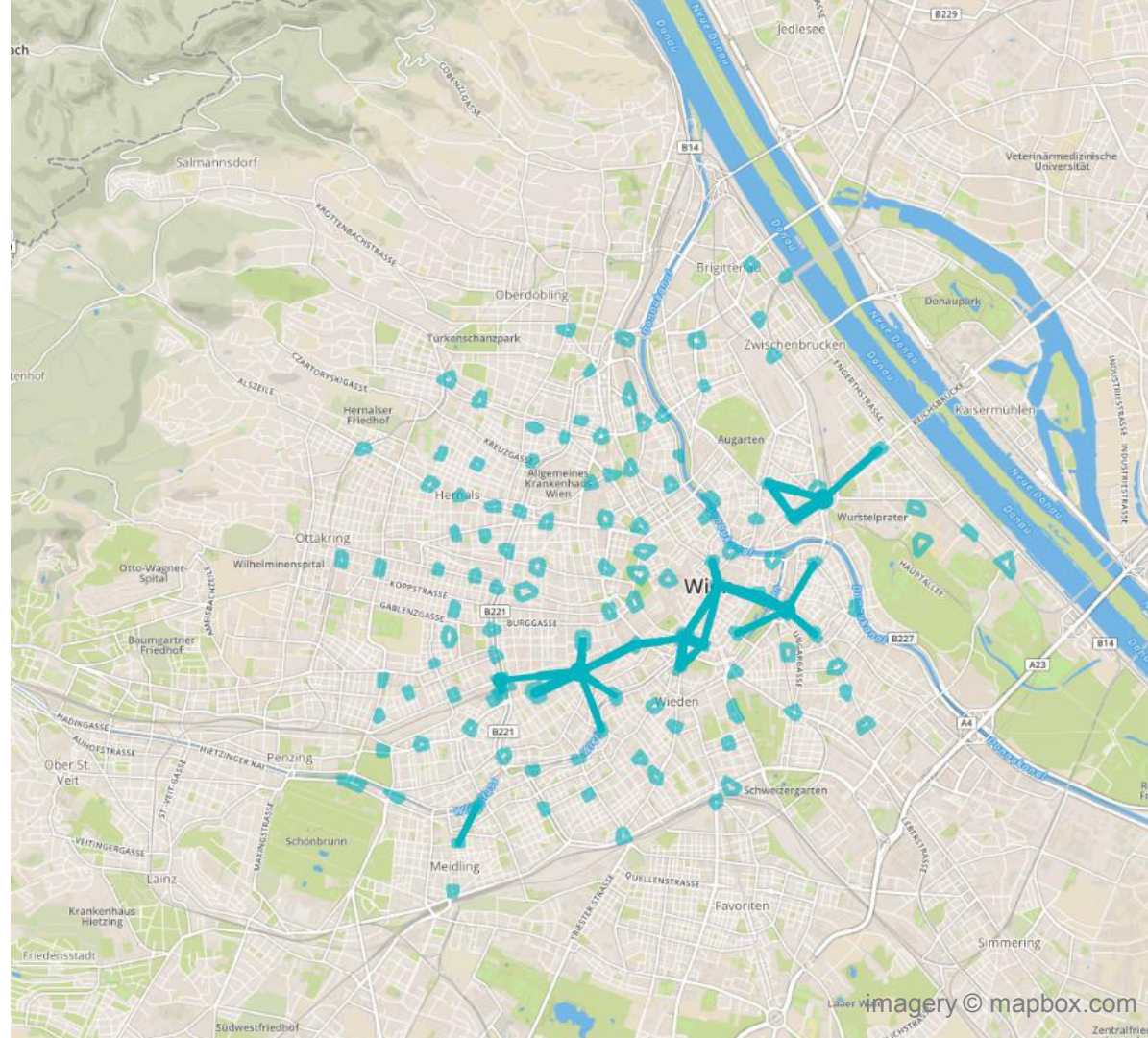


**demand model
(estimated with
historical trips)**



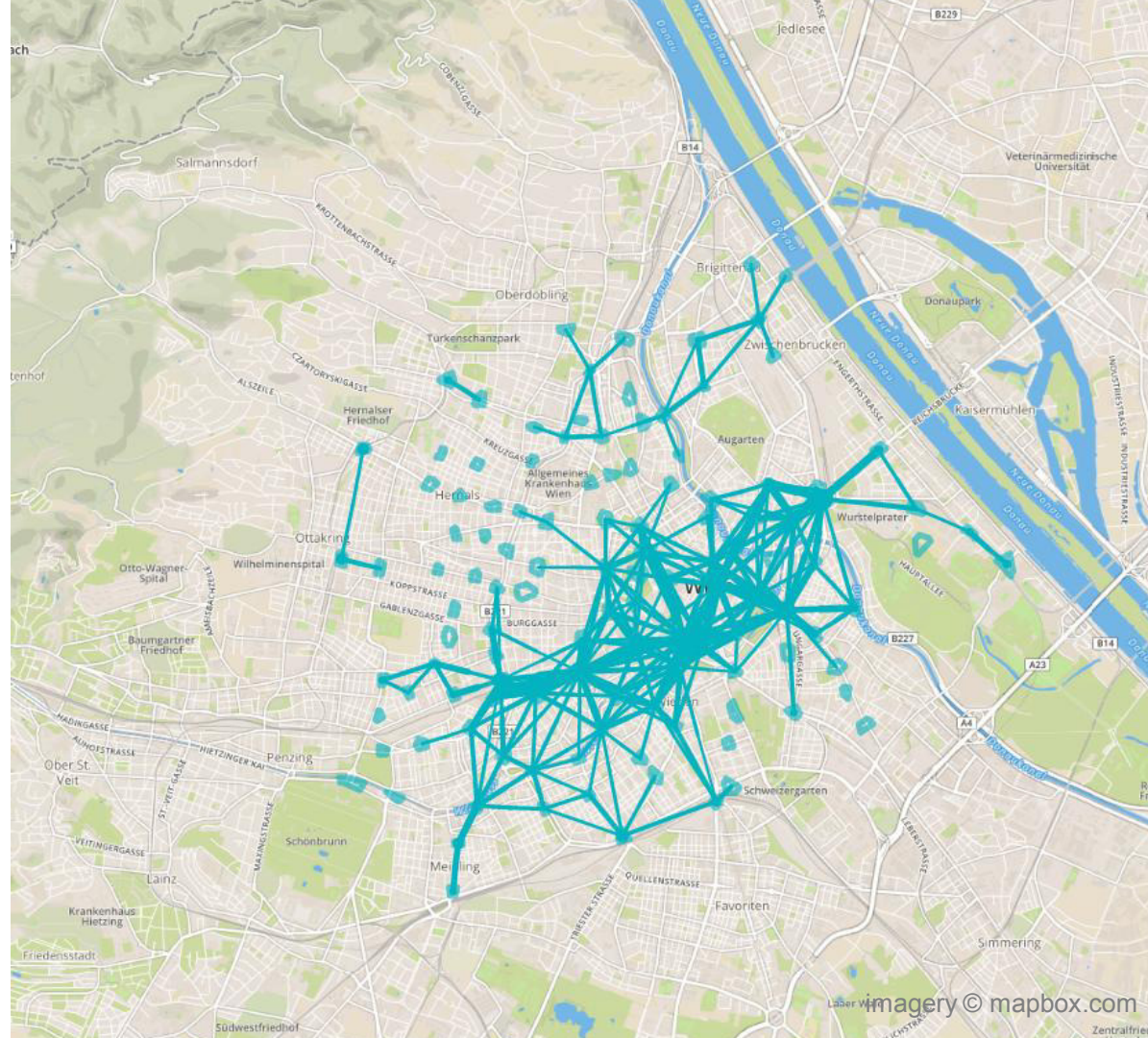
**estimate
demand
between
stations**

**30 most
important
connections**



estimate
demand
between
stations

300 most
important
connections





Static Cell Properties: pois_all - Static Solution: - Live Planning: - Help -

Cell #3754 (1.02 ha)

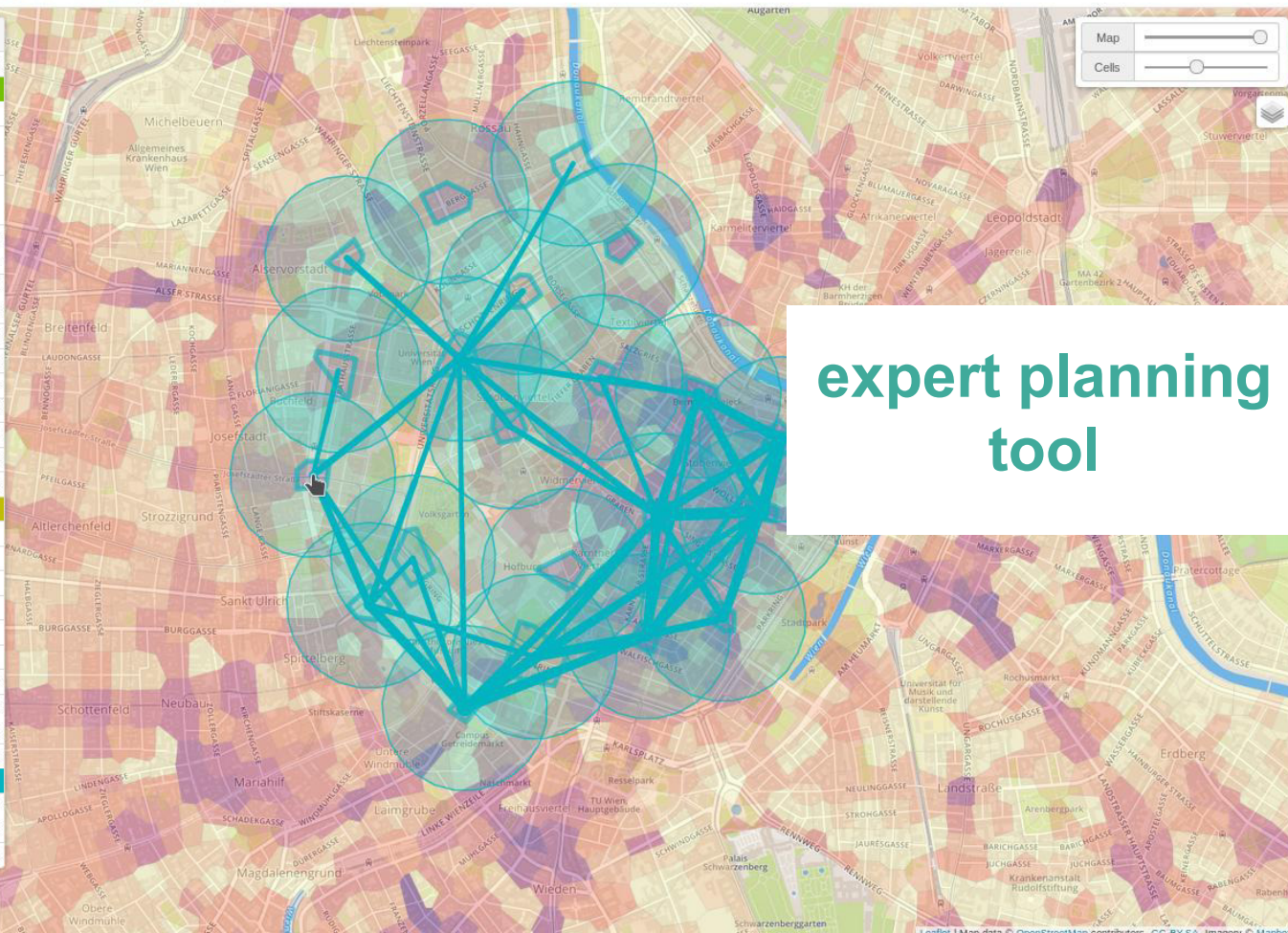
	abs.	per ha
Static Cell Properties		
train_stops	0	
metro_stops	1	
tram_stops	1	
bus_stops	0	
bss_stations	0	
population	75	73.28
jobs	225	219.83
pois_education_universities	0	0
pois_education_schools	0	0
pois_leisure	5	4.89
pois_shopping	1	0.98
pois_tourism	1	0.98
pois_all	7	6.84
demand_bikes_in	45.6	44.55
demand_bikes_out	42.81	41.83
demand_bikes_diff	2.79	2.72

Static Solution

configuration_id		
initial_fill_level		
bikes_to_be_delivered_to		
bikes_to_be_picked_up_from		
outgoing_flow		
ingoing_flow		
ingoing_demand	0.26	0.26
outgoing_demand	0.12	0.12
fulfilled_ingoing_demand	0.6	0.59
fulfilled_outgoing_demand	0.1	0.1

Live Planning

demand_bikes_in	32.55	31.8
demand_bikes_out	32.54	31.79
demand_bikes_diff	0.01	0.01



Map

Cells

expert planning tool

Load Scenario From

Server Local Directory

Live Planning

(Re)Calculate Flows

Stations

Clear Load Export

Load From Static Cell Properties

Load From Static Solution

Note: Flows are (re)calculated automatically after loading stations

Maximum Flows Shown

50

Note: Flows within a cell are represented as dots in the center of the cell

Performance Indicators

Static Cell Properties		
cells	7140	
stations	122	
coverage_area_km2	27.23	
density_km2	4.48	
density_2km_radius	31.89	
density_nearest_station_m	391	
population	1159220	
population_covered_percent	40.3	

SCIENTIFIC RESEARCH

enabling safe, comfortable cycling & green, efficient logistics...

one equation at a time



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