MIGROS

{Propulsion}

Optimal location
Migros Supermarket

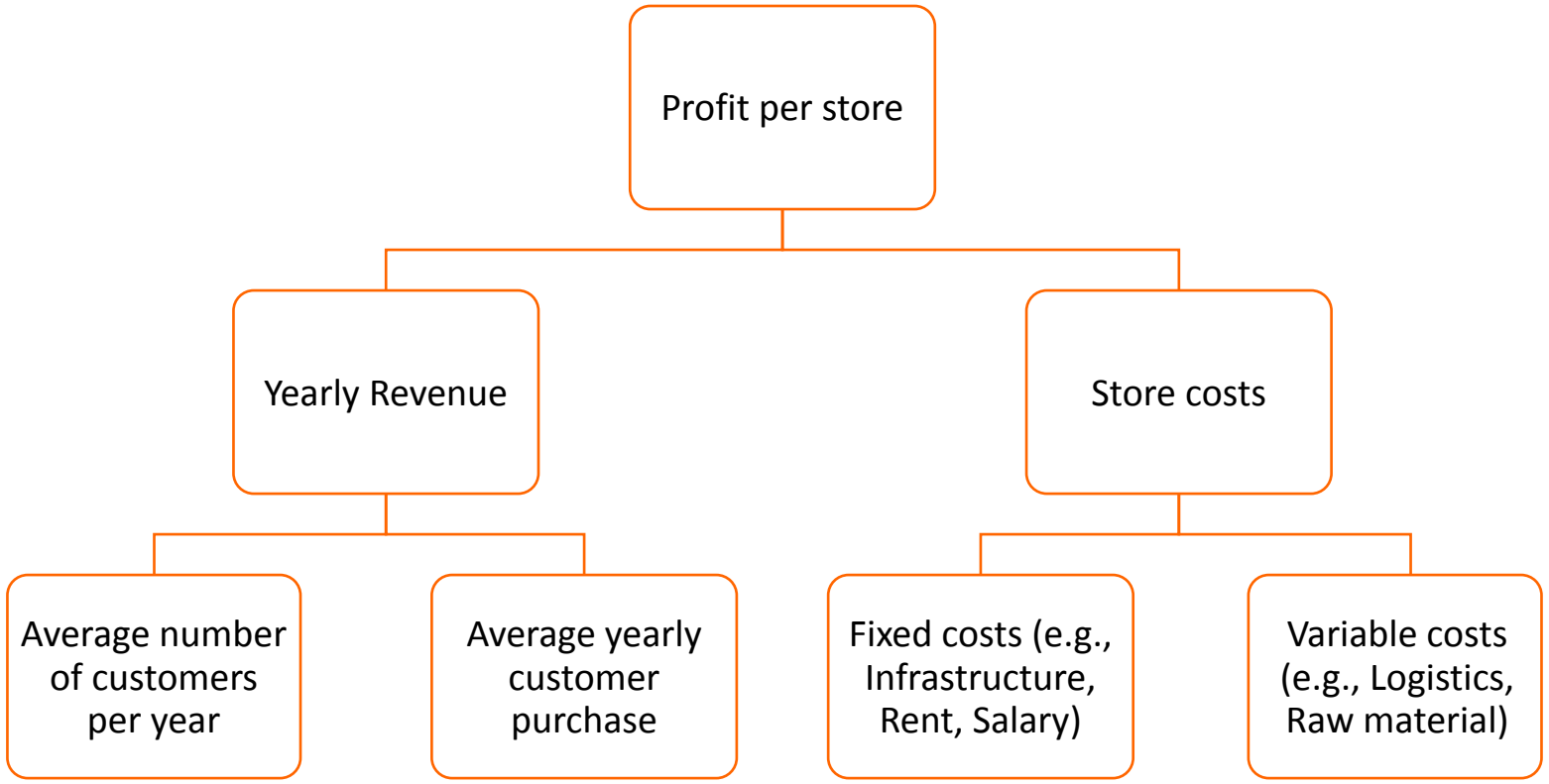
Group Data Challenge

Eduardo Moreno
Juan Aguirre
Lingxuan Zhang
Pedro Pereira

Structure

- Objective
- Data Gathering
- Data Understanding and Preparation
- Visualization
- Assumptions and Modelling
- Evaluation

Objectives



Find the most profitable location for a new Migros supermarket in Zürich

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Objectives

Find available data correlated to existing Migros store locations

Check for number and type of existing stores in the different locations

Identify most attractive location

Compile models and make evaluations

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Data Gathering

UrbanDataLab

- Density of households and people
- Public transportation data
  - Distance to next stop
  - Distance to railway station
- Building data
  - Footprint
  - Corner location

Google Places API

- Supermarket data
  - Location
  - Name
  - Occupancy rate
  - Type of supermarket

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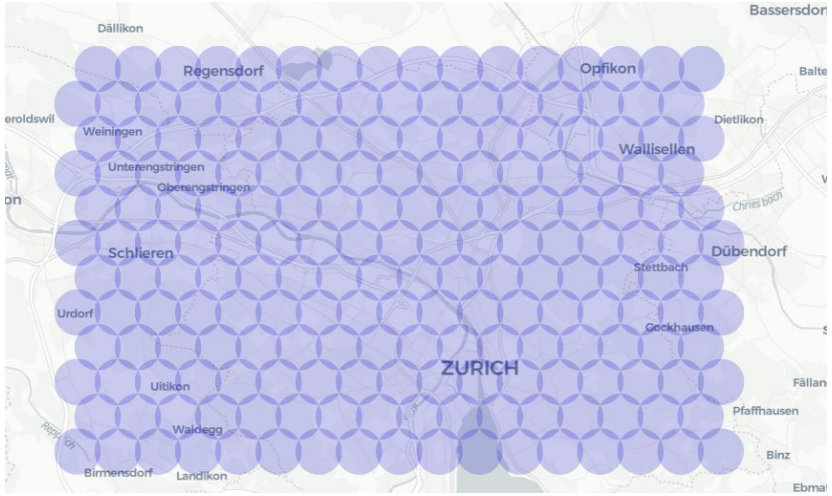
Data Gathering

Challenge API

Limited 60 search points
-> solution creation of evenly spaced coordinates



Challenge Occupancy rate

Not possible with Google API
-> solution Selenium scraping

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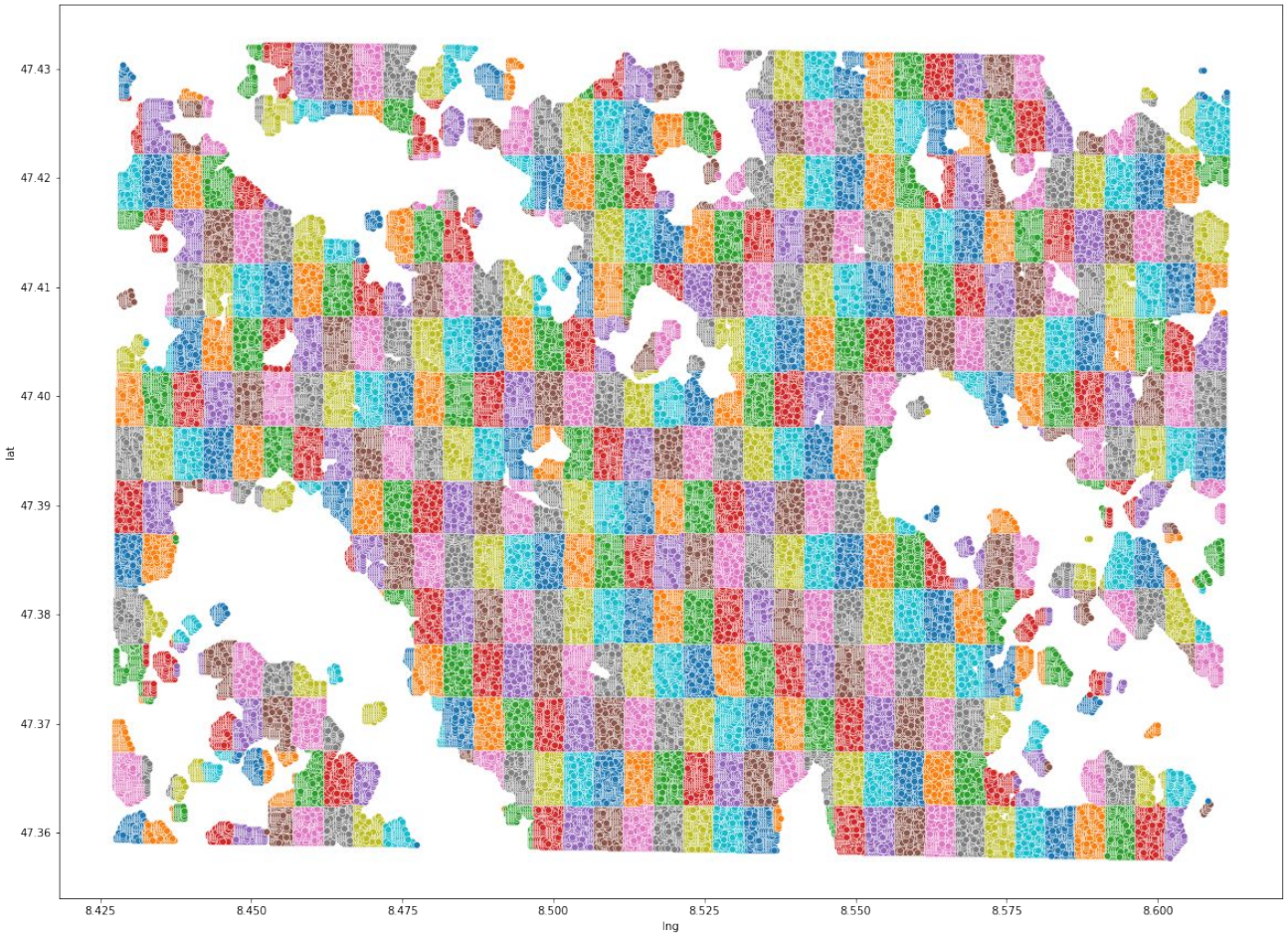
Data Gathering



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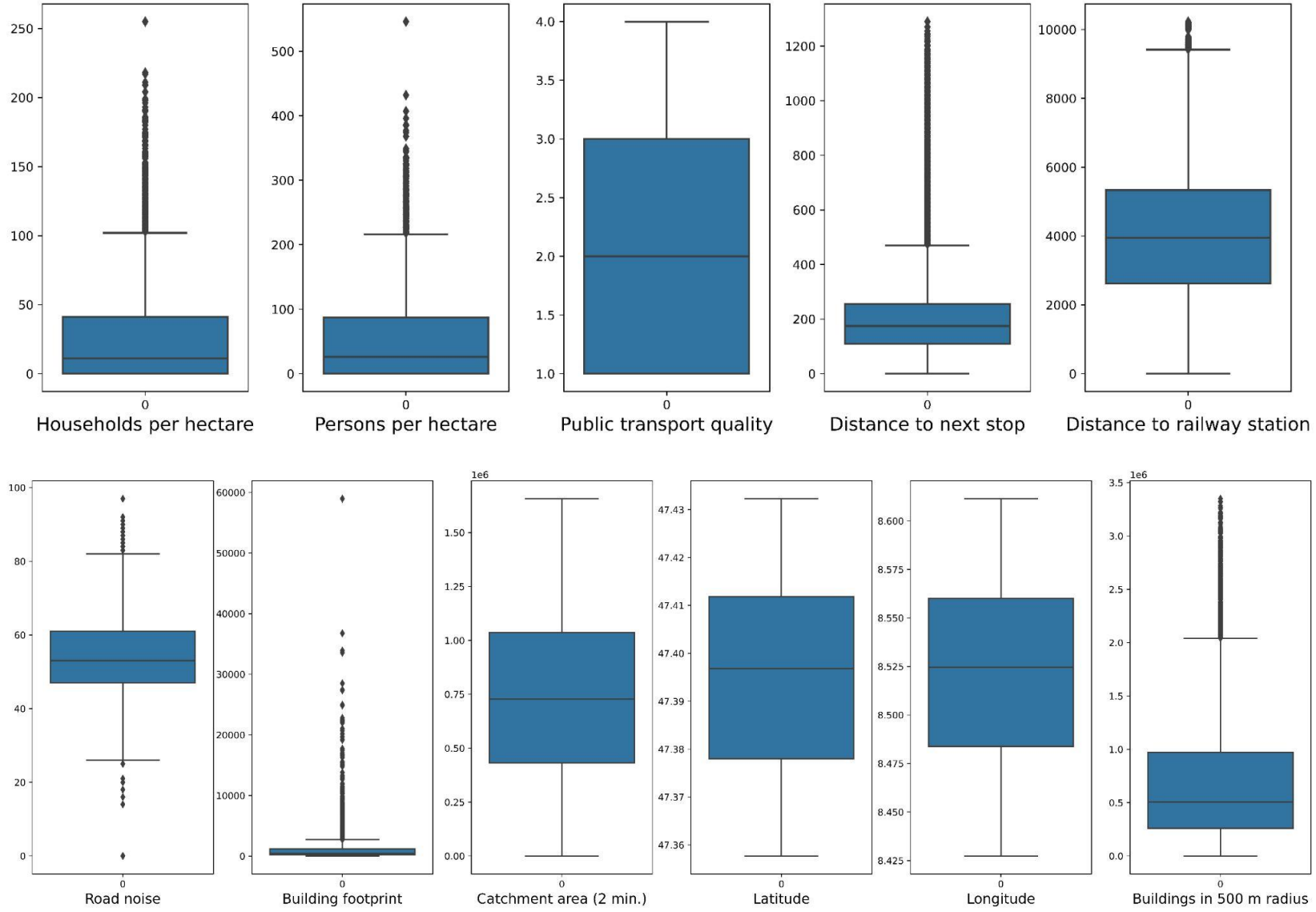

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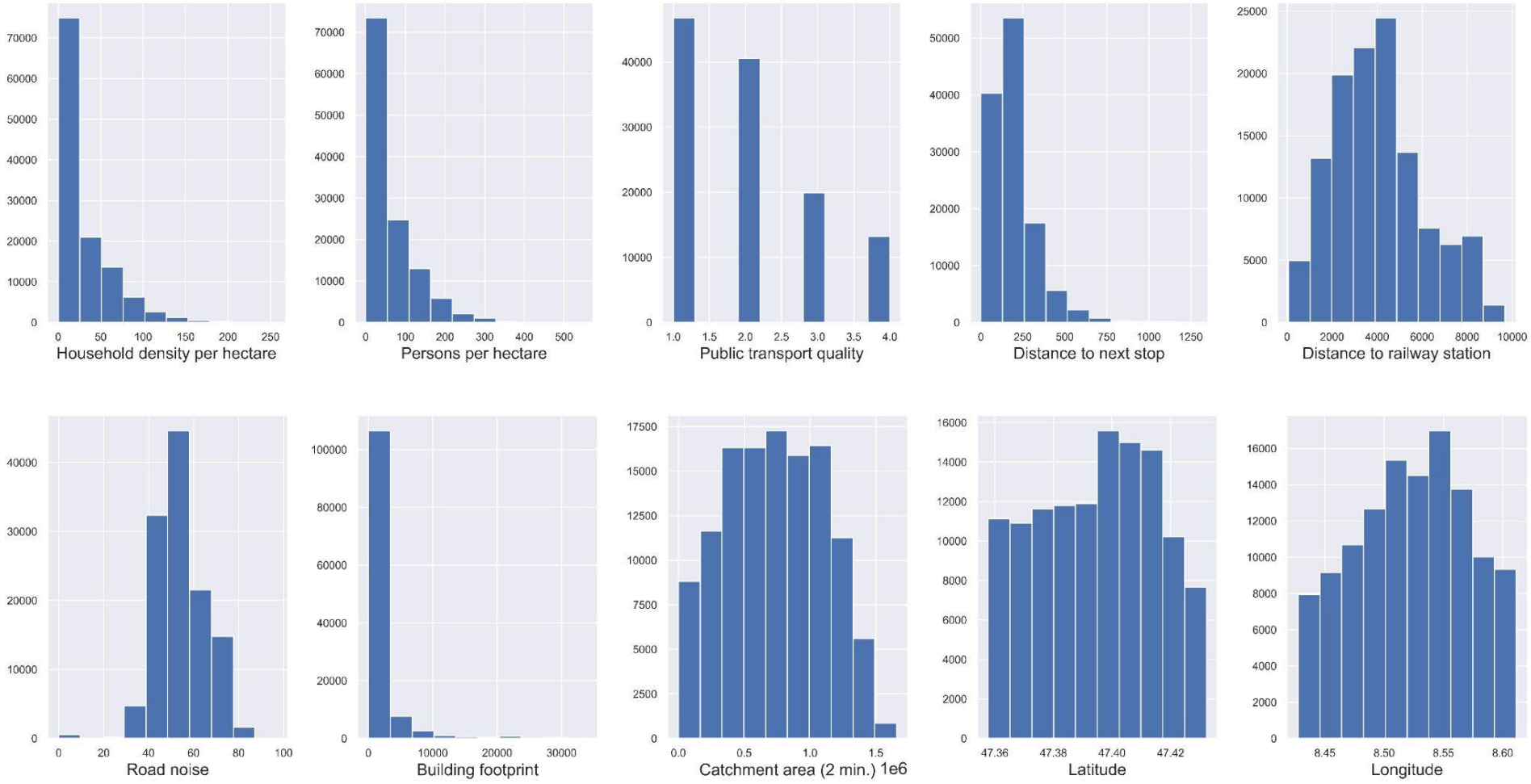
Data Understanding and Preparation



Mixture of asymmetrical and “normal” distributions

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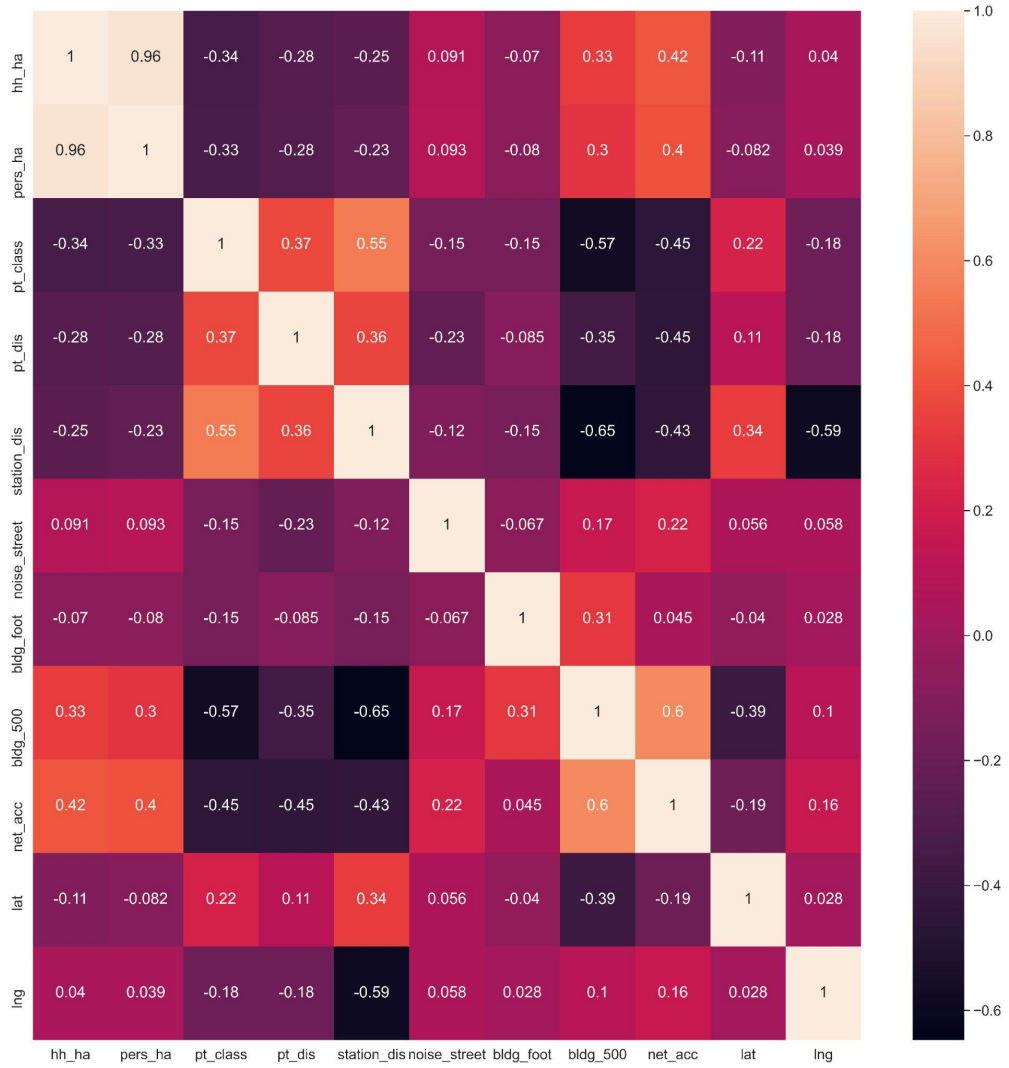
Data Understanding and Preparation



Pairs		r-value
station_dis	pt_class	0.546174
net_acc	bldg_500	0.599545
pers_ha	hh_ha	0.961563
bldg_500	station_dis	-0.647647
lng	station_dis	-0.589818
bldg_500	pt_class	-0.571832

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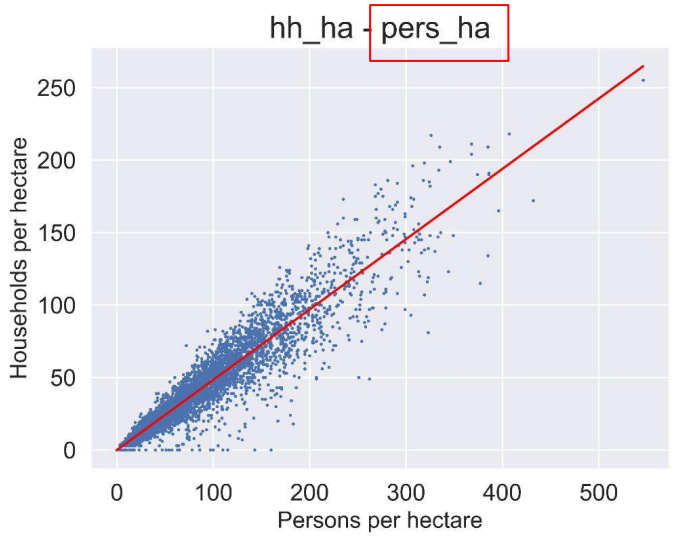

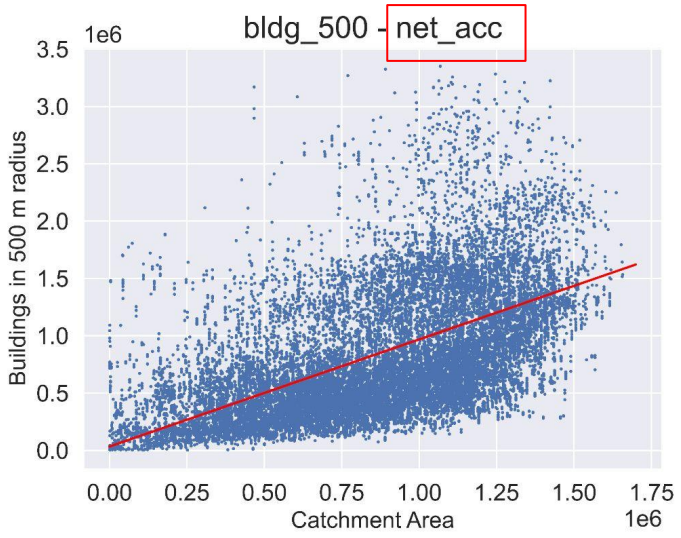

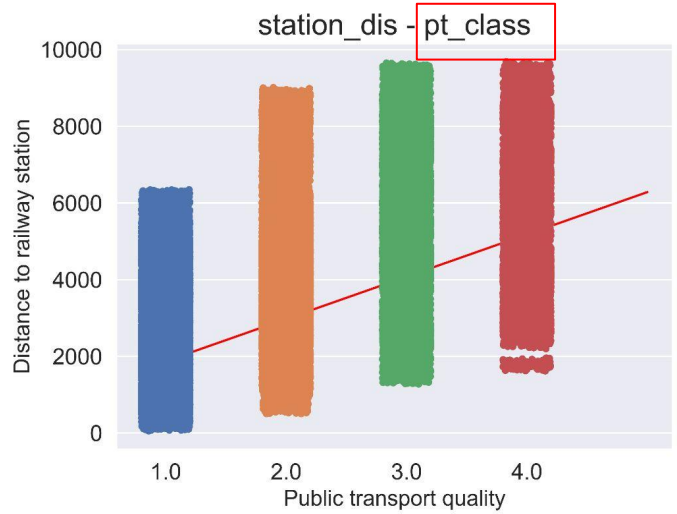

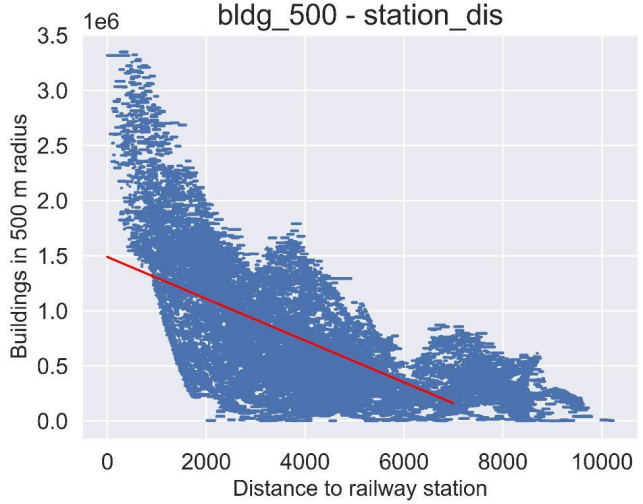

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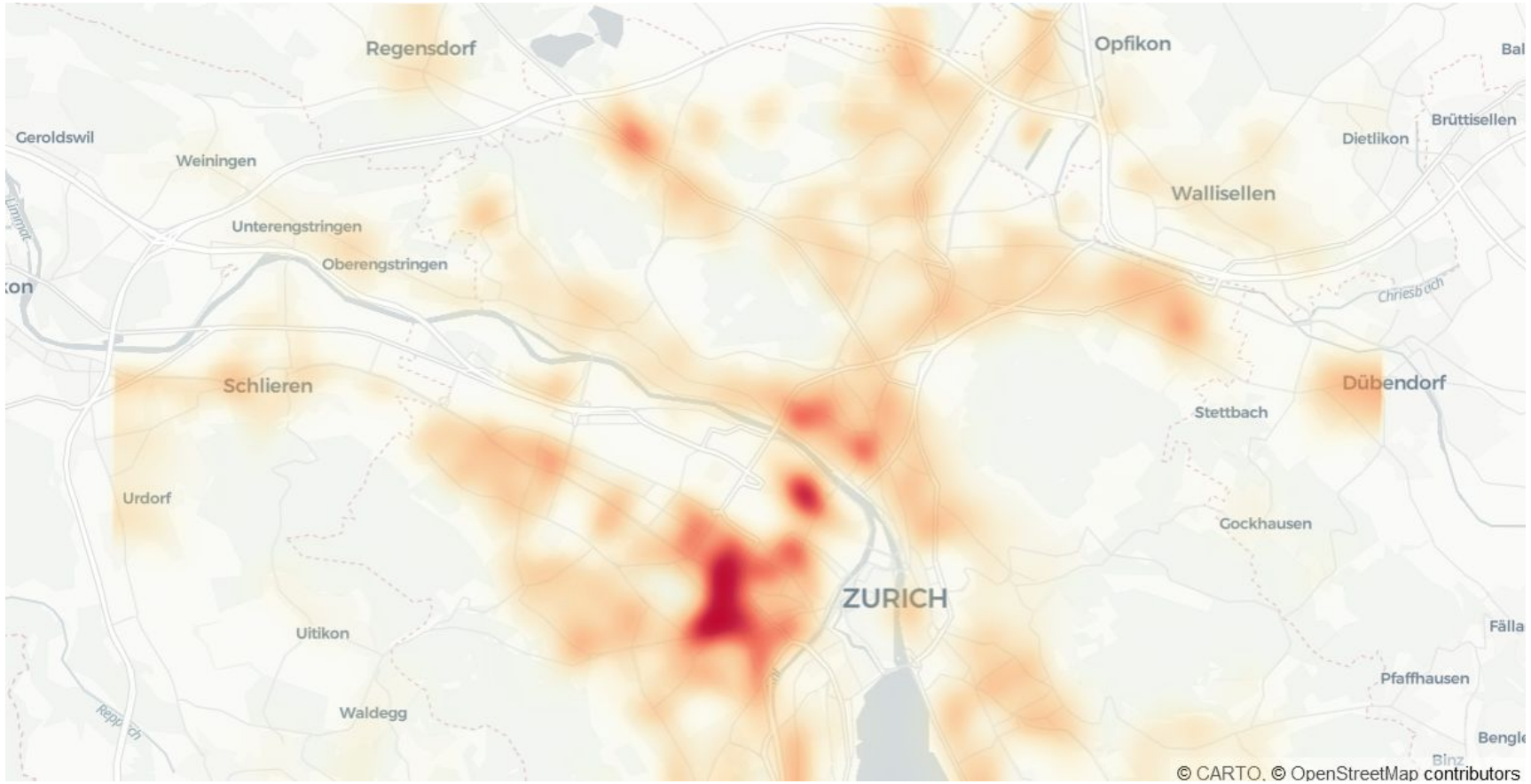
Visualization

Population density



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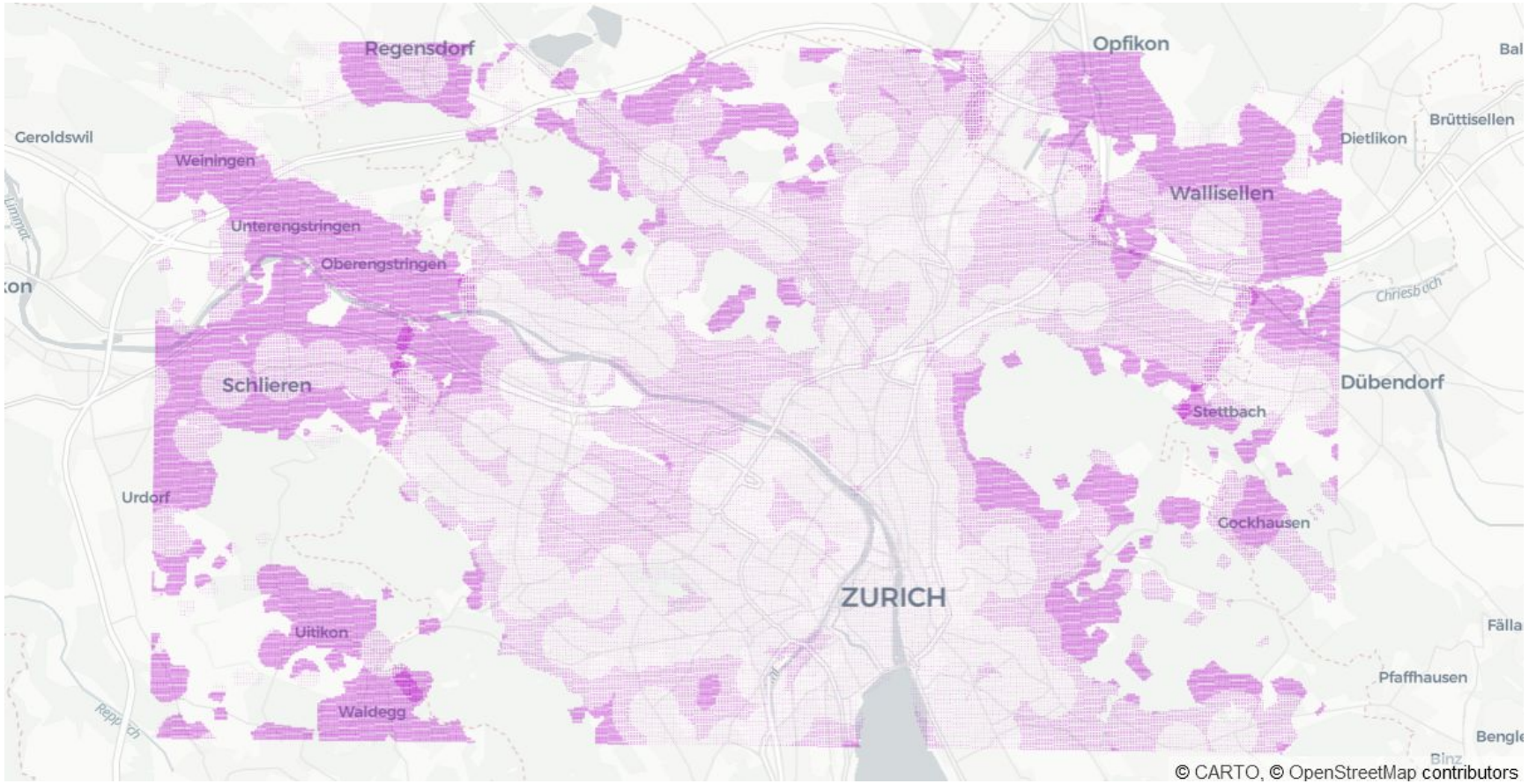
Visualization

Transportation quality



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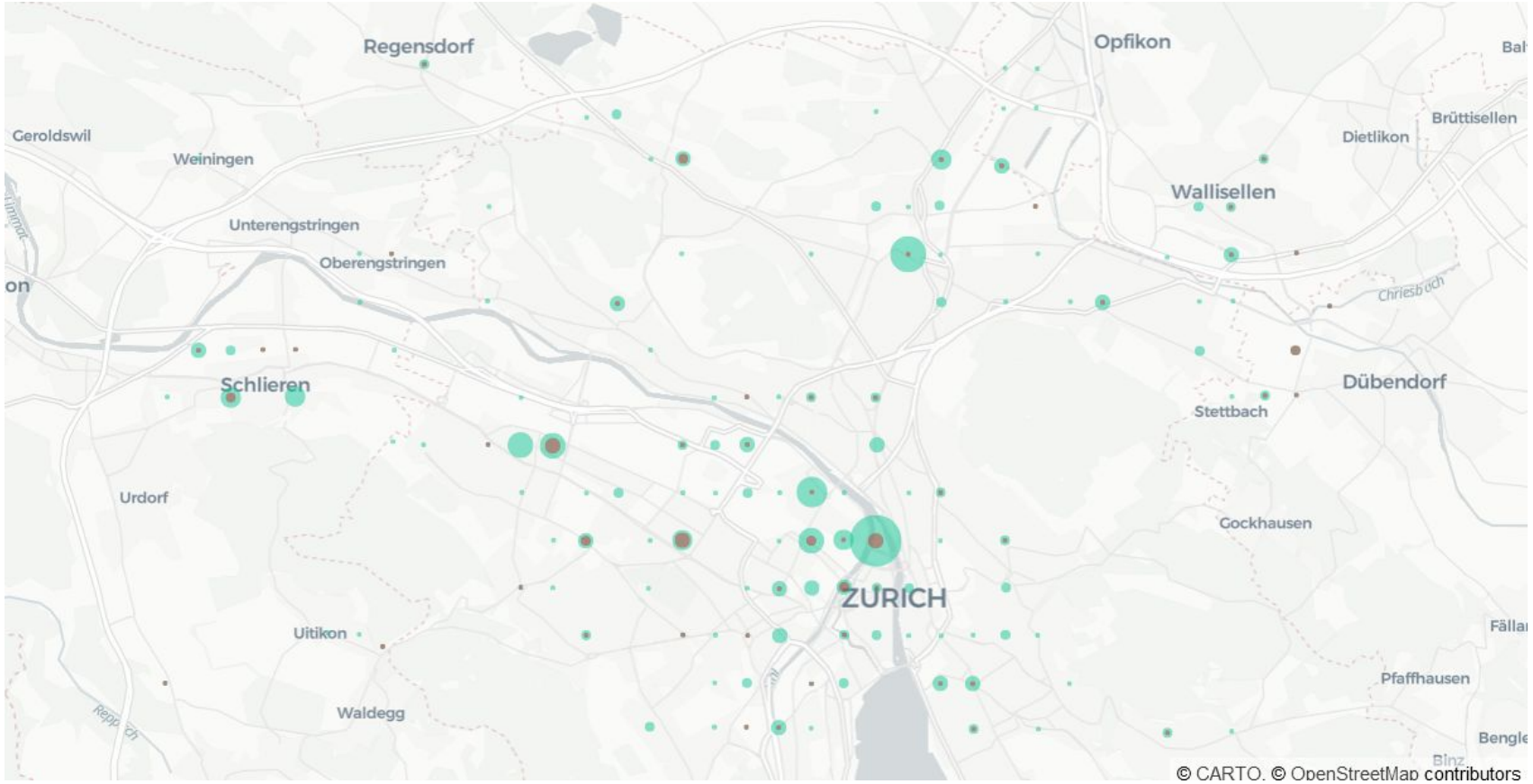
Visualization

Supermarkets in each area



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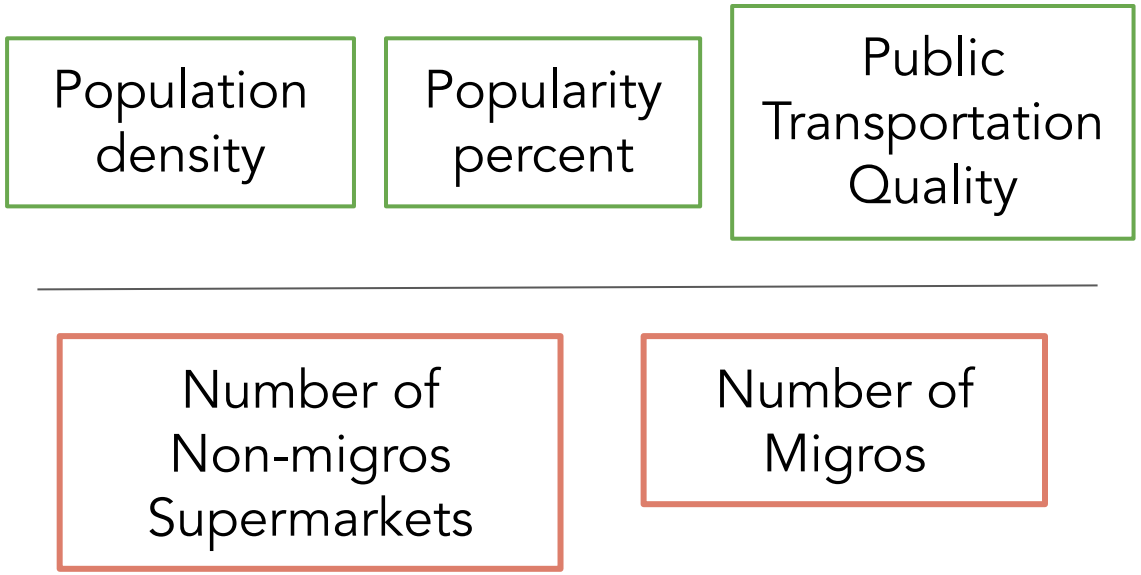
Assumptions and Modelling

Assumptions:

- Only profit is considered as the decision-making factor
- Existing supermarkets are profitable
- Supermarket locations play a significant role in profitability
- All supermarket chains are competitors



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Assumptions and Modelling

- **Factor-multiplier model**

Profit = (Pop*Ocu*PTclass*Nnm)/Ns

Pop: population density
Ocu: Ocupuy rate
PTclass: Public transportation quality
Nnm: Number of non-migros supermarket
Ns: Number of all supermarket

- **Correlation-adjusted model**

Profit = (w1*coef1*Pop + w2* coef2*PTclass + w2*coef3*Ocu) / Ns

w = weighted
coef1 = coef(Number of Supermarket, Population density)
coef2 = coef(Number of Supermarket, PTclas)
coef3 = coef(Number of Supermarket, Ocu)

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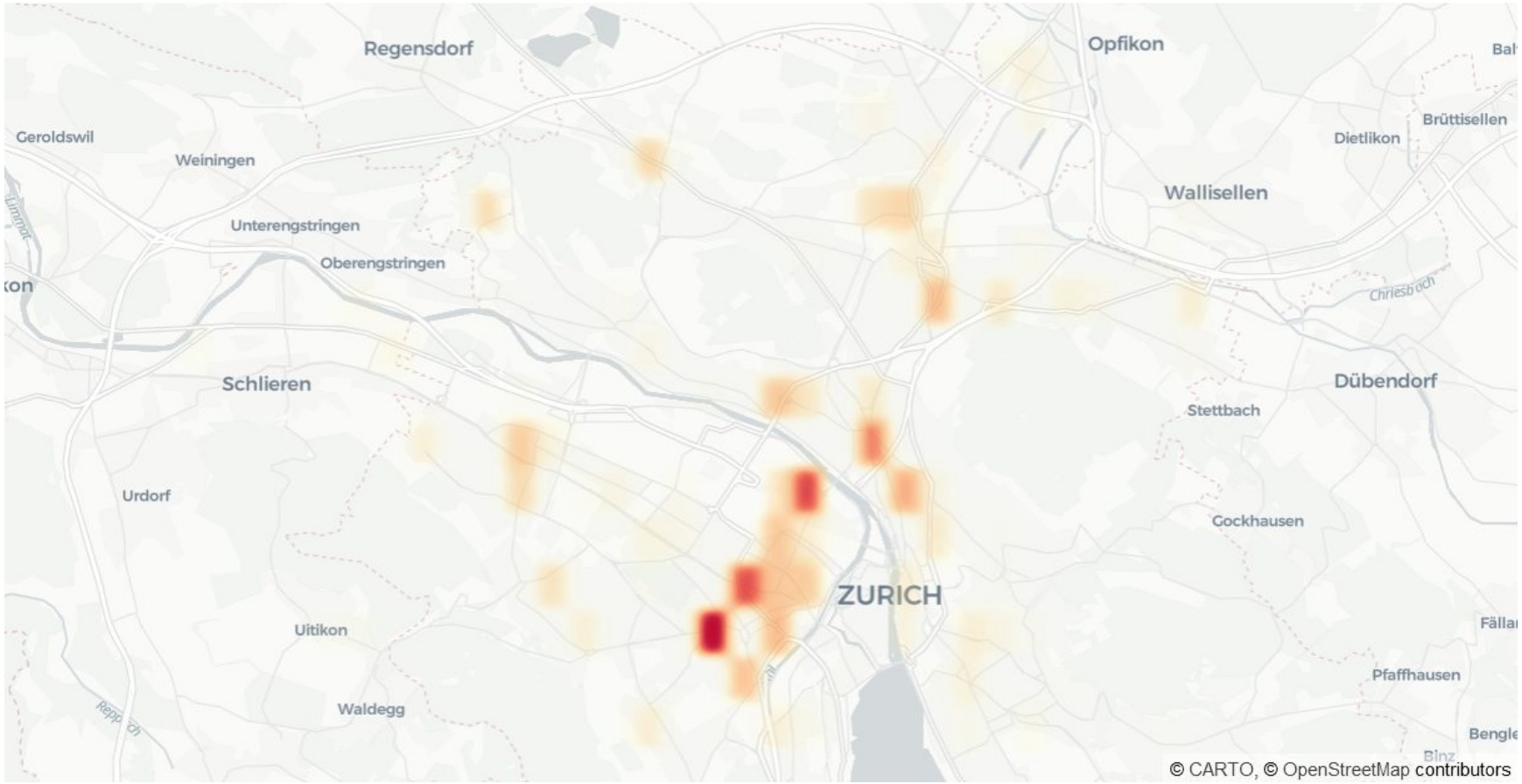
Evaluation

Factor-multiplier model



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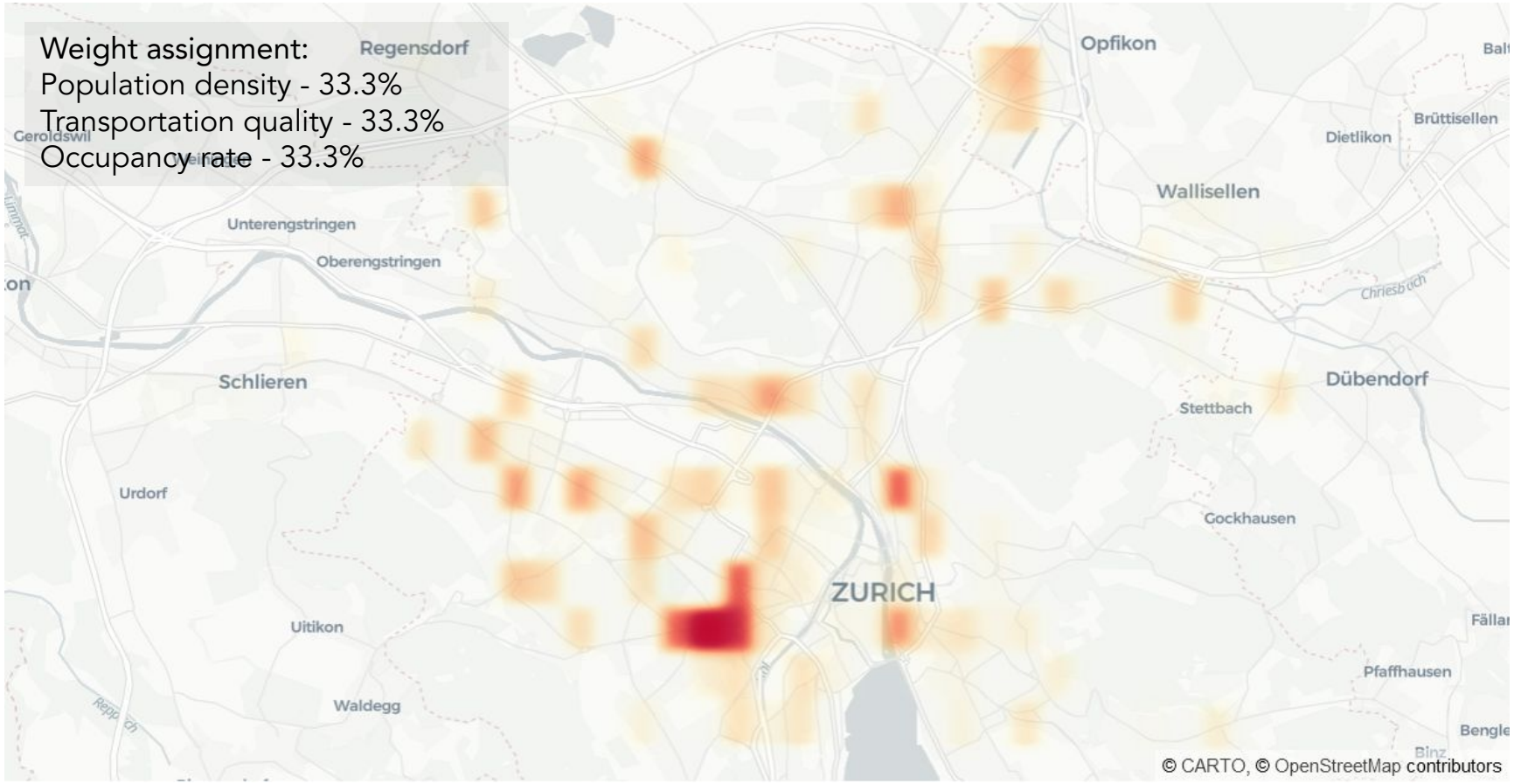
Coefficient-adjusted relational model



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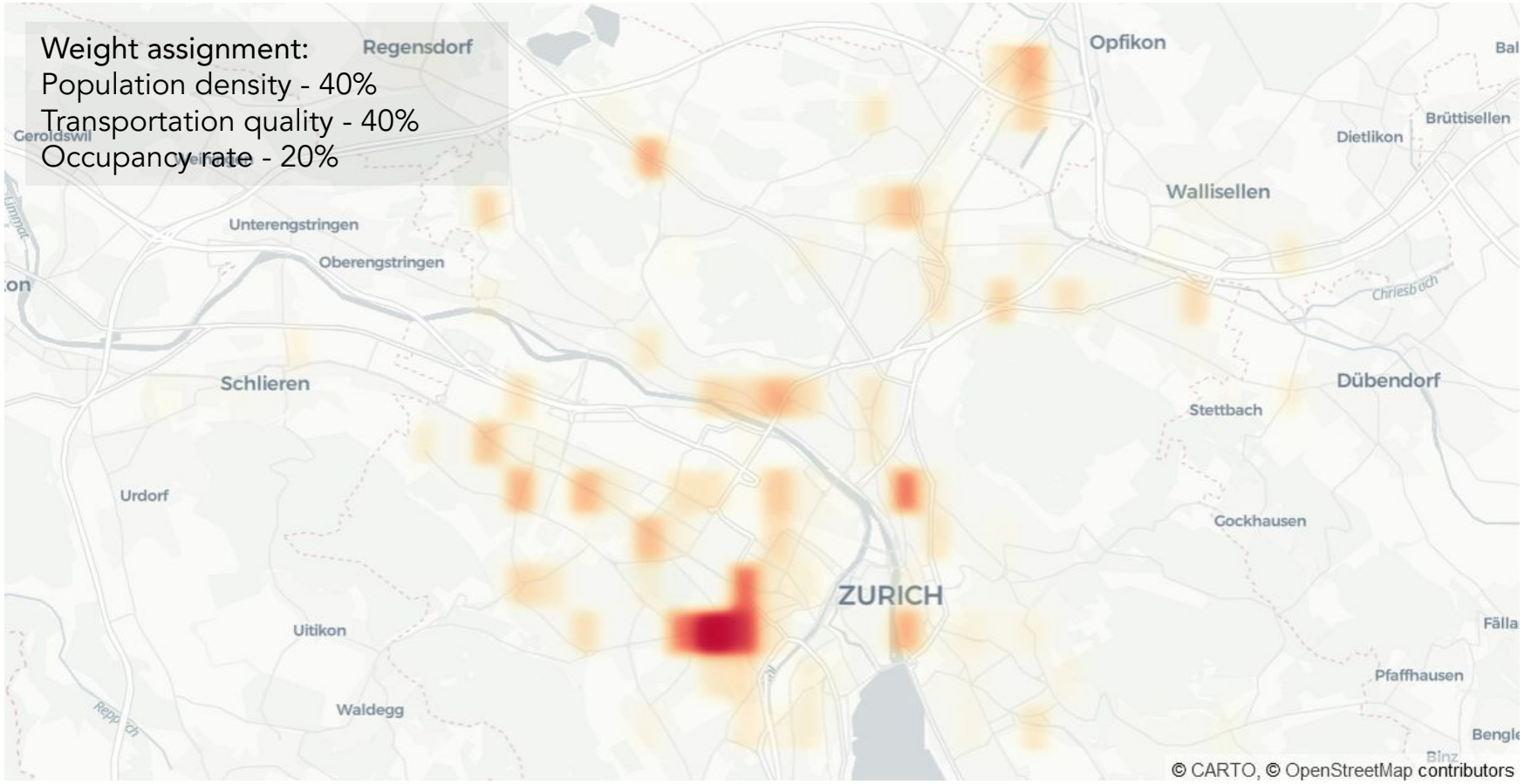

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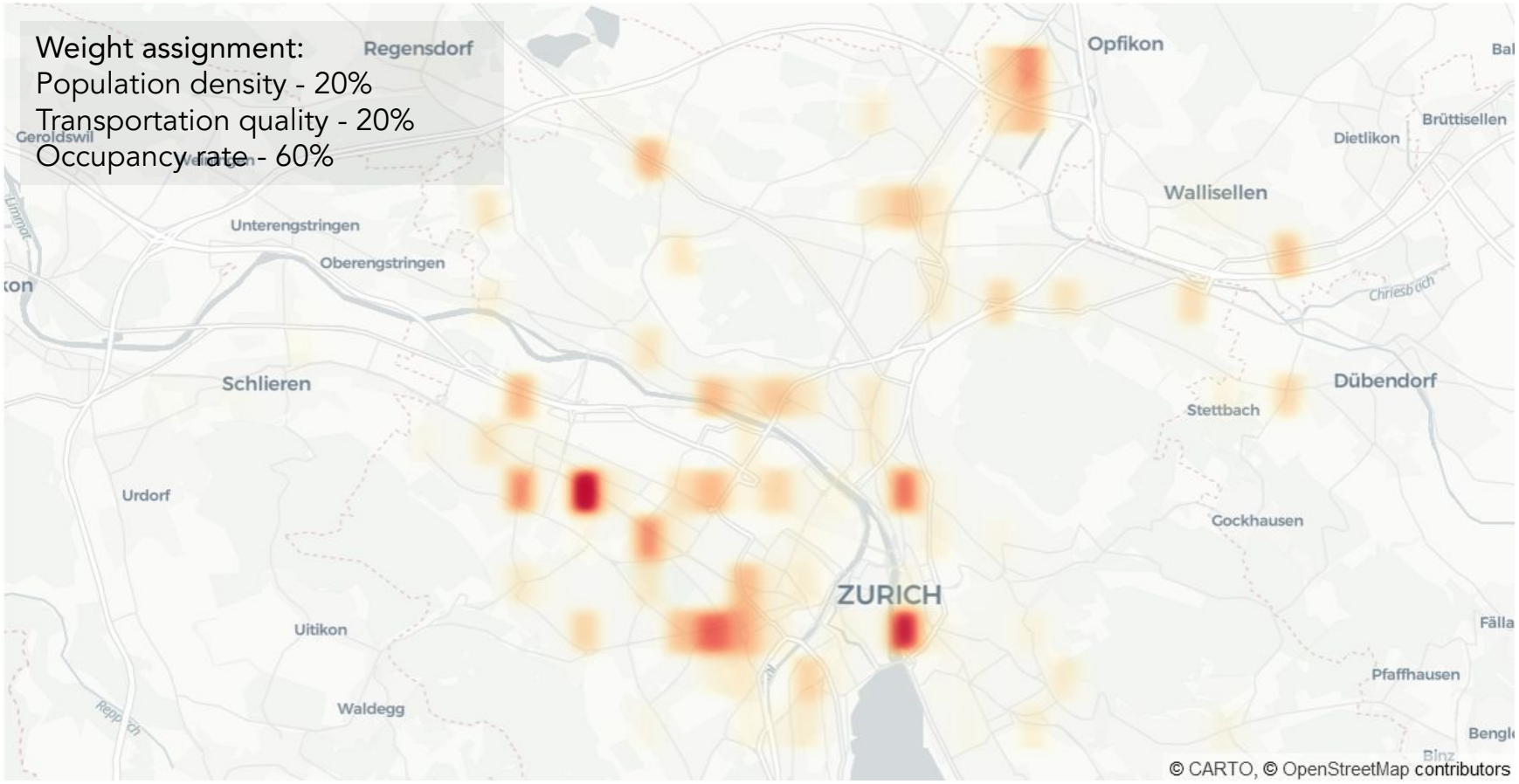

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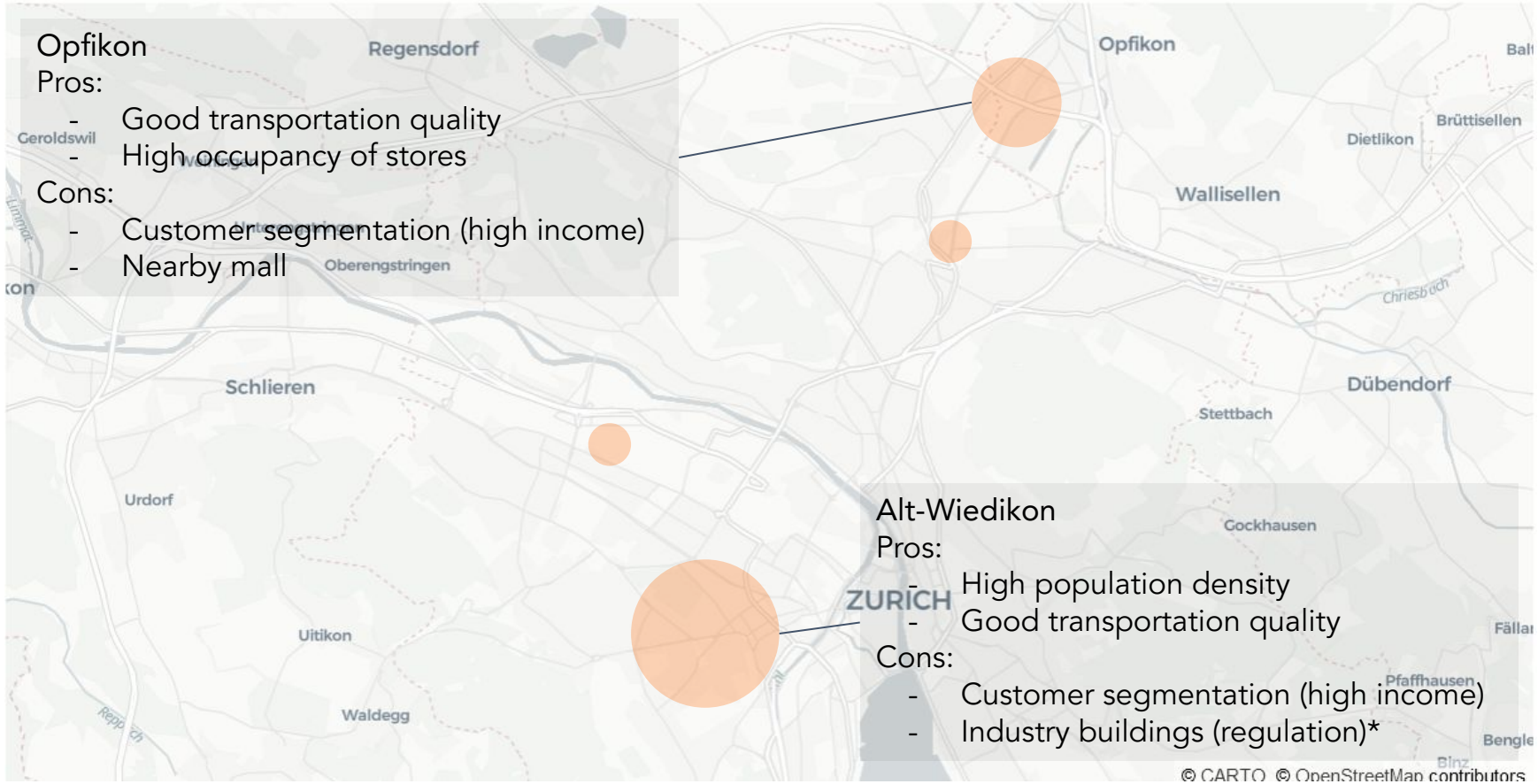
Evaluation

Conclusions



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Future work

Additional consultancy with our partner UDL

Segment and tailor to customers preferences

- Migrolino with sports supplements and other offers near gyms
- Migros supermarket with easy transportation access and cheaper rent

Include data based of governmental goals

- Emerging residential/ industrial areas with growing population

MIGROS

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Thank you for the attention

Questions?