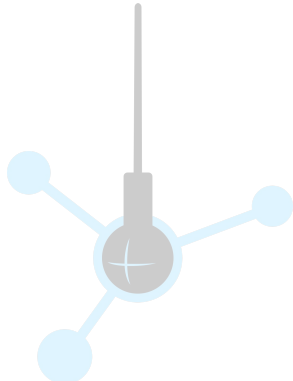# Datathon 2021- Final Presentation

Bezirksamt Friedrichshain Kreuzberg

Points of Interest (POI)

Problem Description

There are various venues where people stop by to do something. They are called Points of Interest (POI). Some example of types of POI:
- Churches, schools, town halls, distinctive buildings
- Post offices, shops, postboxes, telephone boxes
- Pubs (pub names are useful when navigating by map)
- Car parks and lay-bys (and whether free or not)
- Speed cameras
- Tourist attractions

We have **98** POI types in consideration. Different POIs have varying parking needs

Solution

The first obvious approach is to analyse the parking needs for all the Points of Interest.
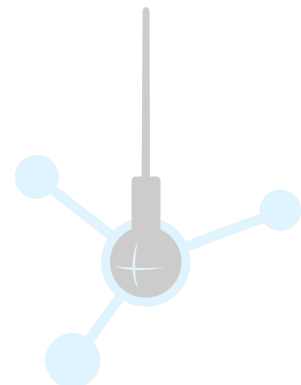
This means:
- Considering a radius around a POI (e.g. 40m)
- Numbers of Cars tagged within the radius
- Number of Parking spots available within the radius
- Ratio of cars present (tagged) and parking spot, named Parking Consumption

GitHub Repo:
https://github.com/HasanShaukat/dssg_2021_point_of_interest.git
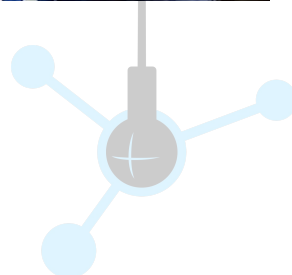
The Data

Resulting Dataset

	amenity	geometry	name	PLR_ID	BZR_NAME	No. parking spots	No. cars tagged	parking_consumption
3394	atm	POINT (393954.883 5818974.363)	Euronet	02400625	Karl-Marx-Allee Süd	2158.0	1351.0	0.626043
5570	atm	POINT (392361.315 5818142.105)	Euronet	02100104	Südliche Friedrichstadt	2158.0	1351.0	0.626043
2824	atm	POINT (395518.810 5818765.496)	Euronet	02500833	Frankfurter Allee Süd FK	2158.0	1351.0	0.626043
2817	atm	POINT (395893.050 5818709.750)	Euronet	02500833	Frankfurter Allee Süd FK	2158.0	1351.0	0.626043
2815	atm	POINT (395388.168 5819162.879)	Euronet	02500833	Frankfurter Allee Süd FK	2158.0	1351.0	0.626043

|	amenity	geometry	name	PLR_ID	BZR_NAME	No. parking spots	No. cars tagged	parking_consumption
2452	restaurant	POINT (396130.482 5818392.636)	Haroun	02500834	Frankfurter Allee Süd FK	123.0	79.0	0.642276
2402	restaurant	POINT (394945.633 5818725.476)	Haroun	02500834	Frankfurter Allee Süd FK	123.0	79.0	0.642276
2625	restaurant	POINT (395357.298 5818961.311)	Papaya	02500833	Frankfurter Allee Süd FK	92.0	72.0	0.782609
2703	restaurant	POINT (395288.575 5818956.693)	Papaya	02500833	Frankfurter Allee Süd FK	92.0	72.0	0.782609
2807	restaurant	POINT (395338.709 5819157.081)	Hako Ramen	02500833	Frankfurter Allee Süd FK	95.0	72.0	0.757895

Insights
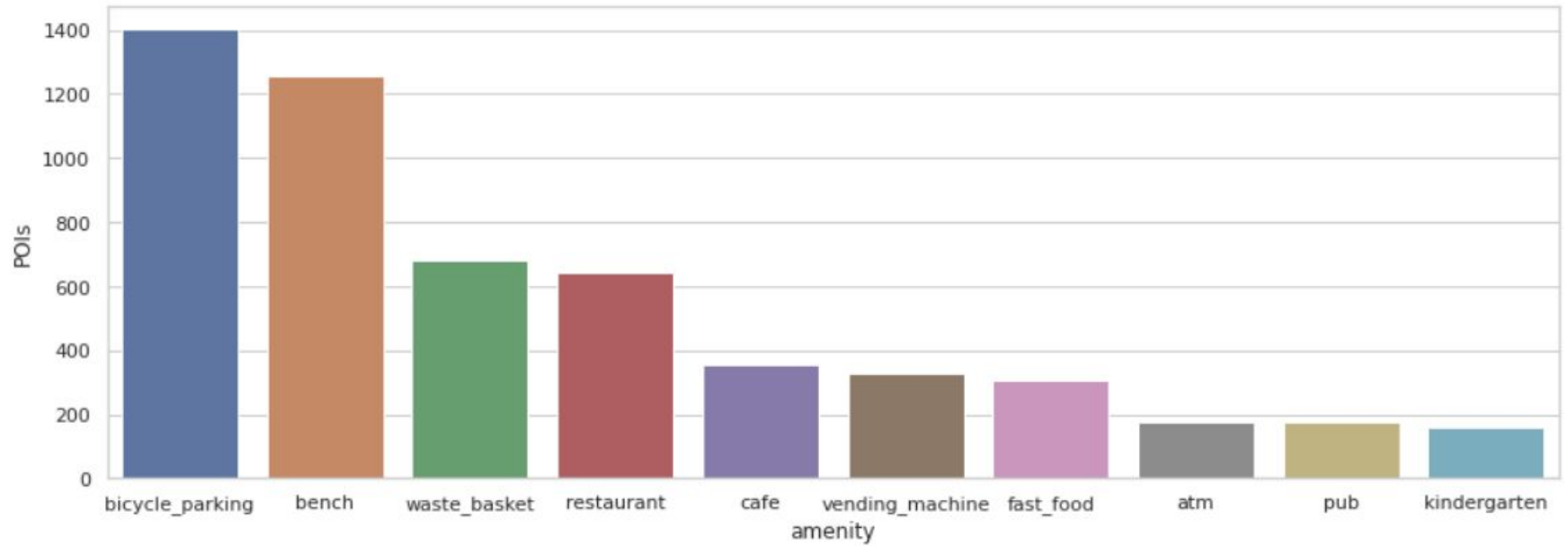
Number of POIs per amenity
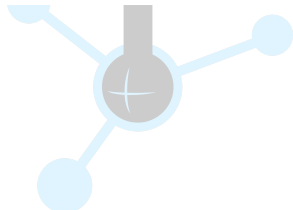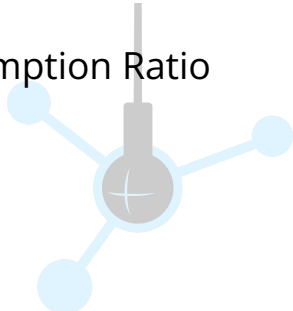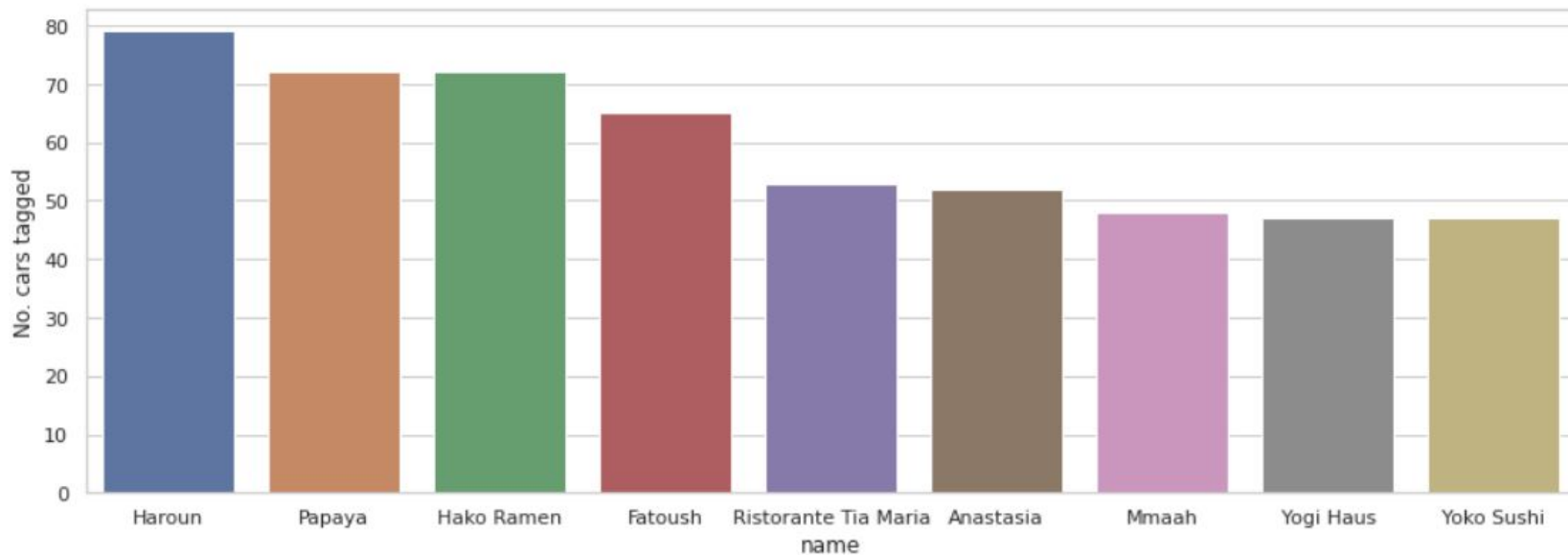
Insights
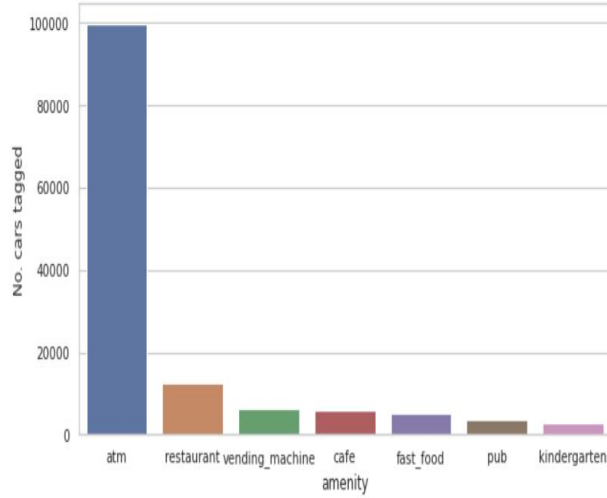
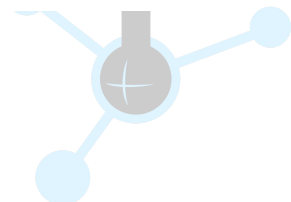Tagged Cars
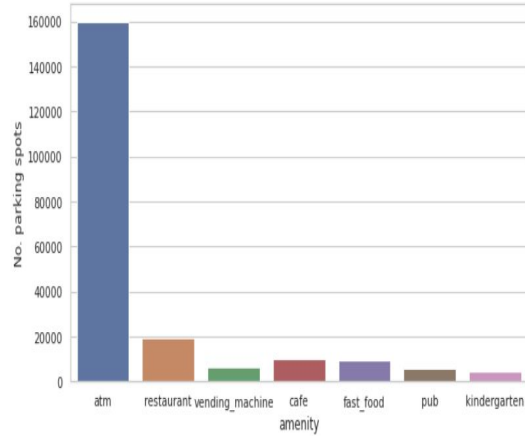
Parking Spots
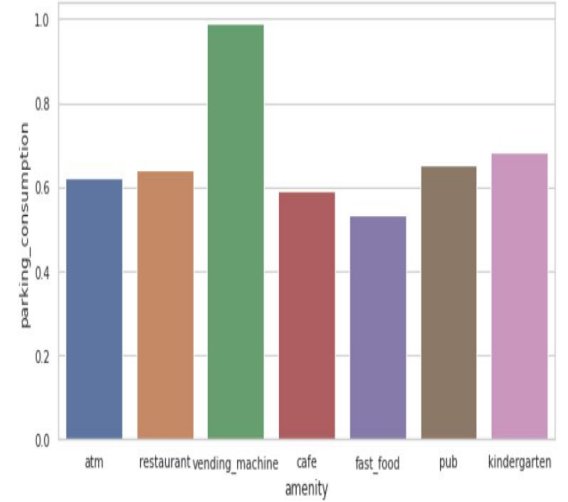
Parking Consumption Ratio

Insights

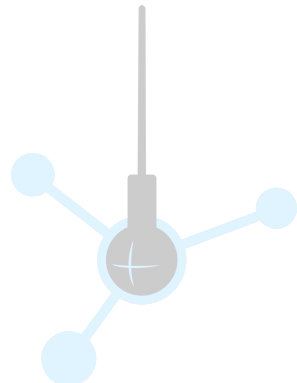Individual POIs of an amenity (e.g. Restaurants)

Key Benefits

Impact:
- Manage parking needs of existing POIs
- Estimate parking expectations of new POIs

How sustainable is the impact?
- Depends largely on traffic trends, e.g. might change in a lockdown

Resources Needed

- Data:
  - estimated_parking_spots_kfz.geojson
  - counted_cars_from_cartagger_project.geojson
  - Points of Interest from OpenStreetMaps

- Technology:
  - Jupyter Notebook in Python
  - Can create a dashboard afterwards in any platform

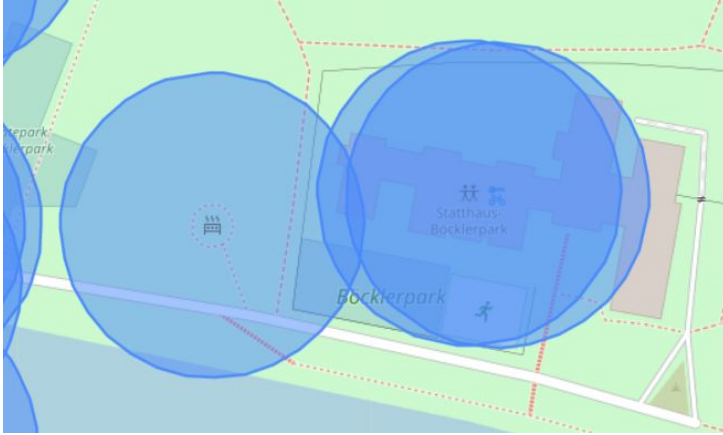- Expertise:
  - Geopandas
  - OpenStreetMap
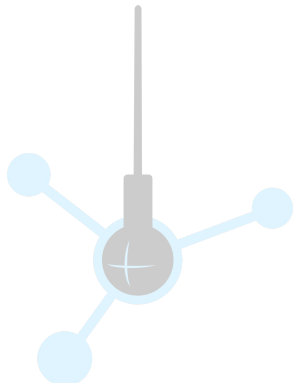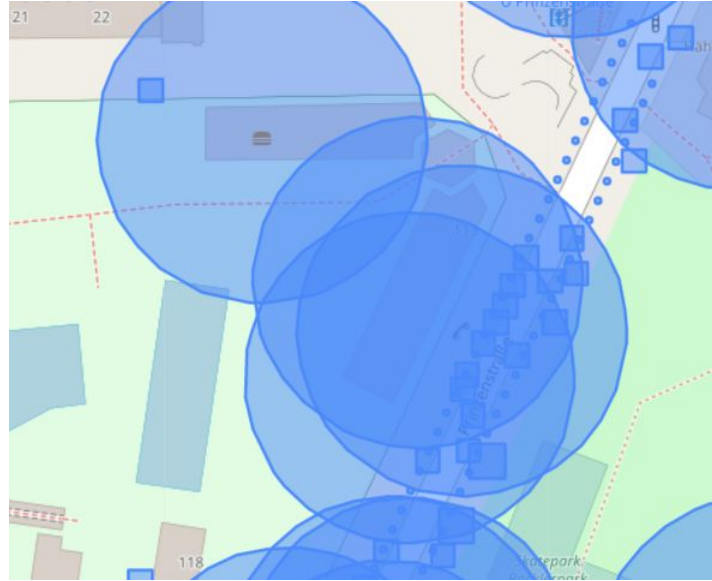
Limitations, Risks & Lessons Learned

- Data: availability, reliability, privacy or other ethical issues, technical limitations?
  - Accuracy of Parking Spot data
  - Cars were tagged in 2006, while Parking spots were obtained in 2020/2021
  - Tagged cars are overall less in quantity than estimated parking spots
    - Could be because of limited efforts to tag cars
    - Or in 2006 cars might be less
  - Overlap of adjacent POIs causing one POI to affect another one's surrounding
  - POIs pointing to a building's center, could be far from the relevant street and have nothing in a 40m radius
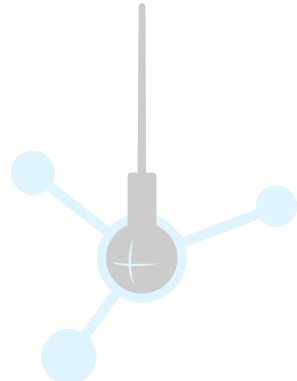 - Duplicate values of POIs (with different coordinates)
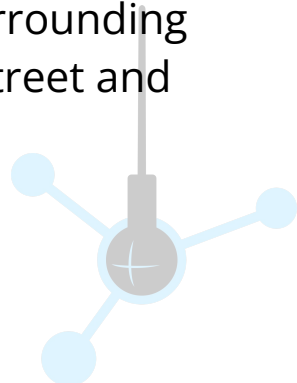
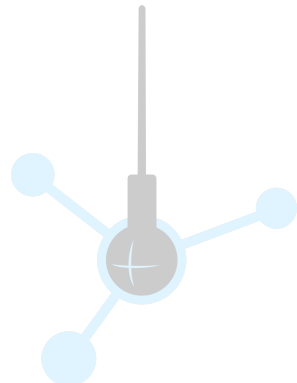# Complications

POIs away from the street

Overlapping POI vicinities

Limitations, Risks & Lessons Learned

- Technology:
  - Completely open source
  - Just need memory and CPU power to present data points
- Expertise:
  - Projecting POI points onto streets
- Lessons learned:
  - Data consistent in time and in metrics would prove helpful

Thank You

Hasan Shaukat
Michel F.