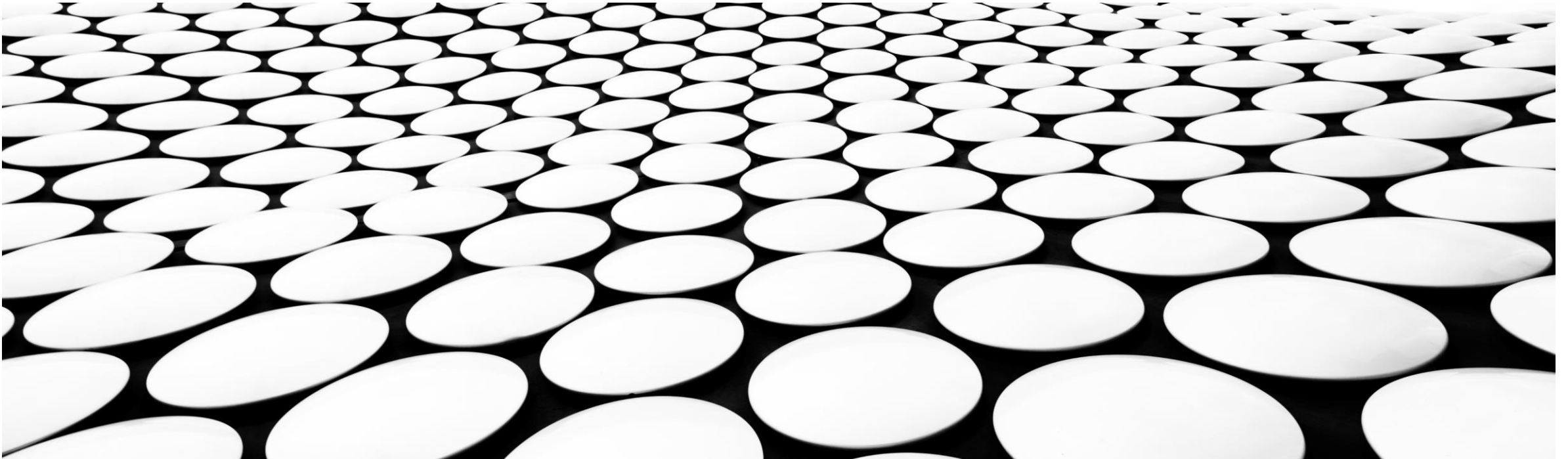

DECISION SUPPORT FOR STARTING A NEW BUSINESS IN HAMBURG

JANNIS WILLWATER





INTRODUCTION

- In which district in Hamburg should a new business open?
- Decision based on the age distribution and already existing venues
- Example: Where is the perfect location for a children's amusement park in Hamburg?



DATA SOURCES

1. The geographical information come from esri in the form of a geojson-file
2. The information about the age distribution can be found on the state website of the “Statistikamt Nord” as an xlsx-file.
3. To find the existing venues in Hamburg the Forsquare API were used.



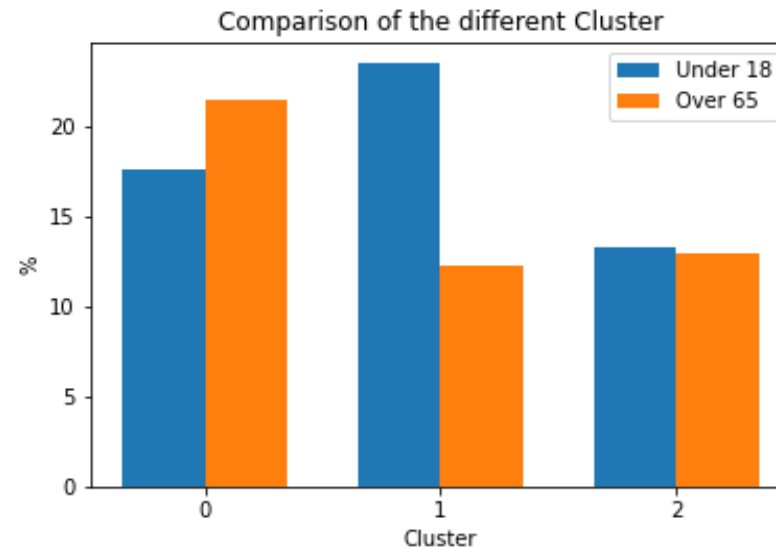
METHODOLOGY

- Age-distribution: Clustering of the people (K-means algorithm) under 18 and over 65 from Hamburg
- Venue-analysis: Forsquare-API is used to find all venues and cluster it again (K-means algorithm)

RESULTS

AGE-DISTRIBUTION

	Under_18	Over_65
Cluster Labels		
0	17.677989	21.488167
1	23.582843	12.340095
2	13.307644	13.024794



- Cluster 0: High percentage of people over 65 (21.5 %) and a reasonable high percentage of people under 18 (17.7 %). We will call that cluster *Pensioners*.
- Cluster 1: Very high percentage of people under 18 (23.6 %) and a low percentage of people over 65 (12.3 %). That cluster will be called cluster *Family*.
- Cluster 2: This cluster shows a low percentage of people under 18 (13.3 %) and over 65 (13.0 %). That cluster will be called *Bachelors*.

RESULTS

VENUE-ANALYSIS

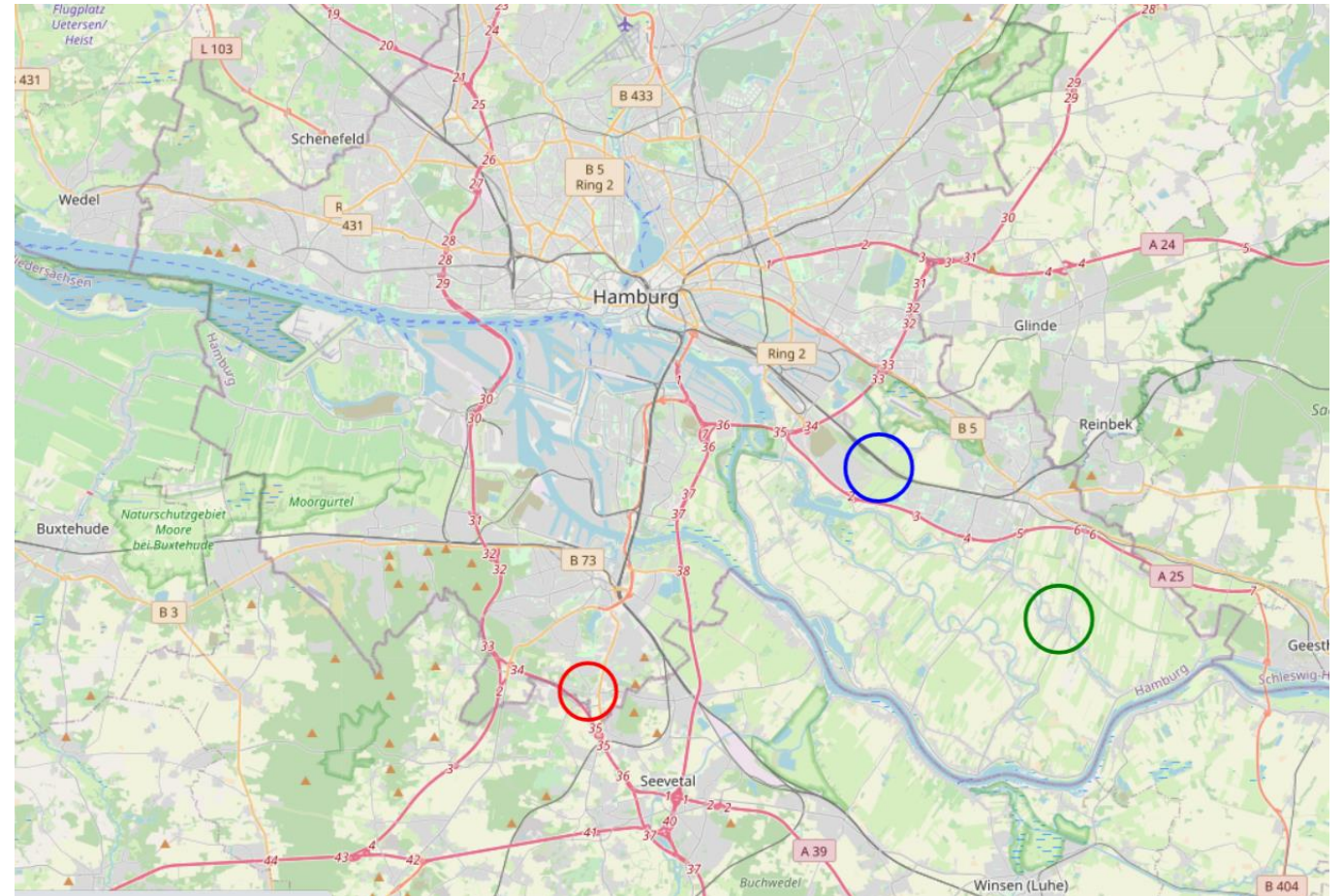
Two main clusters:

- in cluster 0 the most common venues are drugstores, bakeries, shopping malls and golf courses. So more for an older generation and is therefore called pensioners-venues.
- Cluster 1 has as most common venues more ice cream shops, parks and bakeries. Is therefore much more child friendly (family-venues).

RESULTS

COMPARISON OF BOTH CLUSTER METHODS I

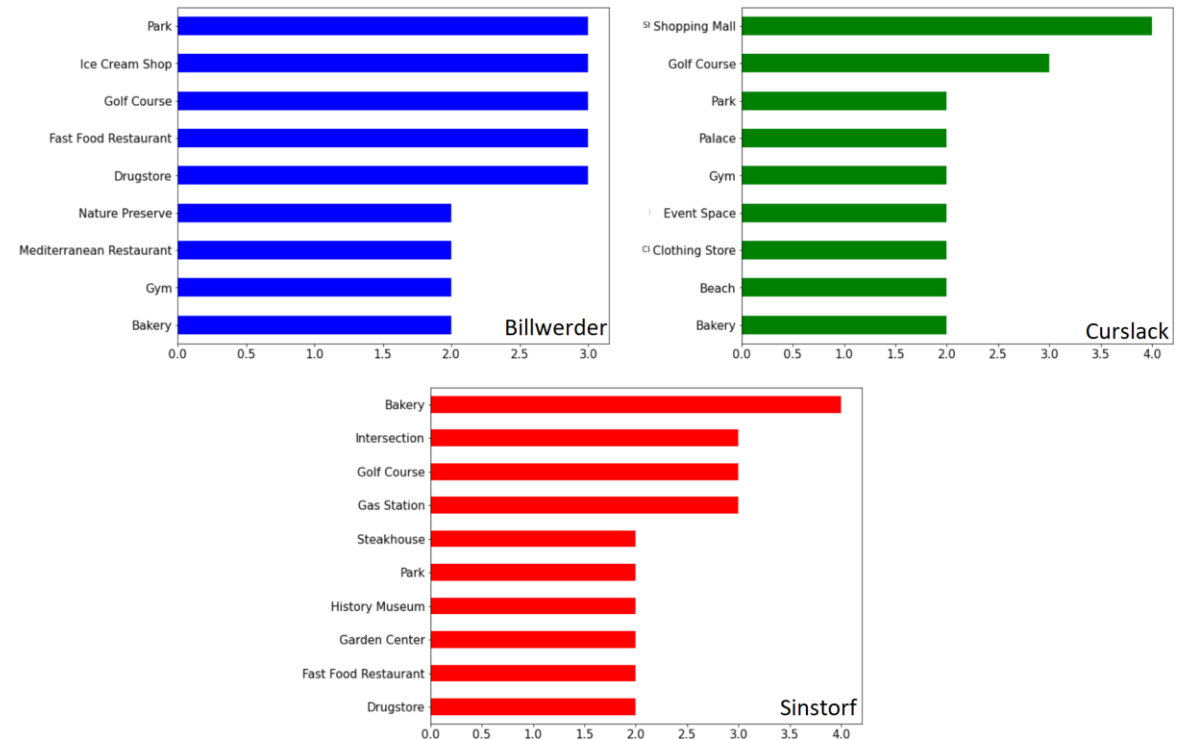
- Suitable distracts for a children's amusement park, which are in the *family* and *pensioners-venues* cluster: Billwerder (blue), Curslack (green) and Sinstorf (red)



RESULTS

COMPARISON OF BOTH CLUSTER METHODS II

- Billwerder has already three parks, ice cream shops and fast food restaurants, while Curslack and Sinstorf have much less child friendly venues.





DISCUSSION AND CONCLUSION

- With our data analysis we were able to limit the possible distractions for a children's amusement park to three.
- For that we only used the age distribution and already existing venues
- In this project I developed a strong tool that can be used for all new businesses in Hamburg