Analysis and Recommendations for Investors who want to start their Business in Hamburg (Germany)

By Oleksandr Kushnir, June 6th, 2020

Introduction and Problem Statement

Hamburg, the largest city in Germany after the capital of Berlin, its location makes it an important link between the sea and Germany's network of inland waterways and numerous islands. The city is best known for its famous harbor area, the Port of Hamburg. In addition to being a major transportation hub, Hamburg has become one of Europe's most important cultural and commercial centers, as well as a major tourist destination.

Hamburg is an excellent location for nascent entrepreneurs with clever ideas. More than 700 startup businesses are based here, with almost half of their total staff coming from abroad. Founders can benefit from Hamburg’s cosmopolitan flair, high quality of life, and optimum conditions for setting up a business.

Business Problem

Every international business starting in an unknown area especially in a new country is facing several problems:

- Where to find suitable offices and commercial spaces?
- What neighborhoods are best for it?

The business location plays a very important role and makes a great contribution to business success.

On the one hand, every business type has its optimal location, eg. restaurants succeed more in areas, that are visited by tourists, and a company office is better situated in a business district.

On the other hand, the crime rate of the neighborhood is also an important factor, that has an impact on business success.

International research has long shown evidence that crime makes communities decline (e.g. Skogan, 1990; Wilson & Kelling, 1982). This decline can be seen in the presence of crime in public places as well as in minor signs of physical and social disorder.

Shoplifting is the biggest concern, and biggest problem, for most small-business owners. When the business is closed, burglary and breaking and entering become another concern in this criminal category.

Most businesses are sensitive to crime in their neighborhoods, especially jewelry shops, liquor stores, banks, hotels, etc.

The audience, who is interested in the information to the problems mentioned above are international companies or startups from foreign cities or countries intending to start or expand their business to Hamburg.

Data Collection

To solve the business problem we need the following data:

1. The list of boroughs and neighborhoods can be found on Wikipedia (article “List of Districts and Neighborhoods of Hamburg”).
   https://de.wikipedia.org/wiki/Liste_der_Bezirke_und_Stadtteile_Hamburgs

   Example:

Stadtteil	Ortsteile	Bezirk	Fläche (km²)	Einwohner	Bevölkerungsdichte (Einwohner/km²)	Koordinaten	Karte
Hamburg-Altstadt	101–102	Hamburg-Mitte	2,4	2350	979	53° 33′ 0″ N, 10° 0′ 0″ O	
HafenCity	103–104	Hamburg-Mitte	2,2	4925	2239	53° 32′ 28″ N, 10° 0′ 1″ O	
Neustadt	105–108	Hamburg-Mitte	2,3	12.762	5549	53° 33′ 7″ N, 9° 59′ 8″ O	
St. Pauli	109–112	Hamburg-Mitte	2,5	22.097	8839	53° 33′ 25″ N, 9° 57′ 50″ O	
St. Georg	113–114	Hamburg-Mitte	2,4	11.358	4733	53° 33′ 18″ N, 10° 0′ 44″ O	
Hammerbrook	115–118	Hamburg-Mitte	3,0	4619	1540	53° 32′ 43″ N, 10° 1′ 50″ O	
Borgfelde	119–120	Hamburg-Mitte	0,8	8343	10429	53° 33′ 17″ N, 10° 2′ 4″ O	

The columns we will use:

- *Stadtteil*: the names of the neighborhoods.
- *Fläche*: area of the neighborhood in sq.km. (we will use it to calculate the radius of the Foursquare API venue search, must be converted to float)
- *Einwohner*: the population of the neighborhood (must be converted to int)
- *Koordinaten*: latitude and longitude in DMS format (must be converted to decimal format (float).

2. We can retreat the crime data from Hamburg Police Crime Statistics (PDF file, pages 16-19). https://www.polizei.hamburg/contentblob/12289868/49b59e72073b7c5e82c8800d36df8734/data/pks-2018-jahrbuch-do.pdf

   Example:

3.3.3 Stadtteile

Bezirk Hamburg-Mitte

Stadtteile	2017 Fälle	2018 Fälle	2018 aufgeklärt	2018 in %	Zu- / Abnahme absolut	Zu- / Abnahme in %
Altstadt	7.581	6.742	4.159	61,7	-839	-11,1
HafenCity	761	821	219	26,7	60	7,9
Neustadt	4.893	5.063	2.367	46,8	170	3,5
St. Pauli	18.289	18.790	8.275	44,0	501	2,7
St. Georg	19.167	20.047	14.193	70,8	880	4,6
Hammerbrook	2.591	2.359	1.135	48,1	-232	-9,0
Borgfelde	771	692	255	36,8	-79	-10,2
Hamm	3.175	2.872	1.092	38,0	-303	-9,5
Horn	3.633	3.165	1.443	45,6	-468	-12,9
Billstedt	7.771	7.442	3.651	49,1	-329	-4,2
Billbrook	663	699	274	39,2	36	5,4
Rothenburgsort	1.398	1.319	577	43,7	-79	-5,7
Veddel	709	967	612	63,3	258	36,4
Wilhelmsburg	6.671	6.432	2.533	39,4	-239	-3,6
Kleiner Grasbrook	299	251	117	46,6	-48	-16,1
Steinwerder	178	210	117	55,7	32	18,0
Waltershof	132	120	62	51,7	-12	-9,1
Finkenwerder	644	585	237	40,5	-59	-9,2
Insel Neuwerk	0	0	0	----	0	----
Bezirk Mitte	**79.326**	**78.576**	**41.318**	**52,6**	**-750**	**-0,9**

The columns we will use:

- *Stadtteil*: the names of the neighborhoods.
- *Fälle (2018)*: crime accidents in 2018, must be converted to int)

3. To plot the boundaries of the neighborhoods of Hamburg with Choropleth maps we need a GEOJSON file. It can be downloaded from this source: https://rolbednarz.carto.com/tables/stadtteile_hamburg/public

4. We will use the neighborhood data, specifically the longitude and latitude to explore the venues in each neighborhood using the Foursquare API. https://developer.foursquare.com/

Then we will use machine learning to group the venues into a certain amount of clusters and plot them on the map.

We also will plot the police statistics to show the crime rate of each district.

Based on this information stakeholders can make a decision choosing the optimal location for their new business.