Battle of the Neighbourhoods: Stockholm and Gothenburg

Considerations for The Technology Hub Headquarters of the future

1 Background

Stockholm which is the capital city of Sweden and Gothenburg which is the second-largest city each have a population of more than 1 million people each. They are both developed and already have businesses and recreation activities taking place there. While there are various considerations to make when setting up or deciding on key factors for the existence of companies, businesses and organisations. While factors such as financial capital, employees and availability are important, the other major factor is location and proximity to critical and key instalments. Location is a determining factor for many companies and that is why not all companies have a presence in all places. Others may argue that capital and availability of markets decide that but location if under looked can cripple a business with a good market and capital. Some well to do businesses have closed shop in places just because the location was not the best. The employees need to be able to access what they need and when they need it. The business itself also needs to be able to purchase and acquire resources at the least cost and spend the least when delivering to the market. Therefore, proximity to places like the market, inputs, infrastructure and employees is very important.

The world today is full of various companies and businesses that have appropriately positioned themselves near locations where they can quickly and easily access their requirements. Location is such a key factor because it can contribute to the profit and losses of a company. The location of a company also determines the type of employees who get attracted to work there. A company that plans to get the best out of its vision and plans will add the location to their list of priorities. When addressing the location factor, there is also the key element of proximity that needs to be addressed. Proximity to the key inputs for example consumables is important because it means that the employees will feel motivated and comfortable to stay in such areas. It means employees will have access to what they need when they need it.

However, technology companies and their communities, unlike the manufacturing businesses, are filled with employees who need to have access to consumables and places to relax and rest. Places like coffee shops, food, shopping and fun places are regarded as idea hatching places. This is because ideas are birthed in such places. In such places is a variety of activities, people and opportunities to share and get ideas about new technology products and services.

1.1 Business Problem

While the location is considered a key factor when determining the success and prosperity of a business, most lucrative food places and parks are already found closer to existing businesses. This, therefore, means that any other business that intends to open a location will need to find a place with the best available proximity to food places, parks and shopping places. The size of the company could also mean that it cannot be set up in places with proximity to all the parks and food hubs they need. This means that technology hubs that intend to employ a large number of employees will need to investigate parks and recreation areas or build their own. While the issue of finances may exist, a technology hub may need to first be located in an area with good proximity to places that will encourage their employees to be creative and get good ideas.

However, various cities do not have laws and policies that govern or determine the location of parks and food hubs in which employees of technology hubs can interact. This means that such businesses get located according to their own goals. This then means that a technology hub will have to do a location and proximity research to determine where it should be located.

2. The Data

There are many location providers like Foursquare, Google and Yelp which all have updated information. However, we will be using Foursquare for this capstone project because it has the most appropriate and consistent location data which is updated continuously. Furthermore, Google and Foursquare recently started charging for their services but Foursquare offers a free personal plan that we will be using for this package. According to the Foursquare site, there are eight important groupings of location data which is available, and which are important for this project. Foursquare offers top picks, trending, food, coffee, nightlife, fun, shopping and breakfast all of which will be critical to the location and proximity search for a technology hub headquarters. Since location data on Foursquare is already grouped, it will provide a good place with enough information with which we can make decisions for the technology hub. Food, coffee, nightlife, fun, shopping and breakfast are already core factors for this project. We will be able to get fun places in the Stockholm region and be able to determine which places have the highest concentration of recreation activities and amenities for a technology hub.

The postal codes for Sweden will be downloaded in txt file format as a zip file provided by the Wikipedia site https://en.wikipedia.org/wiki/List_of_postal_codes_in_Sweden. The text file holds the postal codes, latitude and longitude of Sweden among others. The data will then be filtered to only have Stockholm and Gothenburg. The geopy python library will be used to get the latitude and longitude for the two cities. Furthermore, this data will be visualised using the folium python library.

3. Methodology

3.1 Explore the data

The data for Sweden containing all postal codes and related location data was downloaded from the Wikipedia site https://en.wikipedia.org/wiki/List_of_postal_codes_in_Sweden in a zip file containing a text file. The pandas library was then used to extract the data delimited by whitespaces and given column names and loaded into a pandas data frame. Stockholm and Gothenburg data were each filtered out into two new data frames and the latitude and longitude data for the two cities was got using the geopy library. Each city with its data in its data frame. The folium python library was then used to create the maps for Stockholm and Gothenburg using their respective data.

3.2 Explore and Analyse the Neighbourhoods

Using the Foursquare API, we retrieved the top 100 locations in the two cities within a radius of 500 meters and cleaned the resultant JSON results into a new pandas data frame. The results were then grouped and the number of venues for each neighbourhood location was then counted.

The venue categories were then split and encoded using the pandas get_dummy function and the mean of each neighbourhood was derived. Using these result, the top 10 most common venues for each location was printed into a pandas data frame for each of the cities.

3.3 Clustering the Neighbourhood with K-Means

The results of the top 10 most common venues for the two cities were then used as input into the K-means clustering method of vector quantisation. K-means was used because it gives a better picture of how the different clusters belong and are related to each other with the nearest mean. It would also give a better visualisation at first glance for a good neighbourhood to pick from when deciding to open a business. The number of clusters for K-means was set to 5 and the top 10 most common venues were retrieved. This data was then displayed on a map using the folium python package.

3.4 Examining the Clusters

Data of the 5 different clusters was then examined and any observations were reported to the client intending to build a Technology Hub. The details of the results are further discussed in the next chapter of results.

4. Results

The results show that Stockholm has more places in which activities can be carried out. The results also show that Stockholm cluster 3 has 15 top venues while Gothenburg cluster 1 has 12 top venues within a 500-meter radius. The results also show that Hotels and food amenities are the most common and top trending places in Stockholm. Gothenburg however has construction and landscaping, hotel and Pizza places as the most common venues. Furthermore, we find that Gothenburg appeals more to tourists since it is well balanced with hotels, food places, piers and shoe stores.

5. Discussion

According to the results, a technology hub would be best found in Stockholm since it has more top venues with hotel, gym and food places. The results also show that Gothenburg would be more suited for as a tourist centre rather that the planned technology hub headquarters.

However, on the other hand Gothenburg is closer to the ocean making it easy to import and export any heavy equipment while easing transport at the same time. Stockholm is however surrounded by smaller waterbodies which cannot accommodate large water vessels.

6. Conclusion

This capstone project has provided a lot of information and data on both Stockholm and Gothenburg which will be very invaluable to any other company and businesses looking to open up shop in those two locations. This project gives more insight into the surrounding neighbourhoods and how spaced venues are within the two cities. There are also differences that have been sighted that could be the deciding key factor for many businesses out there looking to open up shop in Sweden.