# ABC Telecom Marketing strategy Project Report

# Introduction

ABC telecom company is a well established telecom company in Belgium. it wants to increase its presence in Brussels area. In Brussels company presence is relatively low. for that company wants to decide upon the marketing strategy for its plans in different parts of Brussels as it seems suitable after analysis.

# Target Audience

Business analysts of company, Business stake holders, Retailers and Business partners of company

# Business Problem

ABC telecom company is a well established telecom company in Belgium. it wants to increase its presence in Brussels area. In Brussels company presence is relatively low.

Company has segmented its plans in below categories

- High-end family Plans
- Economical family Plans
- High-end individual Plans
- Economical individual Plans
- Traveler Plans
- Sports Packages

Brussels is the capital of Belgium having 19 sub municipalities. Company wants insight into the neighborhoods and local businesses in the cities living standards, quality of life and target audience in that particular area. This project will explore the similarities and dissimilarities between neighborhoods in the city, and determine which neighborhoods fits for which plan segment of the company and that will help to finalize the marketing strategy of the company.

# Data

The data used for this project will be acquired from the respective Wikipedia website pages. The datasets consists of the postal codes, neighborhood names, latitude, and longitude information for each neighborhood.

Foursquare API search feature will be used to collect neighborhood venue information. Details about local venues and locality will be provide insight into the qualities of a neighborhood. In addition to Foursquare,

various python packages will be used to create maps and machine learning models to further provide insights into our neighborhood battle project.

I have used below websites to get the required data

https://en.wikipedia.org/wiki/Brussels

https://en.wikipedia.org/wiki/List_of_municipalities_of_the_Brussels-Capital_Region

http://www.mapquestapi.com

# Methodology

- 1. HTTP requests would be made to this Foursquare API server using zip codes of the Seattle city neighborhoods to pull the location information (Latitude and Longitude).
- 2. Foursquare API search feature would be enabled to collect the nearby places of the neighborhoods. Due to http request limitations the number of places per neighborhood parameter would reasonably be set to 100 and the radius parameter would be set to 700.
- 3. Folium- Python visualization library would be used to visualize the neighborhoods cluster distribution of Seattle city over an interactive leaflet map.
- 4. Extensive comparative analysis of two randomly picked neighborhoods world be carried out to derive the desirable insights from the outcomes using python's scientific libraries Pandas, NumPy and Scikit-learn.
- 5. Unsupervised machine learning algorithm K-mean clustering would be applied to form the clusters of different categories of places residing in and around the neighborhoods. These clusters from each of those two chosen neighborhoods would be analyzed individually collectively and comparatively to derive the conclusions.

# Python Packages used

The following are the Python packages I used:

- Pandas - Library for Data Analysis
- NumPy – Library to handle data in a vectorized manner
- JSON – Library to handle JSON files
- Geopy – To retrieve Location Data
- Requests – Library to handle http requests
- Matplotlib – Python Plotting Module
- Sklearn – Python machine learning Library
- Folium – Map rendering Library

# Discussions

Brussels has 19 sub municipalities and all the municipalities are divided into 5 clusters based on the popular venues in the respective areas. All the venue types are divided into below categories

- utilities
- Economical
- Tourists Places
- luxury
- Sports

Based on popularity of the venue class in a particular area a suitable plan is selected and kept in the center of marketing in that area.

## Municipalities from cluster 0-4

| | FrenchName | area | density | Latitude | Longitude | Cluster Labels | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue |
|---|---|---|---|---|---|---|---|---|---|
| 13 | Saint-Gilles | 02.52.5 km2 (1.0 sq mi) | 20,188 | 51.226813 | 4.116662 | 0 | CAT_utilities | CAT_TouristsPlaces | CAT_luxry |

| | FrenchName | area | density | Latitude | Longitude | Cluster Labels | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue |
|---|---|---|---|---|---|---|---|---|---|
| 2 | Auderghem | 09.09.0 km2 (3.5 sq mi) | 3,701 | 50.815657 | 4.433139 | 1 | CAT_luxry | CAT_utilities | CAT_Econimical |
| 3 | Berchem-Sainte-Agathe | 02.92.9 km2 (1.1 sq mi) | 8,518 | 50.863984 | 4.292702 | 1 | CAT_Econimical | CAT_utilities | CAT_luxry |
| 4 | Bruxelles-Ville* | 32.632.6 km2 (12.6 sq mi) | 5,415 | 50.844041 | 4.367202 | 1 | CAT_Econimical | CAT_luxry | CAT_TouristsPlaces |
| 5 | Etterbeek | 03.13.1 km2 (1.2 sq mi) | 15,295 | 50.836851 | 4.389510 | 1 | CAT_luxry | CAT_utilities | CAT_TouristsPlaces |
| 9 | Ixelles | 06.36.3 km2 (2.4 sq mi) | 13,690 | 50.822285 | 4.381571 | 1 | CAT_luxry | CAT_Econimical | CAT_utilities |
| 10 | Jette | 05.05.0 km2 (1.9 sq mi) | 10,387 | 50.877763 | 4.326090 | 1 | CAT_luxry | CAT_Econimical | CAT_utilities |
| 14 | Saint-Josse-ten-Noode | 01.11.1 km2 (0.4 sq mi) | 24,650 | 50.853074 | 4.372336 | 1 | CAT_luxry | CAT_Econimical | CAT_utilities |
| 17 | Watermael-Boitsfort | 12.912.9 km2 (5.0 sq mi) | 1,928 | 50.799394 | 4.415818 | 1 | CAT_luxry | CAT_Econimical | CAT_utilities |

| | FrenchName | area | density | Latitude | Longitude | Cluster Labels | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue |
|---|---|---|---|---|---|---|---|---|---|
| 6 | Evere | 05.05.0 km2 (1.9 sq mi) | 8,079 | 50.870452 | 4.402160 | 2 | CAT_utilities | CAT_luxry | CAT_Sports |
| 11 | Koekelberg | 01.21.2 km2 (0.5 sq mi) | 18,008 | 50.862263 | 4.325708 | 2 | CAT_Sports | CAT_luxry | CAT_Econimical |
| 18 | Woluwe-Saint-Lambert | 07.27.2 km2 (2.8 sq mi) | 7,669 | 50.846693 | 4.428484 | 2 | CAT_luxry | CAT_Sports | CAT_utilities |

| | FrenchName | area | density | Latitude | Longitude | Cluster Labels | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Anderlecht | 17.717.7 km2 (6.8 sq mi) | 6,680 | 50.838141 | 4.312340 | 3 | CAT_utilities | CAT_luxry | CAT_Econimical |
| 7 | Forest | 06.26.2 km2 (2.4 sq mi) | 8,991 | 50.809143 | 4.317751 | 3 | CAT_utilities | CAT_luxry | CAT_Econimical |
| 8 | Ganshoren | 02.52.5 km2 (1.0 sq mi) | 9,838 | 50.871240 | 4.317510 | 3 | CAT_utilities | CAT_luxry | CAT_Econimical |
| 12 | Molenbeek-Saint-Jean | 05.95.9 km2 (2.3 sq mi) | 16,378 | 50.854355 | 4.322778 | 3 | CAT_utilities | CAT_luxry | CAT_TouristsPlaces |
| 15 | Schaerbeek | 08.18.1 km2 (3.1 sq mi) | 16,425 | 50.867604 | 4.373712 | 3 | CAT_utilities | CAT_TouristsPlaces | CAT_Econimical |
| 16 | Uccle | 22.922.9 km2 (8.8 sq mi) | 3,594 | 50.801820 | 4.337235 | 3 | CAT_utilities | CAT_luxry | CAT_Econimical |

| | FrenchName | area | density | Latitude | Longitude | Cluster Labels | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue |
|---|---|---|---|---|---|---|---|---|---|
| 19 | Woluwe-Saint-Pierre | 08.98.9 km2 (3.4 sq mi) | 4,631 | 50.829243 | 4.443297 | 4 | CAT_TouristsPlaces | CAT_Sports | CAT_Econimical |

# Conclusions

Based on the municipalities clusters and popularities of venues in the respective areas below recommendations are made to company. Company will need to keep the plans falling under the given category while doing marketing in the respective ares

| Cluster | Popular venue Classes | Plans for marketing |
|---|---|---|
| **Cluster 0** | Utilities, Tourist Places | Family plans and Traveler plans |
| **Cluster 1** | luxury, Utilities | Economical and high end Family plans |
| **Cluster 2** | Luxury, Sports | High end plans and sports packages |
| **Cluster 3** | Economical | economical Family and individual plans |
| **Cluster 4** | Tourists Places, Sports | travelers plans and sports packages |