Retail site location decision process

# Definitions

Green selections are for Brno Database links.

Yellow selections are used for references.

# Overview

*Geography plays a key role in the success of a business. In the retail sector, the opening of a new site is a critical decision because the choice of location implies serious financial and corporate image risks for the firm in question. For this reason, it is crucial to perform a solid analysis of the possible locations for new store openings.*

Two key concepts stem from this idea: **geo-demand** and **geo-competition.**

**Geo-demand** can be defined as the location of the customers who purchase a product or service in a specific market.

**Geo-competition** is the location of the competitors of a business and the delineation of their trade areas in a particular market. A trade area can be defined as the geographic area in which a retailer attracts customers and generates sales during a specific  
period.

Possible locations for a new retail establishment can be identified by jointly analyzing geo-demand and geo-competition.

# Algorithm

1. Conduct an analysis of **geo-demand**, which is used to locate the clients of a product or service.
   1. Calculate average number of residents per city block.  
      [https://data.brno.cz/datasets/89d09657b1464911a195249d18610677\_0/explore?location=49.198755%2C16.640814%2C15.49]
2. Second, **geo-competition** is analyzed, which means spatially locating the firm’s competition.
   1. Locate all the competitors (business of the same category).  
      [https://data.brno.cz/datasets/b7c7e406ae894269bae7989f4784fab6\_0/explore?location=49.195539%2C16.609779%2C15.97]  
      [https://data.brno.cz/datasets/86123d7416fe45318a0767da530ab9f3\_0/explore?location=49.195394%2C16.611105%2C16.94]
   2. Calculate trade area for each of the retail outlets. The trade area of a supermarket is defined as an **isochrone** based on its sales floor area.
      1. Huff (1963) suggested that the utility of a store is positively related to the size of the outlet and negatively related to the distance. For this reason, the trade area of a supermarket is defined as an isochrone based on its sales floor area.  
         [https://www.jstor.org/stable/1249154?read-now=1&seq=5#page\_scan\_tab\_contents]  
         [https://data.brno.cz/datasets/mestobrno::pr%C5%AFzkum-budov-v-brn%C4%9B-buildings-research-in-brno-2018-2020/explore?location=49.194775%2C16.609782%2C18.43]  
         **How to get area?**  
         Obsah obrázku text, Písmo, černobílá, dopis

         Popis byl vytvořen automatickyObsah obrázku text, Písmo, bílé, algebra

         Popis byl vytvořen automatickyObsah obrázku text, Písmo, bílé, dokument

         Popis byl vytvořen automaticky  
         Obsah obrázku text, Písmo, snímek obrazovky, černobílá

         Popis byl vytvořen automaticky  
         Obsah obrázku text, Písmo, bílé, účtenka

         Popis byl vytvořen automaticky
3. Third, the possible commercial sites are determined (locations) by combining the results of the two previous steps, together with the use of kernel density analysis.
   1. Apply kernel density estimation to identify areas with greater  
      concentrations of potential clients. After this we can identify possible locations for the store. **TODO**
   2. After we found possible locations for our business, we need to calculate their priority based on input that user provided. AHP is applied. It should give us estimation of each location of all possible locations on the map  
      [https://www.youtube.com/watch?v=J4T70o8gjlk]  
      Obsah obrázku text, snímek obrazovky, Písmo, účtenka

      Popis byl vytvořen automaticky  
      In our case we will calculate following criterias (marked yellow)  
      For now efficiency is only 45.32%. **TODO (Volume of passing trade, visibility, seasonality)**  
      Obsah obrázku text, snímek obrazovky, Písmo, design

      Popis byl vytvořen automaticky  
      Parking  
      [https://data.brno.cz/datasets/821d12a2e7ca45db90b4e01ca2ebd93c\_0/explore?location=49.196065%2C16.612538%2C15.30]

The Retail Trade Area is the geographic region from which 80-85% of your customers travel from to spend money in your community. A secondary Retail Trade area encompasses the geographic region in which the rest of your shoppers reside. [https://theretailcoach.net/how-to-determine-accurate-retail-trade-areas/]