Cap stone project

Fresh produce delivery to the hospitality sector in city centres

1. Description of the problem & background

a. Background information

A Belgian startup company want to implement a new supply-chain concept for delivering fresh produce to the hospitality sector located in city centres. The company wants to anticipate the growing measures of cities to reduce motorized traffic in the city centres and provide a future-safe alternative for hotels, restaurants and others to get their fresh produce delivered to their location in the city centre.

Their business model is based on creating value for their customer by providing the following services :

- Bulk purchase of fresh produce on the early markets

  The customer will pay a lower price for the produce due to the ability of the start-up to purchase in bulk. In addition, the customer will save on employee cost as they no longer need to send staff to the early market.

- Pay for what you use (reduce waste)

  A major benefit for the customer is that they no longer have to estimate the amount of produce they need each day and can eliminate the potential cost associated with waisted produce. The startup company will use modern data analysis techniques to predict the expected amount of produce to buy based on historical data, season, special events in the area, etc.

- On-demand delivery within 30 minutes

  The start-up company will only deliver the agreed (minimal) amount of produce in the morning (or when requested). Additional produce can be delivered on-demand and will be delivered within a 30-minute timeframe.

- Delivery of the fresh produce with non-motorized vehicles

  The start-up company will deliver the produce with non-motorized vehicles. More and more cities in Belgium are implementing traffic restriction measures to improve air quality. It is becoming more and more difficult (and expensive) for the hospitality sector in the city centres to manage the delivery of goods to their facilities.

b. Problem description

The start-up company wants to deploy their service in selected cities in the Flemish region of Belgium. The problem they need to solve is to determine which cities to select first to secure the success of their go-to-market.

This means that they need to be able to cluster the potential cities based on the following criteria:

- The number of potential customers (Restaurants, Hotels, Pubs) in the city centre that can be serviced via non-motorized vehicles in 30 minutes (estimated radius of 2000 meters)
- Keep in consideration the value of the potential customers for the start-up company. The start-up company has determined that the difference in potential revenue can be defined as follows : Fastfood place (base reference), Hotel (1.5 times base), Restaurant (1.3 times base), Breakfast place (0.7 times base), Café/Pub (0.3 times base). This means that e.g. a typical Hotel will generate 1.5 times the revenue that a typical Fastfood restaurant will generate.

2. Description of the data

In order to solve the problem, the following data is required :

- A list of the cities in the Flemish region of Belgian and their geo-data. This information can be derived from an online source that contains this info for Belgium (http://www.gemeentezoeker.be/MonkeyProof_postcodes_developer.csv).

- A list of the number of residents for each of the cities. We want to limit are research to only the top 100 largest cities due to restriction with FourSquare usage and the limited potential of smaller cities for the start-up company. This information can be obtained online via the following source :（https://www.metatopos.eu/belgcombiN.html）.

- The location of selected venues in the top 100 largest cities in the Flemish region of Belgium. The venues we need to find are all types of hotels, restaurants, Fastfood places, breakfast places and entertainment venues where food and drinks are served. FourSquare will be used to obtain this data.