

# **Capstone project - Bike sharing customer behavior**

## **Introduction**

Bike sharing is one promising solution to help reduce carbon dioxide footprint and increase public health. In the EU area, bike sharing has been implemented in many countries. Many bike sharing platforms have been introduced to spread the trend and they have proved to be quite successful.

However, bike sharing is not a new model. In China, the model has once been so popular that many issues emerged as the significant growth in the number bike sharing platforms and number of bikes available. For instance, the infrastructure in many big cities was not ready yet for the sudden, but tremendous increase in the number of bikes. There was not enough parking area, bike maintenance services, etc. Consequently, bikes were parked everywhere on the street and negatively affected the urban experience of citizens who did not use public bikes. Millions of broken bikes were put in bike graveyards without being fixed due to the lack of capability. As such, the effort to promote bike sharing service was a failure in achieving sustainable goals. Also, the above-mentioned issues reflect a tremendous waste in national resources.

I see a need to look at bike sharing activities in order to understand customer behavior. The insights would be useful for the bike sharing platform to better manage their businesses and avoid issues like those that once happened in China.

## **Study goals and research questions**

The main goal of this study is to create an initial view on customer behavior in using public bikes via bike sharing platform. This study only focuses on one city in Germany. Before starting to start the analysis, I have some hypotheses:

1. Bikes are used mostly outdoors. Thus, weather conditions would very likely have an impact on the number of trips made.
2. Also, weather conditions could influence the duration of each trip.

3. There are multiple ways to use bikes. For instance, in Finland, bikes could be taken from stations and must be returned to stations. However, Germany bikes could be offered at stations or as floating bikes. The question is, would users prefer stations or floating?

## **Description of data used**

In this study, I will use the bike sharing data of one of the bike sharing platforms in the EU. The data was shared for study purposes and this study only focuses on one city in Germany and in the year 2019. The data considers the duration of the trips, the number of trips made, pick-up and return locations.

Since one of the research goals is to explore the relationship between weather conditions and bike usage, I collect historical weather data from weatherbit using its free API.

Foursquare API is also employed to collect data on popular locations in the focused city. This information is important to discover the user behavior pattern in regards to locations.