

Abstract

This thesis aims to examine more precisely the arrival data to the port of Antwerp from 2018 to 2021.

Before analysing the data, bibliographic research was conducted on scientific publications using artificial intelligence and Machine Learning (ML) to improve maritime services and applications, including data analysis. This was done during my Bachelor degree and my master degree study from the period 2021 to June 2023.

Descriptive statistics are then done to examine what changes there have been in arrivals to the port of Antwerp, by using a dataset from 2018 to 2021 obtained from the port of Antwerp. With this data we looked at the number of arrivals, the change in vessel characteristics of container ships and the change in journey times across the Scheldt to the port of Antwerp and the influence of different factors on journey times.

As the dataset also contains info of the period 2020 and 2021, the influence of covid on arrivals is examined in more detail in a separate chapter.

Nowadays, machine learning is also used to do data analysis and make predictions, both applications have been done in this thesis.

Principal component analysis was used to analyse data and a neural network was used to try to predict vessel travel times across the Scheldt based on vessel characteristics.