



Impact Analysis of Disruptions in Multi-modal Freight Networks

Problem description

The global supply chain is heavily reliant on freight transportation, and any disruption in the logistics chain can result in significant economic losses for multiple stakeholders. Major incidents like the COVID-19 pandemic and the Suez Canal blockage in recent years highlight the impact of large-scale disruptions. However, more frequent, smaller-scale operational disruptions—such as bad weather, operational delays, congestion, and equipment breakdowns—can also lead to substantial losses. Given their frequency and potential impact, there is the need to carry out a comprehensive study to identify such disruptions and their impact within freight networks.

Objectives and assignment

This thesis project aims to contribute to an existing project, to analyze the effects of disruptions within multimodal freight networks and evaluate their overall impact. You will be working on enhancing the model, by more accurately capturing the impact of disruptions using advanced AI techniques. The expected outcome will be a comprehensive disruption model along with an impact analysis.

Candidate background

TIL and CS Students who have knowledge and interest in AI who are eager to apply these technologies to real-world transport and logistic challenges.

Research group

This research will be done at the Freight and Logistics Lab, CEG. For information, please contact m.saeednia@tudelft.nl.