

At the Chair of **Logistics and Supply Chain Management** of TUM School of Management, we are looking for an interested and qualified student to conduct his/her.

Master thesis

on the topic

Resilient Transportation Network Design under Disruption Risks

Transportation serves as a critical component in global supply chain management. The risk of transportation disruption is attracting increasingly significant research attention, particularly considering disruptive events, such as the blockage of the Suez Canal by the container ship Ever Given. As an emblematic example of how a single incident can create significant ripple effects across the global supply chain, this event underscores the pressing need to design more resilient transportation networks that can effectively withstand and recover from various types of disruptions. This thesis aims to address this issue by exploring strategic and operational decision-making within transportation network design, accounting for potential disruption risks. Additionally, a resilience measure to estimate the resilience of the proposed network should be developed for this network design problem.

Key project tasks:

- Literature review on relevant fields of study.
- Mathematical modeling addressing the research question.
- Implementation of the model and systematic analysis of the model performance.
- Analysis of results and implications.

Requirements:

The thesis is suitable for Master in Management and Technology students with a major in operations and supply chain management. The ability to work independently, as well as analytical skills, are required. Knowledge of one general-purpose programming language (e.g., Python, C++, or others) is required. Knowledge of mathematical programming and optimization is preferred. The thesis should be written in English.

Earliest begin: September 2023

Supervisor: Kai Zhu

Application: Email with curriculum vitae and transcript of records to logtheses.log@mgt.tum.de