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

**Decomposition Methods for Service Network Design Problems under Disruption Risks**

Transportation is a vital element in the management of global supply chains. The susceptibility to transportation disruptions is gathering ever-greater research focus, especially in light of recent disruptive events like the Suez Canal blockage and attacks on container ships in the Red Sea. Addressing these challenges typically involves framing transportation planning within the context of Service Network Design Problems (SNDP). However, the integration of disruption factors significantly complicates the resolution of SNDPs. This thesis proposes to investigate decomposition methods as a solution to these complex service network design problems, with a particular emphasis on improving resilience against the risks of disruptions.

**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.

**Earliest begin:** April 2024

**Supervisor:** Kai Zhu

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