Proposal for a Master Thesis Project: USECAP - Utilizing the existing overcapacity in the transportation system for increased energy efficiency

CIT (Chalmers Industriteknik) and VTI (Swedish National Road and Transport Research Institute) are jointly conducting the research project “USECAP”. The project is financed by the Swedish Energy Agency and has the main objective to enable the utilization of existing overcapacity in the transportation system in order to increase its energy efficiency. The purpose of the project is threefold: 1) estimate the proportion of overcapacity that represents an achievable efficiency potential at a national level, 2) develop solutions to realize the efficiency potential for specific flows and 3) develop a conceptual model for a digital tool that contains functionalities that enable this system-level potential to be realized. The results of the project are expected to contribute to environmental and economic benefits in terms of increased energy efficiency, reduced emissions, increased revenue for the transport industry and reduced transport costs for shippers.

The result of the master thesis project will contribute to the second sub-objective by identifying possible freight flows where there is potential for increasing consolidation between different product groups (e.g. groceries and the construction materials). The mapping is to be followed by an analysis of the conditions that make different material flows compatible for sharing the same transport resources either through consolidation or use of the same resources, separately at different times. The study is to be conducted as a multiple case study where the bulk of the data collection takes place through interviews of shippers and carriers. Several companies are part of the project, which means that access to data sources is already secured.

The master thesis project will be conducted in parallel with the work to achieve the other sub-objectives in the project, and there will be close cooperation between the students who carry out the thesis work, the researchers at CIT and VTI and the participating companies. Upon successful implementation, the results of the thesis will be an important part of the final results of the research project. The project constellation includes the following companies and organizations: Peab, JM, Veolia, NCC, Lidl, Sweboat, CargoSpace24, Logtrade and Sveriges Åkerier.

We are looking for two students at the master’s level with a focus on transport, logistics, supply chain management or equivalent. Due to the nature of the task, we highly recommend for the team to consist of one engineering and one economics master student. The thesis will partly provide students with the opportunity to come into contact with several companies, as well as experience and get insight into an applied research environment. The thesis work is to be conducted in the spring of 2019 with the results reported by August 2019 at the latest.

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