Optimal routed, cost efficient flexible public transport service

Background

Demand Responsive Transport is run at Västtrafik to facilitate travellers with special needs to reach their destinations. Instead of using direct taxis for transportation, Västtrafik offers a shared taxi service based on a cost-optimized algorithm to become as cost effective as possible.

Problem descriptions

The joint Msc thesis proposal by Västtrafik and Chalmers is a set of real-life problems to choose among.

- Costs. Determine the costs for shared taxi services compared to direct taxi. Check and validate the distance based price used in planning (pre-costing) with the actual and realized one. Improve prediction on costing. Check cost sensitivity w.r.t. certain model parameter uncertainty. Here, one idea is to model predictive, rolling pricing strategies.

- Routing. Static and dynamic resource allocation problem. Based on a set of future demand optimally design flexible service lines. Starting from vehicle placement up to a dynamic resource allocation solution, the problem is to match demands with existing vehicle constraints in an uncertain traffic environment.

The language of thesis is English, but an executive summary is requested in Swedish.

Method

Develop model based optimization and simulation tool to address one of the previous problems.

Interested?

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