
Methods for Corporate Mobility as a Service

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Abstract

Many companies provide individual cars to certain employees in order to fulfill their mobility needs including private and business trips. This can result in a large underutilized fleet of vehicles with combustion engine. For such settings, the project SEAMLESS aims at developing novel corporate mobility services while striving for multiple goals. In order to reduce CO₂-emissions, the usage of battery electric vehicles, public transportation, or bicycles should be fostered. However, the flexibility offered by conventional vehicles must remain available in case of need. Thus, operating a mixed fleet of company vehicles in a cost-effective manner is important. Also, other mobility services such as taxis or rental cars should be considered, e.g., for coping with peak hours. Now, bringing the emerging concept of "mobility as a service" to this corporate context results in a system where users request transportation services instead of reserving specific cars. Decisions on the fulfillment of individual transportation requests are delayed in order to increase the number of options available for company-wide mobility planning. We propose a solution approach that first determines a set of possible mobility offers for each transportation request. This facilitates the inclusion of different route planners and allows to include information from third party mobility providers. Then, assuming each vehicle is assigned to a fixed depot and each mobility offer covers a fixed time interval, this leads to a variant of an interval scheduling problem. We present solution methods for the problem at hand and report initial results of computational experiments.

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