

Coordination and profit allocation in Mobility as a Service

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In recent years, new mobility services, inspired by the sharing economy and advanced technologies, are leading to a new age in transportation. Mobility-as-a-Service (MaaS) is one of the trends, that combines different players to form a common service platform, giving people options to search, book and pay for public and private transportation services at one stop. COVID-19 has accelerated the move to MaaS. For example, in the UK, the Department of Transport and ITS UK work together to collect traffic data to support the government's policy response and assist citizen's travel. Data sharing and government involvement offer great opportunities and huge potential to launch this service in the near future.

When all transportation operators are included in one platform, two critical questions arise (1) How to coordinate the services from different companies in MaaS in order to improve the level of service and to increase the number of users of the system, and (2) How to allocate the profit by cooperation in MaaS so that a fair and acceptable allocation among the companies involved is achieved. Coordination of multiple services remains to be difficult because it requires the knowledge of real-time service and demand from all companies. MaaS uses a single payment portal, whereby users can pay buy a 'service bundle' in advance. In this way, the problem of profit allocation among all companies is a typical example in operation research and management science. Because of MaaS's recent emergence, research in this area is still in its description and conceptual level, while the analytical or numerical investigation is very limited.

Prospective candidate is expected to have a good knowledge of modelling and optimisation tools and data-handling skills. The research outcomes can also contribute to the development of business models in shared economy and the integration of international mobility analysis.