
Scheduling Deliveries in Retail: a Case Study

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Abstract

Scheduling deliveries in retail involves the consideration of a wide range of factors, including delivery team structures; delivery teams remuneration scheme; delivery teams preferences and limitations; time windows, assigned to deliveries; vehicle capacities; loading and unloading times; restrictions imposed by the depot; permissible working hours; etc. The delivery schedule, produced as a result of the optimisation procedure, must be analysed by the allocators who are responsible for the actual allocation of deliveries. This imposes the restriction on time available for optimisation. The talk is concerned with the experience gained in the process of developing an optimisation software for the above mention problem. Several models and optimisation procedures are presented together with the results of their comparison by means of computational experiments. The experiments were conducted in the real production environment, using the real-world data. The presented optimisation procedures include integer programming based algorithms, implemented using IBM ILOG CPLEX, as well as metaheuristics and constructive heuristics. Base on the obtained experience and knowledge, the talk suggests some directions of further research.

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