

Decision Support Rules for Flexible Time Window Management of Attended Home Deliveries

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Abstract. In the competitive world of online retail, customers choose from a selection of delivery time windows on retailers' websites. Creating a set of convenient and cost-efficient delivery time windows is challenging, since customers want short time windows, but short time windows can increase the delivery costs of a retailer significantly. Furthermore, the acceptance of a particular request can restrict the ability of accommodating future requests significantly. In this paper, we present decision support rules that enable flexible time window management in the booking of time window based deliveries. We build tentative delivery routes and check if a new customer request can be accommodated feasibly with the remaining delivery capacity. We maintain routing flexibility through offering short or long time windows based on customer characteristics as well as characteristics of the evolving route plan. We investigate the presented approaches with a case study in the area of online supermarkets.

Keywords: Time Window Management, Customer Acceptance, Attended Home Deliveries, Vehicle Routing with Time Windows, Online Supermarkets