

Vehicle routing methodologies to support costing and pricing decisions

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Although Vehicle Routing methodologies have been used to tackle different problems at the operational, tactical and to a lesser extent strategic level of decision-making in distribution logistics, their use in supporting costing and pricing decisions has been limited.

Routing problems have been previously used in combination with cooperative game theory in certain cost-allocation games as the travelling salesman game (e.g. Engevall et al., 1998), cost allocation in the Chinese postman problem (e.g. Hamers et al., 1999) and cost allocation in the vehicle routing problem (e.g. Engevall et al., 2004) but their use has been limited to relatively small cases. Vehicle routing models have been used to develop incentives to influence consumer behavior to reduce delivery costs for home delivery services, e.g. by Campbell and Savelsbergh (2005, 2006). Recently Confessore et al. (2008) have developed an approach to estimate routing costs based on time window size to develop a pricing structure to stimulate customers to be more flexible with respect to their delivery. In this paper we present another approach involving local search operators to estimate the incremental cost of customers and use these cost estimates to see whether they can be used to develop a pricing structure based on a limited number of cost drivers.

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