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IMPROVING DISTRIBUTION EFFICIENCY IN CASH SUPPLY CHAINS

How to distribute goods is a question that is faced daily by many companies and, therefore, these questions are solved regularly in practice either with or without supporting technologies. This dissertation intends to provide insight in complex distribution problems, to find more efficient distribution plans, and to analyze the potential benefit of novel distribution strategies. The following topics are addressed:

- The computational complexity of a variant of the Inventory Routing Problem in which routing is easy is studied to identify other sources of complexity than routing.
- The Dynamic-Demand Joint Replenishment Problem is extended to include approximated transportation cost to take the proximity of customers into account and the problem is solved with a branch-price-and-cut solution method.
- The option to have a customer satisfy part of the demand of another customer is included in the Inventory Routing Problem and a branch-price-and-cut solution method is developed.
- The Vehicle Routing Problem with Partial Outsourcing is introduced in which a delivery to a customer can be split between a privately owned vehicle and a common carrier. A branch-and-price-and-cut solution method is designed for two path-based formulations to solve the problem.

ANNELIEKE BALLER

Annelieke Baller (1990) obtained her BSc (Cum Laude) and MSc (Cum Laude) degrees in Econometrics & Operations Research at the Vrije Universiteit Amsterdam (in 2012 and 2013, resp.). In 2014 she joined the Ph.D. program at the School of Business and Economics under the supervision of prof.dr. Wout Dullaert, prof.dr. Leen Stougie and dr.ir. Said Dabia. Her work has been accepted for publication in a variety of international peer-reviewed journals. Annelieke currently works as Analytics Consultant at ORTEC BV.

