

Sequencing of Bulk Transports in a 4PL Scenario

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Abstract—This paper presents a case study of a vehicle routing problem with the idea of a Fourth Party Logistics Provider (4PL). The case study is based on data of the German agricultural bulk logistics where a 4PL is not implemented yet. For this first research, activities on 4PL and on transport planning as one possible function of a 4PL will be presented. A systematic literature review gives an overview of the transport algorithms. For first findings three transport algorithms, the nearest neighbour, the genetic algorithm and the tabu search are tested based on practical data scenarios with 10, 15 and 20 relations. The results show the algorithm with the minimum of empty kilometres of the scenarios. In future research more complex scenarios should be tested automatically. This paper gives an overview for practitioners in the agricultural bulk logistics and for the academic community over the 4PL-approach in Supply Chains and the possibility of sequencing of bulk transports.

Key words—Algorithm, Planning, Transport, 4PL.

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