

## **Intermodal terminal selection and its effect on pre- and end-haulage costs**

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Abstract:

Intermodal freight transportation consists of combining different modes to transport freight without handling the goods during transshipments at intermodal terminals. Typically, the main leg is performed by train or barge, while pre- and end-haulage are performed by truck.

At a tactical decision level, intermodal transportation companies are facing an intermodal terminal selection problem. In each region in which they wish to operate, they should carefully select the terminals from which to offer long haul connections. On the one hand, offering services from many terminals in a region will result in fragmented transport flows and less economies of scale on the main leg, and a need to reposition empty load units within the region. On the other hand, offering services from one or a few terminals may restrict the number of long haul connections that can be offered and will result in increased trucking costs as the distance between customer locations and terminals increases.

In this work, we focus on the effect of the terminal selection decision on the resulting pre- and end-haulage costs, i.e. the trucking costs for transporting load units between terminals and final customer locations. Two approaches are considered and compared: an analysis of direct distances, and a more complex vehicle routing approach. Both loaded as well as empty container repositioning movements are accounted for. Results of a real-life case study are presented.