

List of Propositions Attached to the Thesis

The Design, Planning and Execution of Sustainable Intermodal Port-hinterland Transport Networks

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- I. Port-Hinterland intermodal network design problems are significantly different from regular intermodal network design problems. Mathematical modeling in this area should feature specific cost, time and consolidation structures. (Chapter 2)
- II. Shipper actions and characteristics can affect container dwell times at container terminals. It follows that dwell times at container terminals are affected considerably by exogenous factors to the container terminal performance. (Chapter 3)
- III. Shippers have different needs regarding the port-hinterland transport of their containers; some shippers prefer the quickest option to transport their containers, predominantly via trucks, while other shippers optimize the storage of containers between the seaport and inland terminal yards before they receive it on their premises. (Chapter 3)
- IV. When considering the optimal design of port-hinterland network services, the exploitation of economies of scale, the pricing, the service frequency, the fleet selection, and its routing over the network are interrelated decisions that should be treated simultaneously. (Chapter 4 & 5)
- V. The explicit consideration of time in transport network design formulations significantly affects the optimal design. This allows assessing asset utilization and quality of services simultaneously in transportation problems, but leads to more complex and computationally intensive models. (Chapters 4 & 5)
- VI. Information sharing and information availability in capacity setting and scheduling problems can improve the overall system performance.
- VII. Quantitative models that support service design at the tactical or strategic levels should not assume the demand for the services given but should connect the demand penetration of the proposed services with their performance in terms of cost, time, sustainability and other factors. In that respect, the demand side of services should be analyzed in depth and the main enablers of service selection should be determined.
- VIII. Chassis Exchange Terminals (CET) provide significant lower turnaround times for truckers arriving to pick up or drop off containers. Simultaneously, they act as a peak shaving on the arrival rates of trucks at the main seaport terminal with the result of reducing turnaround times for also truckers visiting the main seaport terminal.
- IX. Most problems do not have real optimal solutions but there is always a collective of tradeoffs that should be considered before choosing the best available option. An effective optimization model will in the best case reveal the direction towards this option.
- X. The more scientific literature one reads on a subject the less prone one is to come up with a novel research idea on the subject. In some cases the reverse procedure could work better, that is coming up with an idea and then identifying literature to position your approach.
- XI. One of the main effects of having written a Ph.D. thesis is on the perception of how others see you. Fortunately, most people will assume that you are pretty smart. Unfortunately, at the same time, they will also assume that you can merely solve any real problem.