

The day after optimal: Location models for modern logistics

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Abstract

Operations Researchers support decision makers by developing adequate mathematical optimization models and providing suitable solution procedures. In this talk we discuss what “adequate” could mean when decisions have to be made in uncertain environments. Therefore, we may ask several questions concerning optimality under causal and temporal uncertainty: What is an optimal solution? When is it optimal? For how long is it optimal? How should the design of a supply chain (especially location decisions) be changed when conditions and requirements ask for new structures?

We discuss new approaches to advanced location models in order to give a transformation from an initial solution over multiple periods to a desired one rather than just specifying an optimal snapshot solution. We will enhance location models to deal with various aspects needed in supply chain design decisions. Time and uncertainty are the factors triggering the whole discussion. Several flaws often found when dealing with these factors result in so-called time traps. A special emphasis is given to the location model aspect under uncertainty but also the embedding in more general logistics decisions is considered.