

Title:

Logistics Network Design and Facility Location: The value of multi-period stochastic solutions.

Abstract:

In the past decades logistics network design has been a very active research field. This is an area where facility location and logistics are strongly intertwined, which is explained by the fact that many researchers working in Logistics address very often location problems as part of the strategic/tactical logistics decisions. Despite all the work done, the economic globalization together with the emergence of new technologies and communication paradigms are posing new challenges when it comes to developing optimization models for supporting decision making in this area. Dealing with time and uncertainty has become unavoidable in many situations.

In this presentation, different modeling aspects related with the inclusion of time and uncertainty in facility location problems are discussed. The goal is to better understand problems that are at the core of more comprehensive ones in logistics network design. By considering time explicitly in the models it becomes possible to capture some features of practical relevance that cannot be appropriately captured in a static setting; by considering a stochastic modeling framework it is possible to build risk-aware models. Unfortunately, the resulting models are often too large and thus hard to tackle even when using specially tailored procedures. This raises a question: is there a clear gain when considering a more involved model instead of a simplified one (e.g. deterministic or static)? In search for an answer to this question, several measures are discussed that include the value of a multi-period solution and the value of a risk-aware solution.