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Author Triin-Ly Pihlapuu
Author's Email Address No Public.
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Abstract
After the 1978 Airline Deregulation Act, when airlines could compete with each other, choosing when and where to fly and setting prices freely, the situation of the airline industry has changed a lot, for example, in order to take advantage of economies of scale, most major airlines have used hub-and-spoke networks to run their airplanes. Thus, the airlines how to select some airports as switching and transhipment points (hubs) for cutting their transportation cost are very important. This thesis introduces the hub location problems and explains how to apply the hub location problems in airline industry.
Airlines sequentially choose the location of their hub and they compete in offering direct or connecting services between each city-pair. This thesis analyses the airlines' hub location problem. Overview of airline industry and hub-and-spoke network is presented, along with the description of different hub location problems- uncapacitated single/multiple allocation hub location problem, capacitated single/multiple hub location problem, and hub arc location problem. Formulation and heuristic with summarized computational results for each problem is outlined.
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