Abstract

Various types of transportation issues are a common practice. The issue may be approached mainly as the distribution of products from suppliers to consumers while minimising distribution costs. The difference of real transportation issues predominantly relates to the considered restrictions, such as capacities of vehicles and orders, time windows and other special distribution restrictions. Transportation issues were already defined by F.L. Hitchcock in 1941 and since then, a wide range of stochastic and non-determinist methods providing solutions to transportation issues have been developed. Nevertheless, introducing distribution restrictions in resolving real-life problems makes it difficult for such methods to be applied.

This thesis provides a compilation of the well-known determinist methods that may be used to resolve transportation issues. The methods that are appropriate for resolving real issues are discussed in more detail. The solution procedure of the selected method is demonstrated using simple examples and the results are compared with the results of other methods. An analysis of the above methods is used to design and implement new methods to resolve real transportation issues, their results being compared with the methods provided by the commercial software product.