Network Model for Production/Distribution Optimization Applied to HVAC Project Contractor

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Abstract

The multinational presence of some companies can increase the real benefit of the division of tasks if they consider the complexity of their network when taking decisions. The supply chain planning supposes a holistic vision of the different stages involved in the supply of materials for the manufacture of a product, as well as for its final distribution, since some elements that may seem optimal locally are not so at the end. The purpose of this work is to model a production-distribution system for an industrial HVAC project contractor considering the two facilities in which their production can be manufactured and their characteristics, various supply sources, and international transportation costs according geographical location of their industrial projects. A heuristic solution procedure is required to find an efficient, feasible-enough supply chain assignation for each construction project. The model will be tested on the real environment of the company it was built for in the mid-term once the cost parameters are established in order to quantify the benefits that its application implies. Moreover, additional constraints such as transportation risk can be considered later either as a second objective of the problem or as an additional parameter to inquire about.

Keywords: Mixed Integer Program model, HVAC Contractor, Production-Distribution System