A hybrid approach for a Strategic planning problem represented by a three-echelon logistics network

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Abstract

This article aims to elaborate a strategic plan allowing to decision makers to take right decisions (Selecting suppliers, Selecting plants that can produce a specific product, ..) in the right moment in order to minimize the generated costs

It is in this context that our work is being taken. The objective is to model and solve a strategic planning problem at three levels which are: supplier-plant, plant-plant and plant-customer. The costs taken into effect in this model are: the supply costs, production costs and transport costs.

The problem belongs to the CFLP Family (Capacitated Facility Location Problem) with a NP-hard complexity. The objective of our MIP problem is to maximize a production company benefits through minimizing costs mentioned above.

Given the limitations of exact methods and the optimum local problem when we used a heuristic method like a LNS (Large Neighborhood Search), we proposed to solve this problem using hybridization between two heuristics: LNS & Genetic Algorithm

This hybridization will give us more opportunities to find better solution when a local optimum is reached.

Keywords
Supply Chain Management; Capacitated Facility Location Problem; LNS; Genetic Algorithm; Hybridization.
Biography

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