An evolutionary algorithm for a biobjective location-allocation-routing problem.

Herminia I. Calvete, Carmen Galé, José Ángel Iranzo.

Universidad de Zaragoza.

Abstract: The problem addressed in this work focuses on a multi-echelon distribution system which consists of a central depot, a set of potential intermediate warehouses and a set of customers with known demand. Goods are supplied from the central depot to a subset of warehouses using a fleet of homogeneous vehicles. These are the warehouses visited. Then, each customer is served from a visited warehouse. The problem jointly considers the selection of the warehouses which are visited, the allocation of the customers to the selected warehouses and the design of the routes that serve the warehouses.

The objectives to be minimized are the total distance travelled by the vehicles which serve the warehouses and the total distance travelled by customers to reach their allocated warehouse. An evolutionary algorithm is developed to approximate the Pareto front.

Palabras Clave: Location; Allocation; Routing; Evolutionary Algorithm.