

AN INTEGRATED LOGISTICS NETWORK MODEL WITH SEPARATED MARKETS FOR NEW PRODUCTS AND REMANUFACTURED PRODUCTS: A CASE STUDY

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ABSTRACT

Returns management is a major topic in supply chain management. A closed-loop supply chain network with manufacturing and remanufacturing factories, distribution and collecting centers, and customers is developed for this research. New products and remanufactured products are each sold in their own markets (first and second markets). In addition to that, the first market customers can switch to the second market and replace the new product with the remanufactured one. A mixed-integer linear programming model with profit maximization is developed. Also, location and allocation are investigated through considering scenarios for capacity allocation. These scenarios hold the new product as the main priority, legal requirements, and optimal capacity allocation. Moreover, profitability is studied considering various sensitivities to the price differences for the customers. This study uses the Iranian tire market as a case study.

KEYWORDS: *Closed-loop supply chain; Re manufacture ;Location; Tire industry; Allocation*

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