

The Vehicle Assignment of a Mexican Freight Transport Company

Felix Eduardo Bueno-Pascual

UPAEP University School of Logistics and Supply Chain Management

felixeduardo.bueno@upaep.edu.mx

Jose Luis Martinez-Flores

UPAEP University School of Logistics and Supply Chain Management

joseluis.martinez01@upaep.mx

Diana Sanchez-Partida

UPAEP University School of Logistics and Supply Chain Management

diana.sanchez@upaep.mx

Patricia Cano-Olivos

UPAEP University School of Logistics and Supply Chain Management

patricia.cano@upaep.mx

Abstract

Logistics cost reduction is very important for Mexican companies, mostly if they are in the freight transport industry. Since logistics is part of the business core, they must find ways to manage their operations with efficiency and effectiveness to reduce costs while their revenue is increased. This research is focused in providing a mathematical model for a Mexican freight transport company, which can be used for the assignment of trucks in the daily program. This model, unlike those based on the Generalized Assignment Procedure (GAP), not only includes general costs, but also penalty costs caused by truck drivers. The objective of this model is to minimize the total cost of assigning 100 vehicles to 10 selected routes considering routes and drivers characteristics (like route type, long/short routes, driver license type, driver performance), improving the costs by reducing them up to 44.11%, compared with the current assignment costs related to assignment, maintenance, penalty, idle time, and logistics.

Keywords

Keywords: Logistics, Freight transport, trucks productivity, operations research