

# **Improving On-Time Delivery Eliminating Routing Waste: A Case Study**

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## **Abstract**

According to The Mexican Transportation Secretary informed that in 2014 was carried out by trucks. However, despite its importance, road transportation has traditionally been stated as inefficient in terms of customer service level in Mexico by the Instituto Mexicano para la Competitividad (2004).

The problem of improving on-time truck delivery in truck routing operations has been treated exhaustively in the academic literature. Two approaches have been used to the goal of reducing transportation cost; the mathematical modelling approach and the efficiency improvement approach. Under the first approach an important volume of algorithms of The Vehicle Routing problem have been developed (Boudia *et al.*, 2008; Chiu *et al.*, 2006; Zhao *et al.*, 2010; Golden, et al., 1988; Laporte, et al., 1995 & Zhong, et al., 2007). These models have the objective of minimizing time or distance. The efficiency improvement approach is based on the idea of eliminating waste and it is an emerging area of research.

This work describes the strategy of a Mexican package delivery firm to improve its on-time delivery level. This is based on the application of an approach to increase the level of agility of its distribution operations. The company has an extended national network with an important private fleet. The current level of on-time delivery is estimated on 75% on average which is considered as poor by the management. The approach applied is built on the improvement of the distribution operations efficiency. This approach considers the identification of the most restrictive installation of the distribution network and the improvement of its efficiency. A strategy for increasing the availability, performance and quality efficiencies of the installation is devised and implemented. A description of the application of the scheme and results from pilot projects is provided.