EVALUATION OF THE REVERSE LOGISTICS PERFORMANCE IN CIVIL CONSTRUCTION

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Abstract

Reverse logistics is responsible for the return of materials to the production process to be reused, recycled, remanufactured, or have an environmentally correct final destination. Every year, civil construction generates a large volume of waste that can be recovered through reverse logistics. The performance evaluation of these activities is necessary for managers to know the real efficiency and effectiveness of their actions and to avoid unnecessary expenses and losses. However, this activity is still not widely practiced in developing countries, such as Brazil and Colombia. This research aims to propose a model for the evaluation of LR performance in civil construction to assist the practice of return activities in developing countries. Initially, a bibliographic search was performed to find indicators for the model. The reverse flow in the civil construction was mapped based on works published in Brazil and Colombia. From this mapping, a 12 indicators model was elaborated to approach supply logistics, internal logistics operations, and the waste management of the construction companies, in order to evaluate the performance of this sector. Also, these indicators were prioritized through the AHP method. With this prioritization, it is possible to know which indicator deserves greater attention from managers when implementing improvements. As a way to demonstrate applicability, the model was applied in a Brazilian company and other Colombian companies. It was noticeable that the Brazilian company does not have much control of its operations because it was not possible to calculate five indicators of the model due to lack of information, whereas in the Colombian company, only one indicator was not calculated due to lack of information. When analyzing the results obtained, the model provides useful data for the managers when demonstrating where the company is reaching its goals and where improvements in the process are necessary. Both companies have improving their performance in the green purchasing indicator as a priority. Both sets targets that were not met for this indicator, and according to the prioritization made by AHP, this is the point that deserves special attention from both companies. Improvement points deserve special attention from both companies. Therefore they were highlighted for each one of them and also for the model so that it could be applied in other organizations in the sector.

Keywords