

Application of Fuzzy AHP and Fuzzy TOPSIS on Supplier Selection in Restaurants

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ABSTRACT

One of the important processes in a business is supplier selection. The supplier selection process consumes a significant amount of a business's financial resources and important role in the business's performance. This is because it needs to guarantee that they purchase the best raw materials in order to have a high quality of goods so that it can make profitable products. Therefore, it is important to consider the performance of all the potential suppliers based on the certain criteria needed as it will affect the business's profitability and image. To cope with uncertainty in supplier selection decision procedures, fuzzy set theory and multi-criteria decision making (MCDM) methodologies have been frequently employed because it provides a suitable language to handle imprecise criteria and the ability to integrate the analysis of qualitative and quantitative factors. Fuzzy AHP which is Fuzzy Analytic Hierarchy Process and Fuzzy TOPSIS which is Fuzzy Technique for Order Preference by Similarity to Ideal Solution are two examples. The main reason for this study is to determine the best supplier of fresh chickens for chicken chop restaurants by using Fuzzy AHP and Fuzzy TOPSIS. At the same time, this study purpose is to compare both methodologies used. Fuzzy AHP and Fuzzy TOPSIS are applied to the primary data that has been collected. The outcomes of this study has shown that it produced the same outranking even though different method has been applied to it. However, it may produced different outcomes if both alternatives and criteria are added more. The analysis presented in this research may be used as a tool for further studies for future researchers.

Keywords: Supplier Selection, Multi-criteria Decision-making, Fuzzy AHP, Fuzzy TOPSIS