Analyzing Real-Life Problem Solving: The Application and Evaluation of TOPSIS in Multiple-Criteria Decision-Making

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ABSTRACT

In our pursuit of devising an analytical and numerical method capable of accommodating multiple alternatives and criteria, this paper explores the Technique for Order Preference by Similarity to the Ideal Values (TOPSIS). Multi Criteria Decision Making has evolved as a highly used computational technique wherein the most optimal solution is proposed amongst the numerous alternatives provided based on different criteria or objectives which are at times conflicting also. TOPSIS stands out as a numerical approach to multiple-criteria decision-making, boasting a clear mathematical foundation and broad applicability. This method proves highly practical, leveraging computer support for efficient implementation as it incorporates both objective and subjective factors, taking into account both quantitative data and qualitative assessments. It has a straightforward mathematical basis and is a widely applicable method. The ensuing discussion within this paper aims to assess the efficacy of the TOPSIS method in addressing real-life problems and scrutinizing the derived solutions.

Keywords: TOPSIS, Multi Criteria Decision Making, Criteria

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