The Olympic Games are receiving more and more international attention as the nation's athleticism continues to grow. The International Olympic Committee (IOC) is committed to keeping the Games relevant and influential by adding new sports. To guide these decisions, the IOC's Olympic Program Committee has developed a set of criteria to ensure that each sport is consistent with Olympic values. The purpose of this paper is to provide the IOC with a mathematical model for evaluating whether a sport meets these criteria and to make sound recommendations accordingly.

To address problem one, this paper analyzes and screens multiple factors in depth based on actual data, including popularity, gender equality, sustainability, inclusiveness, innovativeness and safety, and constructs a miniature model to clarify the relationship between these factors and program scores.

For problem two, this paper designed a gray correlation analysis model based on 28 Olympic events and six core factors. The maximum value of each competition item was selected as the reference series, and was dimensionless to eliminate the differences between different measures. Subsequently, the article calculated the difference series and further derived the correlation coefficients, which can accurately assess whether each Olympic event meets the Olympic standards and requirements by ranking and analyzing these coefficients.

To address problem three, the article adopts the maximum value normalization method to normalize the decision matrix, and calculates the weights of each index through the entropy weight method. Combining the positive and negative ideal solutions and Euclidean distance, the project ranking is carried out, and the performance analysis of sports projects is refined through the comprehensive assessment of gray correlation analysis and TOPSIS method.

To address problem four, this paper proposes an assessment model based on TOPSIS, combining the Olympic Committee standards, standardizing the scoring data using the extreme difference scaling method, calculating the comprehensive scores and ranking them, and ultimately recommending the project with the highest score. The model provides a basis for the scientific selection of new or restarted programs for the 2032 Olympic Games, ensuring that the programs are in line with Olympic core values and global development trends.

翻译

随着国民运动能力的不断提升，奥运会在国际受到的关注越来越多。国际奥委会（IOC）致力于通过增加新的运动项目来保持奥运会的相关性和影响力。为了指导这些决策，IOC的奥林匹克项目委员会制定了一套标准，以确保每项运动都符合奥林匹克价值观。本文旨在为IOC提供一种数学模型，用于评估运动项目是否符合这些标准，并据此提出合理的建议。

针对问题一，本文基于实际数据，深入分析并筛选了多个因素，包括受欢迎程度、性别平等、可持续性、包容性、创新性及安全性等，构建了微型模型以明确这些因素与项目评分之间的关系。

针对问题二，本文设计了灰色关联分析模型，基于28个奥林匹克竞赛项目和六大核心因素。选取每一赛项的最大值作为参考数列，并进行了无量纲化处理，以消除不同量纲间的差异。随后，文章计算了差序列，并进一步求得关联系数，通过对这些系数进行排序分析，能够精确地评估各个奥赛项目是否符合奥林匹克的标准与要求。

针对问题三，本文采用最大值归一化法对决策矩阵进行标准化处理，并通过熵权法计算各指标权重。结合正负理想解和欧几里得距离，进行项目排名，并通过灰色关联分析与TOPSIS方法综合评估，细化体育项目表现分析。

针对问题四，本文提出基于TOPSIS的评估模型，结合奥委会标准，使用极差缩放法标准化评分数据，计算综合评分并排序，最终推荐得分最高的项目。该模型为2032年奥运会新增或重启项目的科学选拔提供了依据，确保项目符合奥林匹克核心价值观和全球发展趋势。