

Solutions to Overcome Current MCDM Limitations

Yasaman Parsia

Faculty of Industrial Management
Universiti Malaysia Pahang
26300, Pahang, Malaysia
yparsia@yahoo.com

Puteri Fadzline Muhamad Tamyez

Faculty of Industrial Management
Universiti Malaysia Pahang
26300, Pahang, Malaysia
fadzline@ump.edu.my

Abstract

Many complex problems are commonly tackled decision-makers to propose a decision as a solution. Many of these problems are needed expertise of Multi Criteria Decision Making (MCDM) to be solved. But any of MCDM methods have some limitations and lacks. In this study as a qualitative research methodology tries to mention some example about these problems, based on literature review. As an example, Analytic Hierarchy process (AHP) is one of them which is a multi-applicable and the most popular method of MCDM. But, AHP method was lacking in evaluation of cluster criteria. Therefore, Analytic Network process (ANP) was proposed to improve and minimize problems of AHP. Because ANP can present relationships between elements and told which factor is so important. But, if the researcher uses many numbers of factors, it will increase number of pairwise interdependency comparisons among them. Therefore, the results not so clear and decision maker will be complicated and couldn't understand relationships very well. A group of scholars used other alternative MCDM models to solve this problem, such as, decision-making trial and evaluation laboratory (DEMATEL) instead of ANP or hybrid this method with ANP. Because DEMATEL can be evaluated extended interrelationships (direct or indirect) of elements and explained. To conclude, current MCDM methods are needed improvement based on today's complex decision making and use hybrid methods can be one solution to overcome on limitations and lacks methods.

Keywords

Limitation, Hybridization, MCDM.

Biographies

Yasaman Parsia is a PhD student. She completed her BSc and MBS in Microbiology field of study. She has published a few articles in her field. She is now with Universiti Malaysi Pahang.

Puteri Fadzline Muhamad Tamyez is currently a fulltime senior lecturer with faculty of industrial management, universiti Malaysia Pahang. Dr. Puteri Fazline holds BSc, MSc, and PhD. She has published many articles in her field.