

Accepted Manuscript

A group decision method based on prospect theory for emergency situations

Liang Wang , Ying-Ming Wang , Luis Martínez

PII: S0020-0255(17)30857-5
DOI: [10.1016/j.ins.2017.07.037](https://doi.org/10.1016/j.ins.2017.07.037)
Reference: INS 13003



To appear in: *Information Sciences*

Received date: 26 May 2016
Revised date: 27 July 2017
Accepted date: 31 July 2017

Please cite this article as: Liang Wang , Ying-Ming Wang , Luis Martínez , A group decision method based on prospect theory for emergency situations, *Information Sciences* (2017), doi: [10.1016/j.ins.2017.07.037](https://doi.org/10.1016/j.ins.2017.07.037)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A group decision method based on prospect theory for emergency situations

Liang Wang^{a,b}, Ying-Ming Wang^{a,*}, Luis Martínez^b

^a Decision Sciences Institute, Fuzhou University, Fuzhou 350116, PR China

^b Department of Computer Sciences, University of Jaén, Jaén 23071, Spain

Abstract

Urgent and critical situations or so-called emergency events, such as terrorist attacks and natural disasters, often require crucial decisions. When an emergency event occurs, emergency decision making plays an important role in dealing with it, and hence, its importance nowadays is increasing. In the real world, it is difficult for only one decision maker to take a comprehensive decision for coping with an emergency event. Consequently, many practical emergency problems are often characterized by a group emergency decision making (GEDM) scheme. Different studies show that human beings are usually bounded rational under risk and uncertainty, and their psychological behavior is very important in the decision-making process. However, such behavior is neglected in current GEDM studies. Therefore, this study proposes a novel GEDM method that considers experts' psychological behavior in the GEDM process. The method is then applied to a case study and compared with other related approaches. Finally, discussions are presented to illustrate the novelty, feasibility, and validity of the proposed GEDM method, showing the importance of experts' psychological behavior in GEDM.

Keywords: Group decision making; Emergency response; Prospect theory

1. Introduction

In recent years, various emergency events (EEs), such as earthquakes, the missing Malaysian Air flight “MH370,” hurricanes, and terrorist attacks, have exerted severely negative impacts on human life and socio-economic development. When a devastating incident occurs, emergency decision making (EDM) is typically characterized by at least time pressure and lack of information, resulting in potentially serious consequences [12, 21]. Since EDM plays a crucial role in mitigating the losses

* Corresponding author. Tel.: +86 591 22866677; fax: +86 591 22866677.

E-mail addresses: wangliangg322@hotmail.com (L. Wang); msymwang@hotmail.com (Y.-M. Wang); martin@ujaen.es (L. Martínez)

Download English Version:

<https://daneshyari.com/en/article/4944211>

Download Persian Version:

<https://daneshyari.com/article/4944211>

[Daneshyari.com](https://daneshyari.com)