

Selecting a weapon system using zero-one goal programming and analytic network process

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Abstract

Weapon system selection is a multi-criteria decision-making (MCDM) problem. In this study we use the Zero-One Goal Programming (ZOGP) approach and Analytic Network Process (ANP) to solve this problem. An interactive procedure is developed for this solution process. Under such a multi-criteria decision-making process, military user and experts' judgment can be brought to select an appropriate system. Finally, an example is given to show how this process works.

Keywords : Multi-criteria decision-making, goal programming, weapon system selection, analytic network process.

1. Introduction

Selecting the right weapon system is critical to a nation's security. In modern warfare, one of the important factors that influence the outcome of a war is whether a nation's weapon system is excellent or not. A weapon system that is very complex and precise, however, will be very expensive. The lifespan for such a system should be very long, so weapon system selection must be carefully considered. In the department of

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