Abstract

Funding R&D projects is perhaps the most important task faced by large public organizations, in charge of promoting science and technology in different countries. However, most popular ways to solve this decision problem are based on too simple decision models and weak heuristics. In this paper a new methodology is presented to assist top level managers of those organizations during the project evaluation phase until the final decision. This methodology covers the following central points: a) a measure of the global impact and probability of success as main attributes to assess the quality of a R&D project; b) a way to represent the knowledge, preferences and beliefs from the top level managers, and an approach to take into account that information in the evaluation process; c) a way to update the beliefs of the top level managers by taking into account the experience of the whole organization; d) a numerical model of the quality of a project portfolio that can be used for improving final portfolios; e) an evolutionary algorithm to explore the set of portfolios searching for the very good solutions. We also discuss the functional structure of a software application which implements the proposed methods. In some examples of real size our proposal clearly outperforms traditional methods.

Keywords

Project management, decision tables, evolutionary algorithms, decision support systems.