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A fuzzy weighted average approach for selecting portfolio of new product development projects

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Abstract

New product portfolio selection is a multi-criteria decision making problem including both qualitative and quantitative criteria. Determining the exact values for these criteria is often difficult or even impossible taking into account uncertainty and complexity associated with new product development projects. To assist managers in making portfolio selection decisions, this study proposes a new project portfolio selection model that uses a fuzzy weighted average approach for ranking new product projects and artificial neural networks for estimating project performance. New product development projects are evaluated according to criteria related to marketing, project team, project performance, risk, and strategy. The use of neural networks enables more precise evaluation of project performance criteria and provides additional information in portfolio selection. A case study of the evaluation of new product projects illustrates the usefulness of the proposed approach.

Keywords:

Fuzzy logic, Neural networks, Fuzzy neural system, Multi-criteria decision making, New product screening

1. Introduction

Today's project companies develop an increasing number of products and services, as a response to rapidly changing market trends. As a result, new

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