



Proposing a comprehensive portfolio management model for contractor companies in construction industry using multi-criteria decision making techniques and fuzzy logic

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Abstract- Project portfolio management is an integrated way to achieve the strategic goals of the organization through the evaluation, prioritization, selection and management of projects, plans and other related tasks based on their involvement in the organization's strategies and goals. Contractor companies in construction industry, that have different strategic goals and projects, always face high uncertainties in their projects; But they all have one thing in common, which it is not possible for them to implement all projects at the same time due to the limitations of resources (financial resources, human resources, equipment and machinery); Therefore they should try to achieve their strategic goals by identifying, evaluating, prioritizing and selecting the right projects by using portfolio management processes.

Mentioning this necessity, this paper aims to provide a comprehensive and realistic model for portfolio management of contractor companies in construction industry. So that each construction company with its unique strategic goals and constraints, can apply it. The proposed model has three basic steps of project identification, evaluation and selection; In the first step, all the organization's strategic goals, criteria and projects are identified, then in the second step, using a combination of AHP and SAW methods and fuzzy logic, a multi-objective decision problem to prioritizing projects based on goals (Each goal represents a group) is addressed; finally in the third stage, using the event tree (ET) method, all possible scenarios from the project's combinations (probable portfolios) are identified and according to the limitations and points of each scenario, the best scenarios are selected.

Keywords: Portfolio Management - Multi-Objective Decision Making - AHP Method - SAW Method - Fuzzy Logic - Scenario Analysis

