

## **Abstract**

Staffing is one of the most critical Human Resource (HR) functions, as it is the organization's primary method for hiring and retaining human capital. Recruitment and selection are the most important tasks because the ability to hire the right people at the right time is crucial to an organization's success. Sometimes, research on employee attrition is seen as an endpoint — the apparent end of the employer-employee relationship. Nevertheless, this is not always the case, as the employee may return to the employer sometime in the future. Prior research on staffing has mainly concentrated on finding and hiring the best candidates but has paid little attention to the skills and motivations of those who left or their likelihood of returning. The talent management technique of "boomerang hiring" is a method for attracting former employees.

Boomerang hiring depends on the relative significance of multiple criteria and the alternatives associated with each of them. Boomerang selection techniques may be classified as multi-criteria decision-making (MCDM) problems. In the first phase of this study, the relevant level-1 selection factors and their relative significance were identified to develop a decision-making framework for ranking the potential candidates for boomerang hiring. Moreover, a comparative study based on Grey-based MCDM and fuzzy TOPSIS evaluates the consistency of ranking among selection variables and alternatives. In the second phase of the research, additional level-2 selection factors were taken into account to refine the initial selection decision, and their cause-and-effect relationships were investigated using the Single-Valued Neutrosophic Set (SVNS) methods.

This thesis presents novel methods for selecting the most appropriate candidates from a pool of candidates using a multi-criteria decision framework. Using the proposed methods, human resource managers can make the most informed hiring decisions possible, ensuring optimal alignment between personnel and organizational goals. In addition to validating the results obtained, the numerical examples used to support the claims made in this study demonstrate the robustness and reasonableness of the proposed methods. This thesis makes a theoretical contribution to the current body of knowledge by introducing a new integrated hybrid technique to address the challenges posed by an imperfect or incomplete decision framework.

**Keywords:** Boomerang hiring, Multi-criteria Decision-Making (MCDM), Staffing, Grey-based MCDM, Fuzzy TOPSIS, Single-Valued Neutrosophic Set (SVNS)