

## **Comparison of Cluster Analysis and Unsupervised-learning Neural Networks in Classifying Construction Contractors**

### **Abstract:**

Contractor prequalification involves the screening of contractors by a project owner to determine their competence to complete the project on time, within budget and to expected quality standards. The task of prequalifying contractors involves a large number of contractors, each being represented by many attributes. The statistical technique of cluster analysis (CA) was used in the literature to aid in qualifying contractors by classifying contractors into groups of similar nature or common characteristics. However, there is a scope for investigation of an alternative Neural Network (NN) technique. This paper employs unsupervised-learning NN model to classify construction contractors. The objective is to introduce the NN model and compare the results of CA and NN techniques using representative financial ratios of liquidity, activity, profitability, and leverage ratios. The results indicated that, though the performance of both techniques was very comparable for the case of two-dimensional data, it was evidenced that the performance of CA was more influenced by the shape of data. Moreover, it was observed that the performances of the two techniques deviate as the number of ratios increases.