Abstract

Over time, the number of public or private tenders among the competitiveness increases considerably, so companies must choose carefully which ones to bid for. For this selection two main key aspects should be identified: tenders in which the company has more competitive advantage and the maximum profit margin that the company can assume without the risk of not being awarded due to better economical offers of other competitors. In this paper, a decision tool to help railway companies to make decisions regarding the participation in certain bidding processes is developed applying Machine Learning algorithms. A complete database of 480 data samples including 17 different variables in each sample is used for training the four algorithms: ridge regression, random forest, support vector machine (SVM) and Artificial Neural Networks (ANN). The variable to be predicted is the competitors' bid price range for commuter trains in the railway sector. A comparative table with the performance of each model is presented, concluding the most appropriate one to be used depending on the different price ranges established.
References

1. S. Duleba, «Principal Component Analysis of the Potential for Increased Rail Competitiveness in East-Central Europe», Sustainability 2019, 11(15), 4181..

Index Terms

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Keywords

pricing, price prediction, machine learning, ridge regression, random forest, support vector machine (SVM), Artificial Neural Networks (ANN).