Seminar

Topic : Key indicators for evaluating the performance of construction companies from the perspective of owners and consultants

The construction sector is considered as one of the largest and most important sector in many countries of the world. This research aims to determine the most important performance indicators to evaluate the performance of construction companies from the perspective of owners and consultants. To achieve the aim of this study a total of 107 questionnaires were distributed to owners such as ministries, municipalities, and non-governmental institutions in addition to consulting offices that supervised the implementation of a number of construction projects in Gaza Strip. The collected data was analyzed with Statistical Package for Social Science (SPSS) IBM version 22. The results of this research showed that the most important indicators for evaluating the performance of construction firms in Gaza Strip are, the time needed for construction works, compliance with technical specifications, quality of workmanship, the overall time for completion of all project work, acceptable quality, overall cost, time to prepare shop drawings, understanding the work, cost for construction works, and the availability of quality control system. This study may help in the future to set a comprehensive framework for evaluating the performance of construction companies that may serve as a benchmark against the competitors in this field, identifying weaknesses and addressing them, and developing strengths in order to continuously improve performance to achieve the optimal performance in order to satisfy the customer expectations and achieve desired results.

First — Exploratory Data Analysis

To do this, the Statistics node will do the magic. All you have to do is to connect the dataset to this node, and statistical information regarding the dataset

Second — Analysis of Work-wise Performance

To know the average performance of each Builders, the Bar Chart node would do the trick.

Third — Feature selection

As you can include a lot of variables as independent factors affecting the overall performance, we need to see which of them are essential. To do so, an old simple correlation matrix needs to be built. And by “building

EG : We can now see which variables positively correlate the most to Performance from the matrix, e.g., employee environment satisfaction, employee lastwork, and employee performance

Fourth — Modelling

For this part, we have two options: either including only variables that show a positive or negative correlation to Performance, or use everything as an input to the model. If you feel like the model needs a surgeon's precision, the first option will do best. However, if you do it to test models' performance without feature selection, then the second option will require less effort.

The modelling phase aims at correctly solving a 3-class classification problem concerning employee performance, where the classes are: meet, low and exceed [performance expectations]. The modeling methods used in this workflow are: Random Forest, Naive Bayes, Gradient Boosted Trees, Tree Ensemble, Linear Regression, Polynomial Regression, Decision Tree.

Results and Recommendations

It will be easier for the user to decide which aspects should be improved to increase overall builders performance.

Conclusion

This paper concluded with the aim of this study, which is to identify the most important indicators for evaluating the performance of construction companies from the perspective of owners and consultants in Gaza Strip. The ten most important indicators are the time needed for construction works, compliance with technical specifications, quality of workmanship, the overall time for completion of all project work, acceptable quality of outputs available for use, overall cost, time to prepare shop drawings, understanding the work, the cost for construction works and, availability of quality control system. It was also concluded from this study that all indicators related to (time, cost, quality, health & safety, relationship, environment, innovation, project management, qualification, and financial) groups are all without exception important groups to evaluate the performance of contractors from the perspective of owners and consultants, with varying the importance of these groups of indicators in Gaza Strip.

Reference

https://www.researchgate.net/publication/360617837_Machine_Learning_Based_Solutions_for_Human_Resource_Systems_Management

https://medium.com/low-code-for-advanced-data-science/modeling-employee-performance-analysis-15eec3821d84