

## Abstract

The main objective of this research is to propose a transportation productivity prediction model for ready mixed concrete business. This research has developed quantitative techniques, which are a combination of neural network and regression analysis in order to model ready mixed concrete delivery. Two hybrid models i.e. (1) hybrid artificial neural network-regression model; and (2) hybrid multiple regression-artificial neural network model were conducted to predict transportation productivity. Seven dependence variables were employed to this study which is concrete volume, delivery distance, batching time, travelling time, waiting time, pouring time, and returning time. The results indicate that the collected data were complied well with both models. The prediction performance of both models was compared to determine a prediction model by using mean absolute percentage error (MAPE) and root mean square error (RMSE). The results reveal that MAPE and RMSE of hybrid artificial neural network-regression model were lower than hybrid multiple regression-neural network. As such, it can be claimed that hybrid artificial neural network-regression model is better alternative approach for modeling transportation productivity of ready mixed concrete than hybrid multiple regression-artificial neural network.

**Keywords:** Ready Mixed Concrete, Multiple Regression, Artificial Neural Network, Hybrid Model

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