



Forecasting Service Costs for Vehicle Fleet

Services: **Predictive Modeling**



Context

A truck manufacturer and servicing business required more accurate forecasting of vehicle service costs to improve contract pricing and maintenance planning. Broad fleet-level methods were not sufficient for capturing the variation in service behaviour across individual vehicles.

Solution

Developed time series and machine learning models to predict service costs at individual vehicle level using technical specifications, mileage, and service history as predictive inputs. Multiple modelling approaches were explored, including statistical and ensemble methods, with the final direction centred on LSTM-based forecasting for improved vehicle-level performance.

Impact

Reduced service cost prediction error by 44% on the test dataset relative to a traditional forecasting baseline. This improved maintenance contract pricing accuracy and demonstrated the value of moving from coarse fleet-level estimation to more granular vehicle-level prediction.