Applying Backpropagation Neural Network In PET Film Sales Forecasting-A Case of K Company

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ABSTRACT

Sales forecasting is the origin of material requirements planning. The accuracy of the forecasting has a great impact on the operational efficiency of the material requirements planning and is related to the overall operation of the plant. How to improve the accuracy of sales forecastsing is a long-term issue. The Time Series Method is a common prediction method. Its characteristic is that it can obtain a predicted value without complicated calculations. It can achieve good prediction performance for simpler data and can be immediately used as an application. Nowadays, various products on the market are becoming more multifunctional, and the sales volume of products is affected by a large number of external factors, which makes it more difficult to predict sales. Neural network has the functions of inductive derivation and learning. It can construct nonlinear models, and have good prediction accuracy for complex problems. So Neural Network have been used extensively in the prediction research.

The PET film application industry is quite extensive, and the same application industry has PET film products at its upstream and downstream sides. It has not been able to use market-related variables as factors for analysis and forecasting. This study takes K company as the research object and classifies product types into three categories: thermal paper, optics and industrial processing. By using the results of common forecasting methods for each category of sales volume and total sales volume as factors, a sales forecast model for each product category is constructed
using the Back-Propagation Neural Network.

The results of the study showed that the Mean Absolute Percent Error of the prediction results for the three BPNN models of PET films could reach 20%.

Key words: Back-Propagation Neural Network、PET Film、Sales Forecasting