

Improve Demand Forecasting with Machine Learning

Advancements in cloud computing make the benefits of machine learning available to the service center industry.

In the world of information technology, “machine learning” is the name given to software programs that allow computers to identify patterns among vast sets of data and then recognize those patterns in other data sets—essentially “learning” on their own.

The suggestions that online shopping sites offer when customers purchase a book or movie and self-driving cars are examples of machine learning. Until recently, machine learning was accessible only to organizations with large, internal IT staffs with a unique skill set. Recent advancements in publicly available cloud computing offerings have presented manufacturing organizations with the chance to take advantage of the powerful analysis ability machine learning can offer.

One of the biggest applications of machine learning is demand forecasting. Service centers make money by having enough of the right product in stock when customers need it. Too much inventory cuts into margins; not enough inventory can result in lost sales. Traditionally, metals service centers have developed forecasts of the types and quantities of products that their customers purchase by looking at historical records and talking to customers about what they might need in the future. Both of these activities are useful, but machine learning can add a third dimension by combing through large data sets and identifying patterns and correlations. Machine learning models can help build a more accurate forecast based on historical data points and identify correlations between disparate data.

How machine learning works

Modern enterprise systems are companywide process improvement initiatives that can radically change the way metals companies do everything, from purchasing materials to processing to delivering products. They can make machine

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learning easy for nontechnical managers to use because the systems come with a number of predefined models that users can employ and adjust as needed. Microsoft Dynamics AX and Microsoft Azure Machine Learning are current examples of these tools.

Using machine learning for the demand forecasting process generally follows three steps:

- The first step is to gather historical transactional data from the ERP application.
- The second step is to generate baseline forecasts using the predictive analysis techniques available in machine learning services. This is the value-added step and is where machine learning algorithms not only identify potential patterns, but also link those patterns to variables that may influence demand.
- The third and final step is to review and adjust the forecasts before committing the data to the organization’s planning schedule.

The end result? A simple, but powerful tool that puts valuable information in the hands of managers wherever they are located—at their desks, on the shop floor, or traveling thousands of miles from home—and accessible via computer, laptop, tablet or smartphone. A number of metals service centers already have started to incorporate machine learning into their IT systems. ■

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