

SUPPLY CHAIN INSIGHTS

BUILDING THE PREDICTIVE SUPPLY CHAIN OF THE FUTURE

Companies that embrace new predictive analytics and data science will increasingly outstrip their competitors – but getting there won't be easy.

Forecasts are often wrong.

For generations, this adage represented an intractable business reality. Companies have lived with the consequences of this unfortunate truth, seeing it manifest as bloated inventories, obsolescence, no or low stock, production delays, shutdowns, customer service breakdowns, delayed product launches and a myriad of other recurring and costly problems.

Fortunately this situation is changing, thanks to current and next-generation business analytics applications. A new collection of data science tools is poised to alter forecasting forever, and in so doing, transform how enterprises - and their supply chains - operate. These new solutions are, in fact, fueling the emergence of what's known as the predictive supply chain – a supply chain that not only anticipates events, but actually shapes them.

Let's look at how predictive technologies are playing out in forecasting, and in turn, the supply chain. "About 90 percent of the problems companies wrestle with stem from forecasting, starting with the demand forecast and letting that trickle back through the process to procurement and logistics planning," observes Bill Voorhies, President & Chief Data Scientist at Data-Magnum, in a recent article posted on Data Science Central.¹

"As you approach the near-term forecast, the details become more complex," he explains. "While longer term forecasts are fairly smooth, short term forecasts suitable for supply chain control must take into account a whole host of smaller variables unique to each stage in the process. These may be weather- or holiday-related, allow for specific promotional campaigns, incorporate known changeovers in logistics or production, or respond to anticipated increases or decreases in costs like freight. In short, forecasts suitable for supply chain direct control are anything but simple."



Getting the forecast wrong, therefore, means getting the supply wrong.

Predictive analytics and data science can change that. Instead of simply reacting to events that occurred weeks or months ago, predictive supply chains see and analyze events as they are happening, and use this information to anticipate, predict and direct the future.

Applicable anywhere

Where can these new analytics and data science tools be most useful in the supply chain? Just about anywhere. For example, a company can take raw real-time data and layer on analytics that assess what the data means to the business, and how best to respond to it. It also can extrapolate the far-reaching implications of the real-time information.

As Patrick Lemoine of software company E2open explains, "It is one thing to know that there is a certain amount of inventory sitting at a particular location. It is even better to understand that there is more of this component on its way and that the projected consumption is less than the projected inventory, leading to high inventory coverage."

¹. <http://www.datasciencecentral.com/profiles/blogs/predictive-analytics-in-the-supply-chain>, accessed March 9, 2016.

But these applications don't stop there, Lemoine continues. If the component is unique and is only used in a few customer-specific products, they also flag that. Knowing this, management can take immediate action to renegotiate supply plans with their suppliers. Thus, they can stop a problem before it even begins.

A compelling payoff

Research shows that pursuing the predictive supply chain pays off – now and more so in the future. According to a study by Gartner Inc., organizations that successfully embrace these technologies are realizing a high return on investment in multiple areas of the business. Specifically, better analytics produced tangible benefits in areas of product quality, revenue, asset utilization, product launches, order cycle time and more.

In fact, companies that do a better job of predicting future demand can often cut 20 to 30 percent out of inventory, depending on the industry, while increasing the average fill rate by three to seven percentage points. Such results can generate margin improvements of as much as one to two percentage points, Gartner says.

But deploying a predictive supply chain isn't just about having the right applications. It's also about having the right people. And finding talent capable of mastering the challenges of utilizing predictive analytics is not easy. A study by McKinsey & Company estimates that by 2018, the United States alone could face a shortage of 140,000 to 190,000 people with deep analytical skills, in addition to 1.5 million managers and analysts with the know-how to use the analysis of big data to make effective decisions.

Despite this human resource challenge, the adoption curve for predictive technologies in the supply chain is likely to ramp up. Successfully deploying these new tools enables companies to transform themselves – from running their business by “looking in the rearview mirror”, to managing by not just seeing, but actually anticipating, the road ahead. For leading companies, that value proposition is simply too compelling to pass up.

To read our white paper, **The Predictive Enterprise: Where Data Science Meets Supply Chain**, please click [here](#).