Analytics Means Transformation for Navistar, Opportunity for Customers

by Dan Pikelny, Vice President, Analytics

Today's trucks and buses generate more data than ever before. But is Navistar capturing insights from that data? And are we using those insights to achieve measurable improvements that deliver added value for our customers and others?

In fact, Navistar is transforming itself to be more data driven. And our analytics function aims to constantly support multiple parts of the business to drive that transformation.

An overview of the four basic types of analytics, as defined by well-known data scientist Tom Davenport, illustrates the impact this approach is having.

Descriptive Analytics

First, descriptive analytics simply means looking at data and seeing what it tells us. From a customer perspective, we call this "competitive analytics" – comparing our vehicles to customers' non-Navistar vehicles on performance issues like fuel economy, uptime, faults per mile or faults per month.

Right now, descriptive analytics is telling a very good story for Navistar. On an industry basis, our data shows we're near the top in terms of fuel economy, and actually at the top in having the fewest faults, using any denominator you apply.

When a fault "fires," it is telling the vehicle owner that something is wrong and the vehicle needs to be attended to. Fortunately, at this time, our vehicles have

fewer faults firing than our competitors' vehicles.

This type of analytics can help us a) know how we are doing, b) persuade customers of the advantages of doing business with us, and c) drive future quality improvement efforts.

Diagnostic Analytics

The next step up the analytics food chain is diagnostic analytics, meaning the identification of problems.

One very valuable application for diagnostic analytics is in the Procurement organization. We continuously seek opportunities to reduce cost for ourselves and our customers by being smarter about our buying decisions.

Here, a very simple example might be comparing the cost of a part with the quantity we are ordering of that part. Normally, when you buy more of something, you'll get a lower price. So if the quantity is going up, but the price is going up, something is probably wrong.

A somewhat more complex example might be looking at prototype contracts versus production contracts. If a given part is being used in production, we should not be buying it through a prototype contract. We should have a production contract in place, because parts bought that way offer better cost. This will either help our variable margin, the customer's bottom line, or hopefully both.

Predictive Analytics

The third type is predictive analytics. And here's where it gets fun, because we are predicting when something will go wrong, so that we can correct it in advance.

One example is working with Manufacturing to reduce defects. The ultimate opportunity is to predict when a defect is going to happen, so we can prevent it.

Ideally, there should be no need to correct defects before a vehicle goes to the customer. And we have built an analytical model that allows us to predict defects, based on a variety of variables such as the type of vehicle, the list of

parts going into it, whether its configuration has been built before, and whether the vehicle had any special engineering.

Based on factors like these, we can predict whether that vehicle will end up in "red tag" as it goes down the assembly line, or whether it will come off the line without defects. We can also identify the potential cause, such as a new part, a new assembly, or something else.

The Manufacturing organization can then pay special attention to that specific vehicle, or try to change how it's slotted, or issue new work instructions for a specific assembly that's never been used in a vehicle. And that happens more often than you'd expect, because all our vehicles are unique; they're not cookie-cutter.

The bottom line is making ourselves more efficient, and getting the product into the hands of the customer on time, with great quality, as promised.

Prescriptive Analytics

The fourth type is prescriptive analytics. Here, we are literally using analytics without human intervention, in order to decide what to do. It's computer decision making, as opposed to human decision making.

While this may remind you of the term "machine learning," prescriptive analytics goes beyond that. Typically, machine learning relies on a human to implement the answer. But prescriptive analytics does not.

Here, a great example is DIA 2.0, our retail inventory management system. It uses a computer algorithm to decide what parts to ship to whom, and when. It essentially assures that each dealership has the right parts for potential repairs on its shelves ahead of time.

DIA 2.0 has had tremendous impact, including a nearly 40% reduction in dealers' emergency parts orders from our parts distribution centers. This helps us reduce last-minute shipping costs. And more importantly, it helps dealers handle repairs more rapidly in order to improve customer uptime.

While each type of analytics is unique, all four types are helping us transform Navistar to be more data driven. The analytics team takes a back seat to the

requirements of the business, advising business functions as consultants on using analytics more effectively and developing the models and tools for the business to use. If we do our jobs right, each part of the business will continue to become more attuned to how the use of analytics can help it succeed.

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