

Steel Manufacturer Reduces Scrap Rates – and Costs – with AI

By automating predictive analytics, NIM Group shortcuts numerous processes and enhances decision-making companywide.

Challenge

The company looks to data to enrich decisions from the factory floor to executive offices, but previously lacked the data science capacity to pursue every opportunity.

Solution

DataRobot AI Platform automates predictive analytics, allowing the team to take on projects that improve quoting, inventory management, and machine settings to cut scrap rates.

Result

The analytics team builds models weeks faster than before. By predicting optimal machine settings, NIM reduces its scrap rate significantly, driving cost-savings. And by generating more accurate forecasts, NIM prevents lost sales and excess inventory.

The Goal: Automate and Elevate Decision-Making

Operating for more than a century, NIM Group has grown into one of the industry's most technologically advanced carbon steel providers. And to keep its edge, the company's data analytics team looks for every opportunity to improve decision-making, from the factory floor to executive offices.

Ben Dubois, Director of Data Analytics, NIM Group, envisioned using data to improve functions such as quoting, inventory management, and even machine settings to improve scrap rates. For the latter, operators have typically relied on operators' knowledge and experience, resulting in inconsistency and making it challenging to ramp-up new operators.

"We knew there were areas of the company where we could use data to add value, whether it's improving accuracy in our decision-making, or being able to automate some of our decision-making," Dubois said.

Rapid Time-to-Value

NIM brought in DataRobot AI Platform to automate predictive analytics and expand the team's capacity to support the business.

"Other AI products were trying to solve a specific problem," Dubois said. "What I like about DataRobot AI Platform is the ability to use it in any way you can think up, whether it's a normal regression-type problem, or forecasting, or for many different use cases."

In a proof-of-value project, with the help of DataRobot University and DataRobot's Customer-Facing Data Scientists, Dubois was able to develop an accurate model and begin realizing value quickly.



INDUSTRY

Manufacturing

PRODUCTS

DataRobot AI Platform, AutoML, Automated Time Series

SUMMARY

NIM Group is one of the nation's largest family-owned networks of steel service centers. NIM Group is the parent identity for each of its brands, Norfolk Iron & Metal, Metalwest, and Cd'A Metals. NIM Group services customers across the U.S. from Washington to New Jersey, stocking a wide variety of products. NIM Group is a member of the Metal Service Center Institute (MSCI). For more information, visit www.nimgroup.com.

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Reducing Scrap Rates

DataRobot Data Prep helps automate prepping the data while AutoML creates advanced models. APIs then automate productionalizing the results on the shop floor. Then, they easily monitor models in production.

Among several applications, the company applies the platform to predicting machine settings for processing steel. By introducing the correct settings into the machine from the start of the process, they generate less scrap, thus creating significant cost-savings.

With the DataRobot AI Platform's application programming interfaces (APIs), they gather information about jobs in real-time, run them through a model, and then feed optimal settings back to the machines. Completing the feedback loop, the company tracks the actual settings used and the corresponding scrap rates to refine the model further.

As a result, less experienced operators ramp-up more quickly and NIM generates more steel that can be sold rather than ending up in a scrap yard.

"As a commodity, steel can range from \$500 to \$1,000 per ton," Dubois said. "By reducing our scrap rates and being more consistent job to job, we can generate significant annual savings for the business."

More Accurate Forecasting

NIM also applied DataRobot AI Platform to forecast demand for inventory to ensure they stock accordingly. For that, DataRobot Time Series allows them to find relationships between the demand for their steel and the industries they serve, NIM prevents lost sales and excess inventory, both of which are costly to the business.

"We look at factors within and outside the company so we'll have the right inventory at the right time," Dubois said. "One of the cool things about DataRobot and machine learning compared to just a normal time-series regression problem is being able to put a lot more features alongside your time series to make better forecasts."

Models Months Sooner

By saving time across the process, Michael Green, Data Scientist at NIM Group, can spend more time with stakeholders to understand business problems and features.

"Instead of taking weeks or months to go from raw data to a deployed model, now we can do that in less than an hour," Green said.

As a data scientist, Green gains satisfaction from helping solve business challenges throughout NIM Group.

"I enjoy helping people enjoy their work more, whether they're saving time, saving money, reducing tedious tasks, or making better decisions. It's meaningful and fun," Green said. DataRobot AI Platform is the best way for me to make an impact that actually matters for the people I work with."



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Ben Dubois
Director of Data Analytics,
NIM Group

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