Plastics News

Auto suppliers use cloud to boost efficiency, cut scrap rate

By Sarah Kominek
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Detroit — Automotive suppliers are implementing cloud-based data software to increase efficiencies and decrease waste amid heightened lead times and a less predictable supply chain.

Livonia, Mich.-based automotive supplier NYX LLC is using M-Powered, a cloud-based AI software developed by ei3 and paired with Milacron machines, to help the company improve its manufacturing efficiency. The company, which makes automotive interiors, including door panels, center and overhead consoles and glove boxes, was able to drop its scrap rate by 23 percent, using the program, bringing it to below 1 percent.

Data analysis from the technology "is endless," Todd McCaig, plant manager at NYX's Linden facility, told *Plastics News* in an interview. "You can go back and see every parameter or setup for any part you produce at any time.

"Our customers like it from the standpoint that the data accuracy is better than the manual method of collecting data at different intervals throughout the day," McCaig said.

"With everything having extended lead time recently, double or triple what they were a couple of years ago," he said, "it's good to be able to monitor the equipment and predict potential failure to allow us to react to those in advance. It really helps to minimize the possibility of unplanned downtime due to inability to get spare parts in a timely manner."

"One thing we've gained from this system is a dashboard developed that is very visual-control," added Jeremy Schafer, operations and technical service manager at
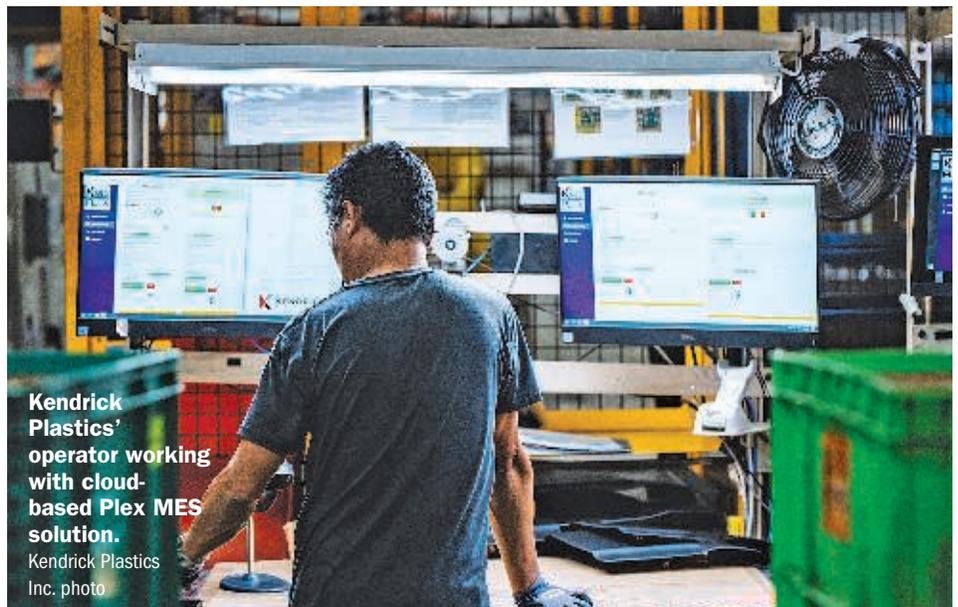
Kendrick Plastics' operator working with cloud-based Plex MES solution.
Kendrick Plastics Inc. photo

NYX. "Any of our operators, any indirect positions, can go to this [display on the manufacturing floor] and snapshot, just glancing at it, we can know if a press is running or down, if it's scheduled down for a reason, if it's running within tolerance for our scrap control.

"If a process is running out of what tolerances are set or what our desired process is, it will flash yellow so we know instantly what's going on," Schafer said.

The program's remote monitoring system will even send out a text if a machine has been down for a certain amount of time, he said.

"In the past, if you're a [processor], you're waiting on an operator to tell you, 'I'm having bad parts,' where now this system will tell me you're out of your recipe," and processors can catch the part "before it goes bad," Schafer said. "When you're

not relying on human error, … if you set your windows and tolerances up correctly, you should be able to catch that before your parts go too far out of process."

"[Automakers] are always driving for higher quality and … the more controls you have, the more [likely] you are to have a good part every time," he said.

The cloud for smaller companies

When Grand Rapids, Mich.-based injection molder Kendrick Plastics Inc. was carved out from multinational corporation Yanfeng, it became clear to leadership that the newly privately held company needed to transition from a combination of about 27 different cloud software solutions to one that fit its needs, Jennifer Johnson, president and CEO, told *PN*.

"At our size business, we sought out a single source cloud platform," Johnson said.

Kendrick, which manufactures automotive interior components for trucks and SUVs, started using the Plex Smart Manufacturing Platform, a cloud-based manufacturing execution system, in March 2020.

"Unbeknownst to us and everybody else of what was going to hit us in March of 2020, we had already made the commitment to go forward with the implementation [of the Plex software]," she said.

"Whether there was a pandemic or not," Johnson said, there were challenges Kendrick was "looking to overcome," like eliminating manual data gathering and reducing downtime.

"Everyone experiences downtime for a variety of reasons," she said. Before Plex, Kendrick "didn't know, in an actual scenario, why."

The software helped the company "to understand what our challenges might be, such that we can then go after those types of opportunities to gain efficiency," by optimizing data visualization, Johnson added.

Kendrick's scrap rate was one of those challenges, she said.

"The scrap rate requirements out of injection molded parts is highly competitive," Johnson said. "Prior to Plex, we were not running at market rates. Because we were able to visualize what type of scrap was happening where on a real-time basis, visualize the data and understand what our top issues are, we were able to reduce our scrap rate into the level that the market, our customers, require."

The cloud software also provided increased traceability for Kendrick, she said.

"In the automotive industry, and particularly in our segment, there's requirements of product traceability from raw material through our value-add production processes and to the customer," Johnson said. The software "allows that traceability to be more finite and adds more steps within the process."

'More consistent'

Cloud softwares like Plex or M-Powered can help lessen the need for reactive manufacturing that can be inherent to the automotive industry. Before using Plex, Kendrick "might have been reacting more often than we do today," Johnson said. "We're able to be more consistent with our manufacturing operating model and … we were able to increase our schedule attainment to 90 percent."

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functioning right now with production volatility, unexpected customer downtime," Johnson said, "risks are amplified."

Using the software, Kendrick was also able to reduce its time adding new trading partners "from months to days," Johnson said. "We're bringing on new customer sites at a rapid pace. In the past, with our prior solution, it would take months of coordination with the customer site in order to set up the electronic supply connection."

The company has seen a "massive culture transformation where now that the operator has to inform the Plex system … the individual now has ownership that their shift is running as effectively as it should be, whereas in the past they didn't have any tools to do that," she said. "Those data points required of the operator drive efficiencies and drive corrective action to problems, inform management sooner than they did before.

"I think anywhere in the industry where suppliers and manufacturers can more easily visualize their real-time data, the more efficient all of those suppliers or any manufacturer is going to be," Johnson said. "There has always been expectations of continuous improvement in the auto industry."

Cloud softwares "enable suppliers and manufacturers to realize those continuous improvements," she added.

Beneficial partnerships

For machinery companies, cloud softwares are an opportunity to become a better partner for the industry, said Eddie Jump, IIoT digital analytics leader at Milacron. The software helps Milacron to work "with our connected base to give our customers and partners enough lead time to be able to see that things are coming and plan for it accurately," Jump said. It also tracks machine energy consumption,

he said, and helps suppliers "plan around efficiency and energy in an asset."

An "unparalleled amount of data" from the M-Powered software "tells you what is the most effective, if a part is bad, how it's affecting your output, the rest of your components on the machine, giving you a whole new economically viable, sustainable picture of your fleet and how it's performing," Jump said.

"There are major components that can carry 12- to 16-week lead times even in a good period in the supply chain; some of those maybe have doubled now," he said. "We look at those items that could affect production and those are the things we try to target with predictive analytics."

"We take common best practices and package them into applications," said Spencer Cramer, CEO of ei3. "We have apps that help find and catalog down times and put analysis together so customers can be guided toward finding the largest contributors of unplanned downtime."

If a part in a Milacron machine in one of NYX's plants starts to wear out, M-Powered sends an alert to Milacron, which provides the part to NYX automatically.

"The NYX shop floor doesn't need to have the part physically on their site. They know that as it's becoming required, Milacron will be aware that it's needed," Cramer said. "[NYX] can reduce their on-site inventory and still enjoy the benefits of having the part on the job site when it's needed.

"The premier manufacturers of things like automotive and medical devices have known about [the importance of] quality for a long time," Cramer said. "They're focusing more and more on the Tier 2 suppliers that are making parts. They want to know that [Tier 2s] are delivering parts that are worthy of the brand's identity."