

OEM unlocks its data to overcome costly production downtime

Despite understanding the value of production data and making an effort to collect it, a major international manufacturer of agricultural machinery lacked the tools to retrieve and analyze its data to quickly trace root cause when quality issues halted production.

A manufacturer of agricultural machinery struggled to make effective use of its production data without any consistent and centralized means of data collection, storage and retrieval. Scalar pass/fail data from end-of-line engine hot test cells would end up in one silo, entered manually and indexed by time and date stamp. Further up the line, some process stations, such as torqueing for bolts, did collect full process signatures, indexed by serial number, but this data ended up trapped in a different silo.

These silos included a self-built SQL database as well as vendor-specific databases that lacked the functionality, or connectivity, to quickly pull full birth

history for a part or unit by serial number. The data wasn't lost, but any exercise at retrieval and analysis to address an issue was a search for the proverbial needle in a haystack that required custom query tools.

The entire global operation suffered from a mashup of databases and data retrieval systems. Each plant operated with its own standards, processes and metrics for quality management. A quality engineer at a plant in Mexico could do nothing to help their counterpart in France who had an issue with a comparable machine or line because there was no standardization across the enterprise.

Weeks lost as safety fears froze product shipments

When a product came back from the field due to a customer complaint or warranty issue, it routinely took as long as a week to retrieve all the related scalar and waveform data scattered across the plant.

The result? A lengthy feedback loop to trace the root cause and scope of a quality issue. This created uncertainty and lengthy production delays since the manufacturer didn't want to take the risk of continuing to ship what could be defective products. In one example, a faulty gear system caused high-risk issues for customers in the field. Full production was halted until the cause of this defect could be found and addressed. That took several weeks – money and time wasted.

While such disruptions have an obvious impact on revenue and profitability, the greater concern for this manufacturer was the public relations impact on its image. This is a premium brand with a quality reputation that justifies a higher retail price versus its competitors.

The manufacturer needed better data analysis tools to shorten the time to insight between the presence of a quality issue, awareness and resolution.

The solution

The manufacturer turned to Sciometric for its expertise in data management and manufacturing analytics.

Sciometric's engineers took all the manufacturer's disparate forms of process and test data from the line and converted it into formats that could be uploaded into a QualityWorX database. Data was no longer trapped in silos. The manufacturer's quality teams were provided with the tools and knowhow to develop a suite of algorithms to quickly search, retrieve and correlate data from this single centralized repository for rapid root cause analysis.

The bottom-line benefits

Production and quality issues that once took this manufacturer days or weeks to identify and address can now be resolved in minutes.

Sciometric's manufacturing analytics tools have allowed the manufacturer to quickly drill into its data and analyze the impact of design changes, improve quality checks and report on metrics.

All this has been achieved from the data the manufacturer already collected – it just needed the right data management and analysis tools to unlock its potential.

Improving quality, system wide

The manufacturer is now adopting QualityWorX data management as a standardized quality platform across its engine and powertrain units at four plants in North America and Europe.

Additional work is being done to intensify the value of this investment by increasing the number and types of data collected from the line – automatic valve lash stations, torque tools and leak testing for engine block fuel, oil and coolant cavities.

Sciometric tools are flexible and agnostic – in most instances, they are interfacing with, and ingesting data from, other third-party process and test station equipment and operating systems. The manufacturer can elevate the return on its existing technology investments from other vendors with Sciometric.

Levering the power of data

The issues

- Data trapped in silos
- Custom query tools needed for each retrieval
- Lack of easy reporting/visualization
- Days/weeks of downtime to trace root cause

The solution

- Custom scripting to convert data to one format
- Custom algorithms for easy retrieval/analysis
- Visual reporting
- Standardization across the enterprise

The result

- Faster root cause analysis/resolution
- Higher yields, improved quality
- New platform for innovation
- Market reputation maintained

