

Manufacturer uses production data to overhaul quality on a global scale

End-of-line testing is costly and unreliable. What's more, it doesn't generate sufficient data to support advanced analytics. For one leading automotive OEM, a reliance on EoL meant that they weren't fully realizing the data-driven potential of a connected Industry 4.0 environment. When this customer decided to take a harder look at standardizing quality across its international brands, it intensified testing beyond EoL and, in the process, unleashed a torrent of data that, once properly managed, made improvements they could only have hoped for.

In this era of the Smart Factory, end-of-line (EoL) and other discrete testing approaches simply cannot generate the types of data with the right granularity to support continuous quality improvement and deliver productivity gains. Furthermore, a less than adequate analytics capability means time and money wasted on guesswork and trial and error when the need of the hour arises.

For one of the world's leading automotive manufacturers, the lack of a comprehensive testing regimen and, consequently, a lack of data, meant that problems went undetected at their source, causing a persistent drag on productivity and quality downstream.

The automaker needed to rethink their approach to testing in order to put the necessary checks in place for more accurate pinpointing of issues and to generate the data that would provide real-time insight for faster issue resolution across their global operations. And, they needed a manufacturing analytics solution that would take all that data and help plant personnel use it in the way they needed to.

Capture data at the source for earliest visibility

Sciometric worked with the customer to establish critical points at which in-process testing and data acquisition

should be added, more than doubling the number of checks on the production lines. That meant the automaker would have more data from more points along the line, giving them a greater chance of identifying problems when and where they were happening.

Data collected from the additional test stations was centralized into a Sciometric QualityWorX database, where it was organized, by serial number, in a tree structure that mimicked the production line. This structure gave full visibility into every part's path through the production line.

Return on investment is achieved as early as the first quarantine or recall

Resolve issues in hours

To fully harness the potential of this wealth of data, the automaker turned to the manufacturing analytics tools that are part of the QualityWorX suite. These advanced tools enabled them to look at data in an entirely different way – comparing *all* the part data from every station and every production line over time – replacing the cumbersome spreadsheets and inflexible software they had been using previously.

A consolidated approach to data storage and an enterprise-wide suite of manufacturing analytics tools puts data into the hands of the plant personnel who need to address situations affecting stations, quality or the production line. Instead of taking days or weeks to resolve issues causing quarantines, false failures, recalls, and production bottlenecks—the data and Sciometric tools now allowed them to do it in hours. Tens of millions of dollars have been saved in scrap, rework, recalls and warranty claims.



Improve in quality and throughput, every day

The OEM consistently ranks top of class in independent customer satisfaction ratings for its engines.

The ability to visualize and analyze data from across the production line, plant or enterprise using one set of analytics tools means that knowledge gained can be pushed back into the production line so this customer no longer has to face the consequence of the same issue twice. Root causes are diagnosed and systematically eliminated. Production staff at every level can make use of the data in practical ways to achieve new and more stringent quality benchmarks and increase engine production rates.

Quality issues are being found and dealt with at their source, saving production cycles and hassles down the line. Where new types of issues are identified, they are characterized using digital process signatures, and the checks on the line are adjusted.

Take the risk out of “what-if”

Manufacturing engineers at this automaker now have the ability to test out their improvements, changes to test limits, etc. by running them against the historical data using QualityWorX analytics. These tools quickly show the impact of the changes at the engineer’s desk – not in production.

First time **yield has increased 18%**

The power of data

Millions saved

- Issues resolved in hours, minimizing their impact
- Reduced recall and warranty costs

Quality improved

- Rapid diagnosis of root cause
- Correlation between stations and lines
- Comparable metrics and KPIs worldwide

Productivity enhanced

- Faster line launch
- Increased FTY

Launch new stations and new lines faster

Runoff of new stations on the line is much faster now that this customer uses data from stations already in production to verify new ones. New lines are launched in two to three months instead of eight to nine, delivering much faster time-to-market for new models or to meet demand.

Maintain standards and share insight around the globe

The automaker worked with Sciometric to roll out the new test regimen and the data management and manufacturing analytics solution to all its 20+ plants worldwide, creating a new global

standard for consistent, brand-wide quality and innovation and, in the process, delivering potent new capabilities. New control limits could be verified and easily adjusted to ensure existing quality standards were immediately applied to new engine models. Process signature and other data from a new production line could be matched against existing benchmarks to ensure conformance by the new line. Production data from different plants could be compared to surface trends in tooling issues. And innovations developed in one plant could reliably be applied to other plants, rapidly compounding gains in yield and quality.

