CASE STUDY

The user interface is optimized for production environments. *Source: Infinity QS*

TOTAL QUALITY MANAGEMENT

Total quality management software provides a centralized quality hub. BY MICHAEL A. LYLE

Whether using ERP and MES systems, or even Excel, many manufacturers rely on data from numerous disparate sources to provide them with the information they need to create a quality product. Often, one piece of the puzzle is missing: a centralized quality hub that collects and analyzes data from these various sources using statistical process control (SPC) principles.

The American Society for Quality (ASQ) defines total quality management as "a management approach to long-term success through customer satisfaction." Without a doubt, customer satisfaction has evolved from merely a good practice to become the driving force behind the philosophy of total quality management. Factors such as stricter regulatory compliance and the customer's ability to leverage product quality as a competitive differentiator contribute to the need for total quality management. With the ability to collect and analyze real-time data in a single repository, or centralized quality hub powered by SPC, manufacturers can obtain true manufacturing intelligence, and therefore achieve enterprise-wide, total quality management.

BENEFITS

- GSI Technologies LLC used total quality management to reduce customer complaints from 2.5% to under 0.5%.
- Engineers can get real-time feedback on their processes and automate data collection.
- The company can easily adhere to industry regulations such as ISO compliance and FDA requirements.

TAKING A LEAP WITH TECHNOLOGY

GSI Technologies LLC (Burr Ridge, IL), the intelligent printing partner for Functional Printing and Industrial Graphic Products, recently discovered the value that SPC and a centralized quality hub can provide. GSI was using a homegrown SPC program that made it difficult to aggregate data from different sources. Although GSI had relied on the homegrown software for years, it realized that a more sophisticated platform could support long term business growth when one of its customers expressed a need for more in-depth reporting and analysis to meet regulatory compliance.

Determined to achieve total quality management, GSI sought a flexible SPC platform that would allow for continuous improvement and provide advanced data collection and analysis capabilities to support a fact-based decision model and meet customers' evolving requirements. On its functional printing side—an emerging space of printed electronics—it was vital for GSI to verify that after something was printed and had dried, the actual component function was achieved. By capturing data at critical control points, GSI could easily show its customers that the process complied with its predetermined specifications.

GSI also needed to configure data for all the unique parts it produced for different customers, each with very specific requirements. Further complicating the situation, GSI had disparate systems, and needed a way to bring all the data together. The company wanted a SQL-based platform that could be used throughout the organization to communicate with its other systems, including Vision inspection systems, CMM scales, multi-meters and a document control system.

These needs pointed GSI toward an enterprise quality hub powered by SPC that would allow GSI to consolidate its quality data, streamline the process for data collection, integrate disparate plant-floor and enterprise systems, monitor data in real time, and report on data to support the needs of all users, including customers.

BRINGING IT ALL TOGETHER

GSI didn't just put an emphasis on building total quality management quickly; the management team wanted to make sure they got it right. To ensure optimal adoption and ownership some decisions require the entire staff to be onboard and invested in the project. To accomplish this, GSI assigned enterprise quality experts to ensure all employees have data analysis that relates to them and allows them to perform their jobs more effectively.

Real-time analysis is key to using quality as a competitive differentiator. *Source: Infinity QS*

Kathy Andersen, GSI director of quality assurance, said, "You cannot improve quality without the right people, the right focus, right mindset, right tools and right training. By partnering with enterprise quality experts, we worked closely to identify the areas where we needed to focus and invest our time and efforts. It is one thing to implement a tool like SPC, but to realize its benefits you must use it to its full capabilities and fully implement all available functionality."

THE FINAL PIECE OF THE PUZZLE

For GSI, an enterprise quality hub proved to be the missing piece of total quality management. With a centralized repository for all quality data, manufacturers like GSI can harness the power of manufacturing intelligence to achieve total quality management. This type of end-to-end enterprise quality system enables manufacturers to overcome challenges and collect actionable data.

Visibility: Obtain a real-time view of data from disparate sources across the enterprise.

Traceability: Adhere to the strictest compliance requirements and protect brand reputation.

Complete view of the plant floor: Predict errors before they occur, preventing recalls and reducing scrap.

Workflow management: Allow operators to quickly and easily collect data without compromising daily tasks.

Data analysis: Collect, organize and analyze meaningful data to help improve business operations, relay information to customers and suppliers for making strategic decisions.

With the missing puzzle piece in place, GSI has benefited on multiple levels. Engineers can get real-time feedback on their processes and make adjustments in a timely manner. The engineers also automate data collection and put the information in easy-to-understand graphs that can be used to fuel discussions with suppliers and customers. Plus, GSI can easily adhere to industry regulations, such as ISO compliance and FDA requirements.

On a corporate level, GSI benefited because total quality management allows it to enhance its brand. Jack Kraemer, GSI president and chief operating officer, said, "We see quality as a competitive differentiator. Not many printing companies utilize this kind of sophisticated data analysis."

Finally, GSI's customers benefit from the company's total quality management. They are assured their products are in compliance, and are confident that they are receiving a more unified product. In fact, GSI describes its philosophy towards quality as customer-focused—their requirements strongly influenced its decision to invest in total quality management. After all, customers and their perception of a company will make or break a business.

"We find that when new and prospective customers visit our facility, the fact that we have real-time SPC configured in our plant gives them confidence that we understand our products and processes," Kraemer said. "To attract and retain customers, companies must continue to improve their capabilities across the entire business. Information is a critical element."

WHAT'S NEXT?

As a result of GSI's commitment to total quality management, its customer complaint rate dropped from 2.5% in 2009 to less than 0.5% in 2012. GSI's continuous improvement efforts resulted in a recent conversion to a new ERP system and additional inspection devices—all linked together by its enterprise quality hub.

Before data can be actionable, it must first be accessible. With an enterprise quality hub, manufacturers like GSI can complete their quality puzzle to realize the full potential of data-driven total quality management.

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When new and prospective customers visit GSI in Burr Ridge, IL, the plant's real-time SPC offers a sense of confidence in the company. *Source: Infinity QS*