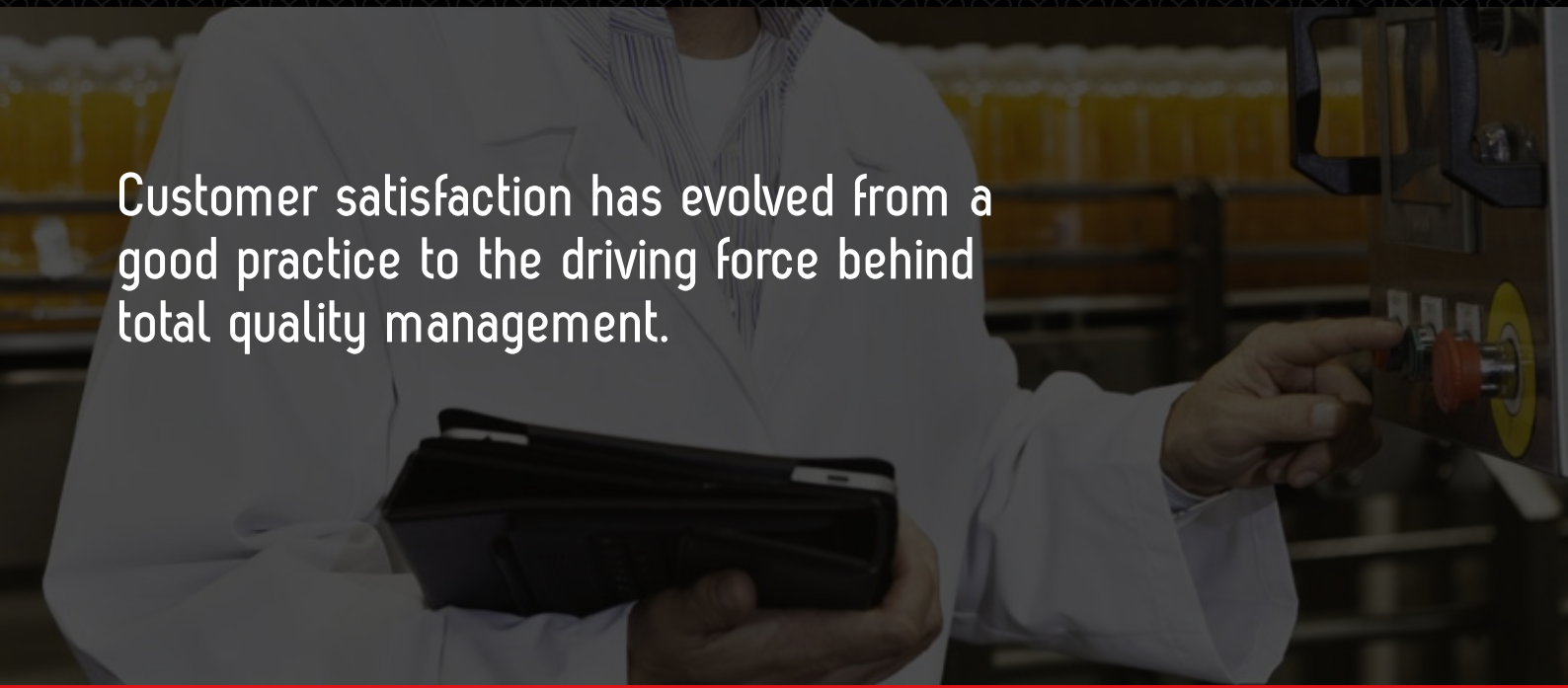


# The Role of Manufacturing Intelligence in Improving Quality and Reducing Customer Complaints

Customer satisfaction has evolved from a good practice to the driving force behind total quality management.

A person wearing a white lab coat is shown from the chest down. They are holding a black tablet in their left hand and using their right hand to interact with a control panel on a piece of industrial machinery. The control panel has several buttons and a red emergency stop button. The background is slightly blurred, showing what appears to be a factory or laboratory setting with yellow storage bins.

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## See the Forest for the Trees

Quality has a dramatic impact on business. Results of the American Society for Quality (ASQ) 2013 Manufacturing Outlook Survey found that quality of materials trumps availability, price, and customer service when manufacturers consider suppliers<sup>1</sup>.

Today, the popularity of social media is making poor quality even more expensive. Customers often enjoy products privately but complain about them publicly. According to a 2012 Pew Internet Social Networking study<sup>2</sup>, 69% of U.S. adult online users are connected to at least one social media platform, where they can instantly broadcast complaints and grievances.

As the speed of communications has increased, companies no longer have the luxury of responding to complaints privately and at their leisure. Complaints need to be managed and rectified quickly to avoid further damage. Drilling into product returns, warranty claims, and sluggish sales reveals the problem could often have been mitigated on the shop floor. The good news for manufacturers is complaints can be positive if managed properly, or even used to rectify a problem. A lack of response, however, can escalate the issue, in the worst cases leading to recalls or lawsuits.

A company's manufacturing and operations functions play a huge role here. While monitoring and reacting to customer complaints is important, there is even greater value in addressing the root causes of quality issues proactively. A manufacturer who in real time can identify and eliminate poor quality can see large gains for little effort. Unfortunately, most manufacturers can't see the forest for the trees.



Manufacturers are often aware of the four main costs of poor quality, but there are many other hidden costs that impact the bottom line.

This white paper examines how companies can reduce the visible and hidden costs of poor quality through the effective use of Manufacturing Intelligence to improve total quality management. Simply put, improving quality can improve sales.

<sup>1</sup> American Society for Quality (ASQ) 2013 Manufacturing Outlook Survey, [www.asq.org](http://www.asq.org)

<sup>2</sup> The Demographics of Social Media Users – 2012, Pew Research Center's Internet & American Life Project, <http://pewinternet.org/Reports/2013/Social-media-users/The-State-of-Social-Media-Users.aspx>

## The Impact of Quality

Poor quality is expensive. Estimates commonly place the average company's loss due to waste, rework, and warranties at 10%. But in addition to hard costs, poor quality often costs a company goodwill and competitiveness. Desirable distributors often refuse products from companies known for quality issues. The Toyota recall of 2010 is a painful reminder of the importance of adherence to quality. The accelerator problems that resulted in over \$1 billion in company losses were eventually tracked to a supplier quality issue.

To understand and monitor product quality, manufacturers rely on data from numerous disparate sources. Manufacturing Intelligence (MI) systems use data to look for systemic patterns that can in turn improve future products and mitigate problems quickly. The ability to collect and analyze real-time data in a single repository, or centralized quality hub, powered by Statistical Process Control (SPC) improves the chances of achieving enterprise-wide, total quality management.

A large snack food producer in the U.S. recently demonstrated the importance of improving total quality management. The company was facing consumer complaints around product consistency. To address the problem, the company implemented an MI solution to measure variability and improve product quality. The company employed the system to manage five core areas of quality control: data collection and integration; real-time monitoring and analysis; workflow management; advanced reporting; and an SPC quality hub. As a result, the company reduced variability to save over \$1 million on scrapped product and lowered customer complaints by more than 30% in the first year of deployment.

### B2B Relationships Driven by Reputation

Today, customer satisfaction has evolved from a good practice to the driving force behind total quality management. Because many small to midsize manufacturers rely on a few key customers to keep them in business, their reputation of quality is paramount in maintaining positive relationships. If a supplier cannot meet quality expectations, a customer-company will simply find a supplier that can. Fortunately, MI systems can provide visibility into the plant floor issues that cause complaints and allow companies to put processes in place to proactively ensure a level of quality and consistency that better position them for success.



# Harnessing the Power of MI

A centralized hub of all related quality data enables manufacturers to achieve total quality management. This end-to-end approach to quality creates a holistic view that enables manufacturers to gain a far superior understanding of the issues facing their manufacturing processes.

## Fast Facts About an Enterprise Quality Hub

### What it takes to centralize quality:

1. All information necessary to manage a company's global enterprise quality system must reside in a single repository where any user can log into the system and access the needed dashboards and report drill downs – essentially an enterprise quality “hub.” This enterprise quality hub has the power to help global manufacturers leverage technology to drive product quality across the supply chain and throughout the product lifecycle, all from one, centralized location.
2. An enterprise quality hub should proactively monitor, analyze, and report on data and processes from disparate data sources across the globe in real time, creating a complete view of manufacturing operations – from the plant floor through multi-tiers of suppliers. Then, by viewing the MI collected, users can make quality comparisons and analyses and provide for complete traceability of raw materials to finished goods.
3. The hub should engage suppliers so that a user can assess a lot's quality before the shipment even leaves the supplier dock. At any time, a user should have a real-time, plant-floor view of current process states and any active quality issues.
4. The enterprise quality hub should be easy to use, especially for operators. As for the engineers and managers, the system should provide virtually limitless means to analyze the data and make on-the-fly, ad hoc comparisons

### For example:

An intelligent printing partner for functional printing and industrial graphic products was operating with disparate production systems throughout the facility and needed a way to bring all the data together. The company utilized a homegrown SPC system for years, but wanted to move to a SQL-based platform that could be used throughout the organization to communicate with its other systems.

The company needed to organize data for all the unique parts it produced for different customers, each with their own unique specific requirements. The company sought a flexible SPC platform that would provide advanced data collection and analysis capabilities to support a fact-based decision model. Within the functional printing operation, it was vital for the company to verify that after something was printed and had dried, the actual component function was achieved. By capturing data at critical control points, the company could show its customers that the process complied with predetermined specifications.

Implementing MI powered by SPC allowed the company 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.

The system now allows the company to obtain a real-time view of data from disparate sources across the enterprise, and adhere to the strictest compliance requirements. Engineers can automate data collection and put information in easy-to-understand graphs that can be used to fuel discussions with suppliers and customers. Workflow management capabilities mean operators can quickly and easily collect such data without compromising daily tasks.

Today, engineers at the company get real-time feedback on their processes and make adjustments in a timely manner. Because the system allows for a complete view of the plant floor, the company can predict errors before they occur, prevent recalls, reduce scrap, and better protect brand reputation. As a result, the company's customer complaint rate dropped from 2.5% in 2009 to less than 0.5% in 2012.

## An Ounce of Prevention Is Worth a Pound of Cure

Poor quality and customer complaints are costly – not only in actual dollars but also in negative impacts on brand reputation. Given today's social media-enabled consumers and critical B2B relationships, smart companies take steps to proactively avoid the risks and improve capabilities across the entire business.

MI solutions make analyzing critical data faster and cheaper, which allows a company to invoke any necessary changes and quality improvements quickly to help ensure quality, protect reputation, and reduce customer complaints



## About InfinityQS International, Inc.

InfinityQS International, Inc.® is the global authority on enterprise quality. The company's Manufacturing Intelligence solution delivers unparalleled visibility across the enterprise, from the shop floor to the boardroom, enabling manufacturers to re-imagine quality and transform it from a problem into a competitive advantage. Powered by centralized analytics, InfinityQS solutions provide operational insight to enable global manufacturers to improve product quality, decrease costs and risk, maintain or improve compliance, and make strategic, data-driven business decisions.

Headquartered near Washington, D.C., with offices in Seattle, London, Beijing, and Shanghai, InfinityQS was founded in 1989 and now services more than 40,000 active licenses with more than 2,500 of the world's leading manufacturers, including Kraft Foods, Ball Corporation, Boston Scientific, Graham Packaging, and Medtronic. For more information, visit [infinityqs.com](http://infinityqs.com).

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