

Enterprise Visibility: See the Opportunities You've Been Missing

Unify the quality data you already have and realize visionary results across the entire organization.

A photograph of three business professionals in a control room or data center. They are looking at large digital screens displaying various data visualizations, including bar charts and line graphs. The man in the foreground is pointing at the screens. The background is dimly lit with blue ambient lighting.

Contents

Use Existing Data to Discover Untapped Opportunities	3
A Hard Reality	3
Envisioning a Brighter Future	4
Not All Solutions Are Created Equal	7
Visionary Success with Enterprise-Wide Visibility	8
Improve Your Outlook	10

Use Existing Data to Discover Untapped Opportunities

Looking for a means to increase output, decrease costs, and improve quality across your manufacturing organization? You don't need to invest in an expensive replacement of technology or settle for proprietary systems with limited functionality. The optimal solution is likely in your hands already – you simply need a means to transform your organization's scattered quality data into actionable insights.

Suppose you had a crystal ball that could warn you of impending manufacturing mistakes, point the way toward improved operational efficiency, or reveal compelling competitive advantages. How amazing would such a gizmo be?

Fortunately, you don't need magic to transform your business. You simply need real, enterprise-wide visibility into your manufacturing operations.

The best part? Most of what you need to gain this level of visibility is already in the data you collect from your quality processes and Quality Management systems. You simply need a proven method for turning that raw data into tactical information that leads to cost-saving operational insight.

A Hard Reality

Today's manufacturing environment is incredibly challenging:

- › **Quality problems** can be difficult to anticipate and prevent – and even more difficult to recover from. Depending on your industry, consequences of poor quality can range from wasted time or rework to regulatory fines and sanctions. For example, in the Food and Beverage industries, issues with raw materials can hurt or even destroy a company's brand. Just take a look at the results of recent years' outbreaks of E. coli, listeria, and other food-borne illnesses.

Capturing as much quality data as possible is vital so that you can track trends, trace issues, and perform statistical analyses that provide better operational knowledge and help to prevent these types of problems.

- › In today's competitive market, it might seem impossible to find new ways to **stand out and pull ahead of competitors**. If you base your hard-earned reputation on quality, it's especially important to resist the temptation to cut corners at the expense of the high standards your customers expect and demand. But beyond that, you need ways to produce a premium product that provides superior quality more consistently and at a lower cost than your competitors.
- › After years of belt-tightening, you might think you've hit a wall when it comes to **reducing costs and improving yields**. Price-sensitive manufacturers struggle to fine-tune processes, lower costs, and minimize waste. You need a way to compare efficiency and cost-effective improvement approaches across your products, processes, and production sites.
- › Existing investments must be used to maximum advantage. Any new approaches need to **leverage legacy systems and integrate smoothly** into your existing infrastructure. You need a solution that can help you discover opportunities without exposing your company to added risk or cost.

Manufacturers need a proven way to prioritize and validate quality improvement opportunities without exposing their companies to added risk or cost.

Many of these hurdles seem to be on entirely different tracks. Yet there's one solution that can address them all: **enterprise visibility**.

Lack of visibility into all aspects of the organization – including suppliers and throughout manufacturing operations – is a primary stumbling block in continuous improvement efforts. When you pursue improved visibility into your production processes, you can begin to head off quality problems before they begin. When you expand that visibility across all your products and all your plants, you can work real magic that begins a business transformation.

Envisioning a Brighter Future

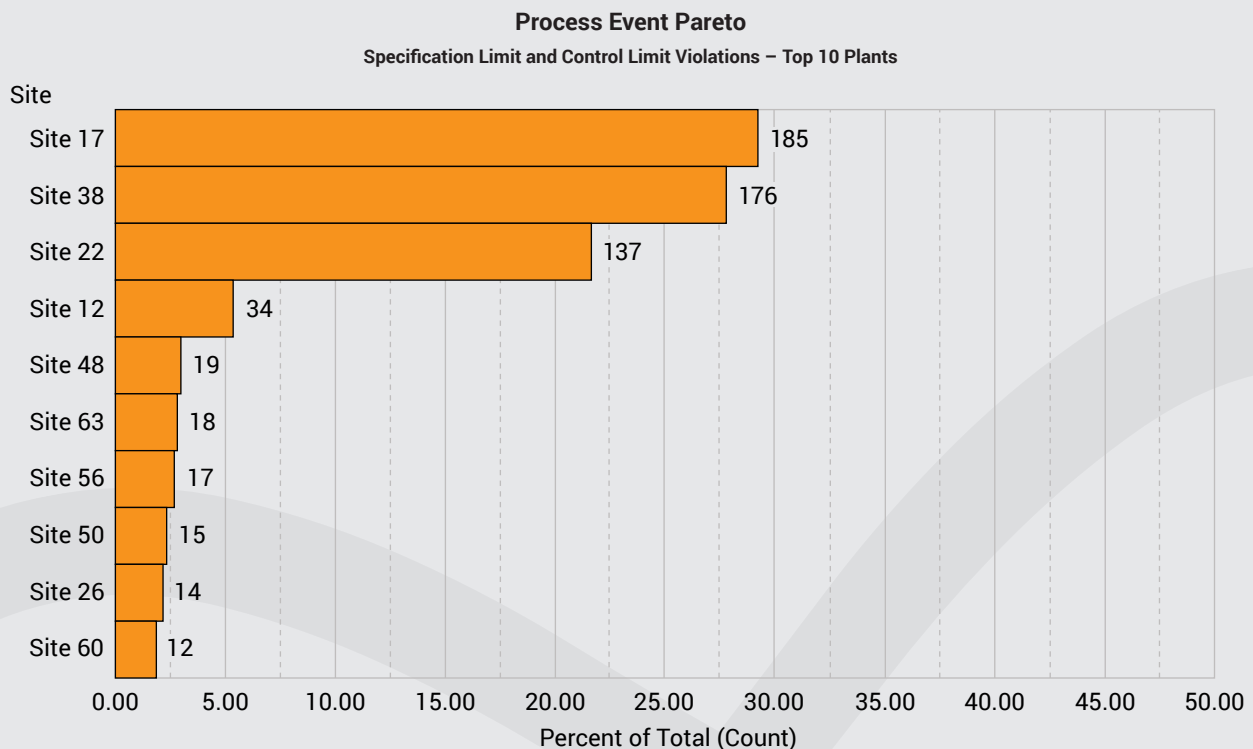
You probably already have the primary ingredient for expanded visibility: an abundance of process and quality-related data. Yet too often, that data is siloed within site-specific databases or tucked away in file cabinets. You need the right method to expose *all* your data, regardless of location, and turn it into something useful and sustainable that you can access when and where needed.

How can you approach this challenge? A successful enterprise visibility solution has several hallmarks:

- › **Data aggregation.** With the right solution, disparate data can be aggregated so that information from different sources can be displayed together, regardless of geography or technology (see **Figure 1**). A platform that can aggregate data from multiple locations, devices, or databases into a centralized, Unified Data Repository can give you the long-term, large-scale view that elevates your decision-making.

Look for a solution that can work *with* existing systems and a multitude of databases, measurement systems, and technologies out of the box.

Figure 1: Quickly compare process performance across sites.



- › **Collaboration and mobility.** Data that used to be visible only to a line manager needs to be available to corporate quality or process improvement professionals anywhere in the world. Your chief operating officer should be able to view operational performance metrics on her tablet while your plant floor supervisor stays fully informed of current operational activities from his office laptop.

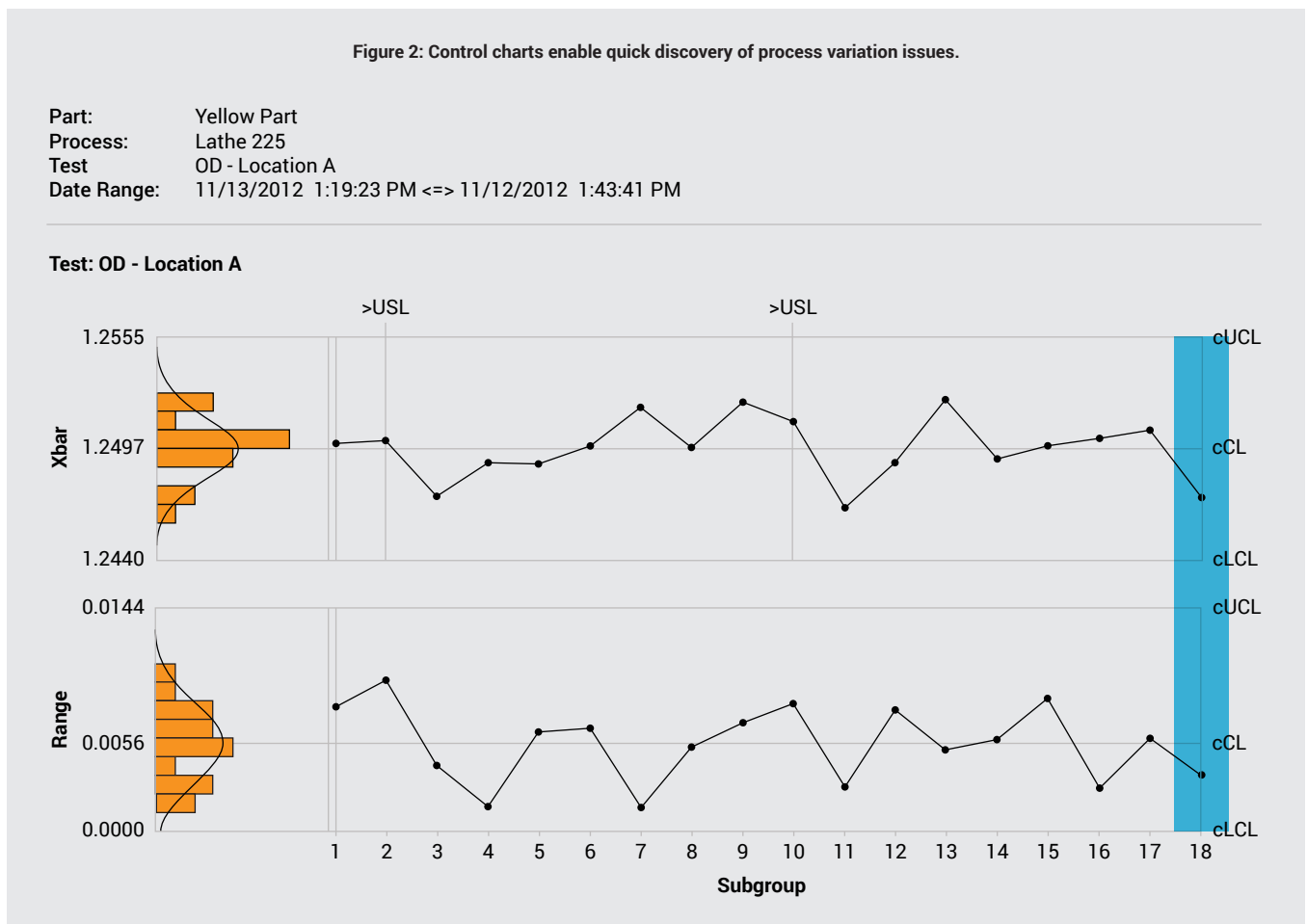
Your key stakeholders need to communicate and solve problems, no matter how far apart they are geographically.

New cloud-based approaches and mobile technology facilitate your ability to access data anytime, anywhere. An on-demand, cloud-based solution supports access to data through any type of device, enabling better collaboration across the enterprise and shortening the time to action if a quality issue arises.

- › **Support for both historical and real-time analysis.** Identifying high- and low-performing production processes is a key challenge for any manufacturing enterprise. The right solution collects and unifies historical process and quality data and presents it so that anyone can compare production performance across all dimensions of the enterprise, locally as well as across multiple plants.

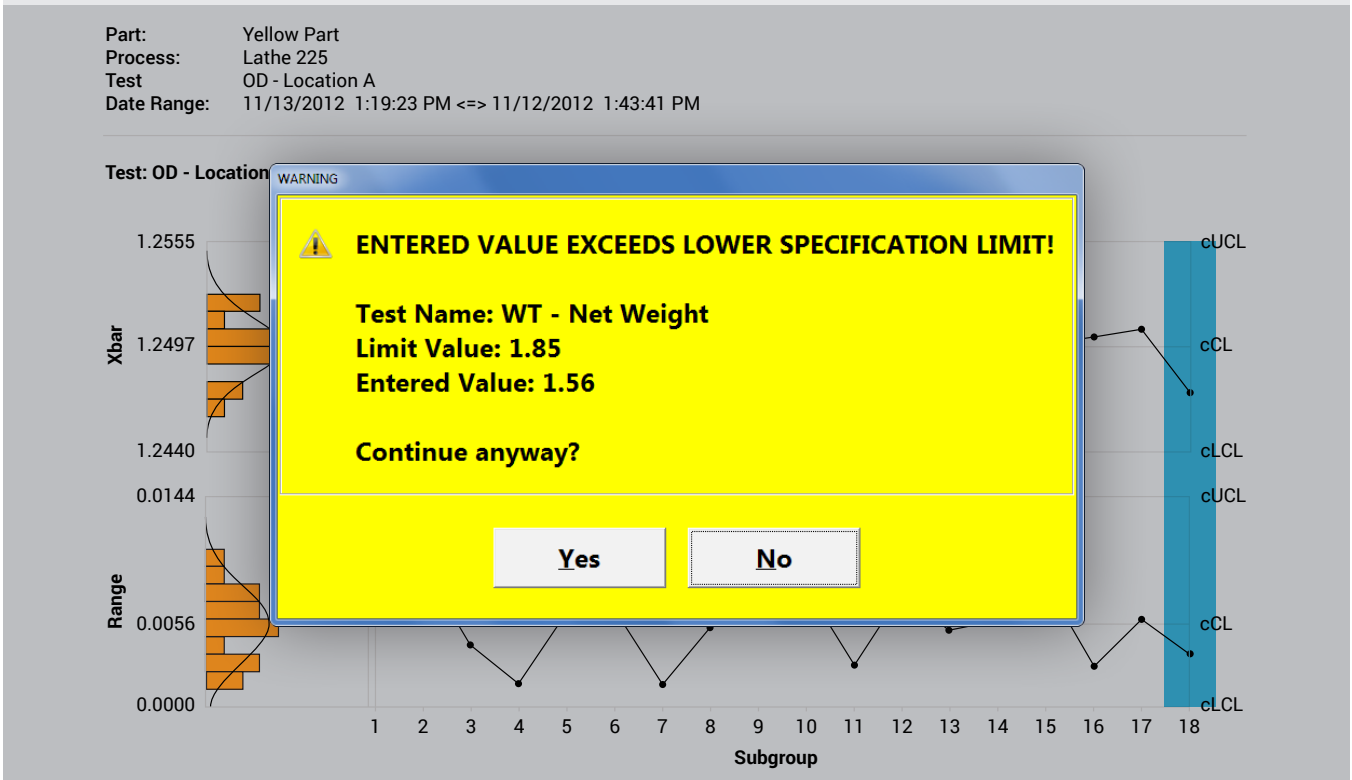
Of course, real-time quality systems are particularly important to plant-floor personnel, who need to know as soon as possible when a high-value manufacturing process is degrading. Real-time control charts, presented as an operator display, present process variation data in live, dynamic plots that update automatically (see **Figure 2**).

Figure 2: Control charts enable quick discovery of process variation issues.



A solid solution will also let you set up rules for automated notifications and alerts that warn you if data indicates that quality has fallen outside your defined parameters (see **Figure 3**).

Figure 3: Get dynamic, automated notifications.



- › **Built-in integration and flexibility.** You might worry whether a robust visibility solution can integrate with your existing Quality Management systems or databases, without requiring expensive upgrades or technology replacement. Beware of solutions that require the purchase or use of a highly proprietary reporting or intelligence software that works with your legacy systems but locks you in with one vendor or doesn't offer a full range of functionality.
- › **Reduced burden on IT resources.** Today, you probably need to justify every cent against IT costs. Any visibility solution must be user friendly and preferably easy to install, deploy, and maintain. The best visibility solutions work with practically any infrastructure and database. In addition, a solution that offers self-service reporting capabilities can deliver significant savings in your use of IT resources.

With a visibility solution that meets these demands, you gain the ability to answer vital questions:

- › How can I optimize quality production for a particular product?
- › How can I be sure a specific line is operating at full capacity?
- › How can I apply the successes of one plant to all sites?
- › How can I standardize processes and production across all sites, especially when those sites span several countries?
- › How can I generate reports that meet the needs of a variety of employees and teams or that show customized data views, without placing additional burdens on IT resources?
- › How can I reduce the complexity and time demands of audits and regulatory compliance?
- › How can I compare processes across the plant or across multiple plants?

Not All Solutions Are Created Equal

The benefits of multiple plant or enterprise-wide visibility are many – and so are the available software options. Many companies have already invested heavily in process automation, manufacturing execution system (MES), or enterprise resource planning (ERP) solutions. Most of these companies also monitor quality, using real-time Quality Management solutions. All these systems can provide some level of enterprise visibility, but they aren't all equally useful.

Process Automation Systems

These systems control the actual manufacturing process. Every year, manufacturers automate more and more processes to improve efficiency and profitability. Data drives process automation systems. Much of this data can be stored for later use within process historians, which automation vendors typically offer to their clients, along with a variety of data analysis and reporting tools to exploit the data.

Some vendors even offer Enterprise Manufacturing Intelligence solutions or Manufacturing Operations Management solutions to expand the use of the data stored in their historians and other plant data sources. They claim that these solutions can handle all of a client's plant information needs. However, many clients worry about becoming dependent on one vendor for all their enterprise visibility needs and the cost and time needed to implement these systems across all facilities.

MES

An MES is another important software solution found in many industrial plants. Companies use the MES to better control the manufacturing process, improve traceability, increase yield, and reduce scrap. An MES can also be used to improve uptime, lower inventory, and improve process consistency.

However, such systems can be complex to implement and costly to maintain. A large amount of customization is required at the plant level to attain an effective system, and enterprise visibility can be difficult – and expensive – to achieve across plants that use different MES solutions.

ERP Solutions

Manufacturing companies often spend tens of millions of dollars or more on ERP solutions, and much of these systems' extended functionality is provided via an array of modules that must be purchased separately. ERP solutions can deliver enterprise-level visibility, but that visibility provides more of a business perspective than a quality focus, as the systems deal mostly with transactional data.

A quality viewpoint depends on process data, usually in the form of time-series data. This type of data is difficult for ERP systems to handle, so the resulting view of process performance is not a strength.

Real-Time Quality Management Solutions

Though not typically thought of as an enterprise visibility option, real-time Quality Management solutions use many types of manufacturing process data to help visualize how well a process is performing. One of the key applications of these solutions is in monitoring process performance. Is a process in control? And is it capable of producing quality output?

Besides collecting data on key quality parameters, these systems also collect production information: product, line, lot, work order, and many other types of manufacturing data that add context to the quality data. If quality or process issues arise, these systems might require operators to input corrective and preventive action (CAPA) codes that add further context to the manufacturing process.

As a result, the range of data that such systems store in an enterprise quality database, which some vendors offer, provides a rich resource for enterprise visibility dashboards and reports. Corporate process improvement experts can easily generate database queries to compare the performance of specific manufacturing processes at the plant level and at the enterprise level.

Real-time Quality Management systems are easier and less costly to implement and maintain than highly customized MES and ERP solutions, making them less risky to implement as a Manufacturing Intelligence solution.

For example, the InfinityQS® real-time Quality Management solution is cost-competitive, quick to implement, easy to run, and extensible to multiple processes and product lines. You can integrate the solution within your existing infrastructure to obtain operational insights without a large equipment investment or extensive customization.

By comparing quality data from across your enterprise, you not only gain the ability to discover weak spots, you can identify your strengths and replicate them across processes and across plants.



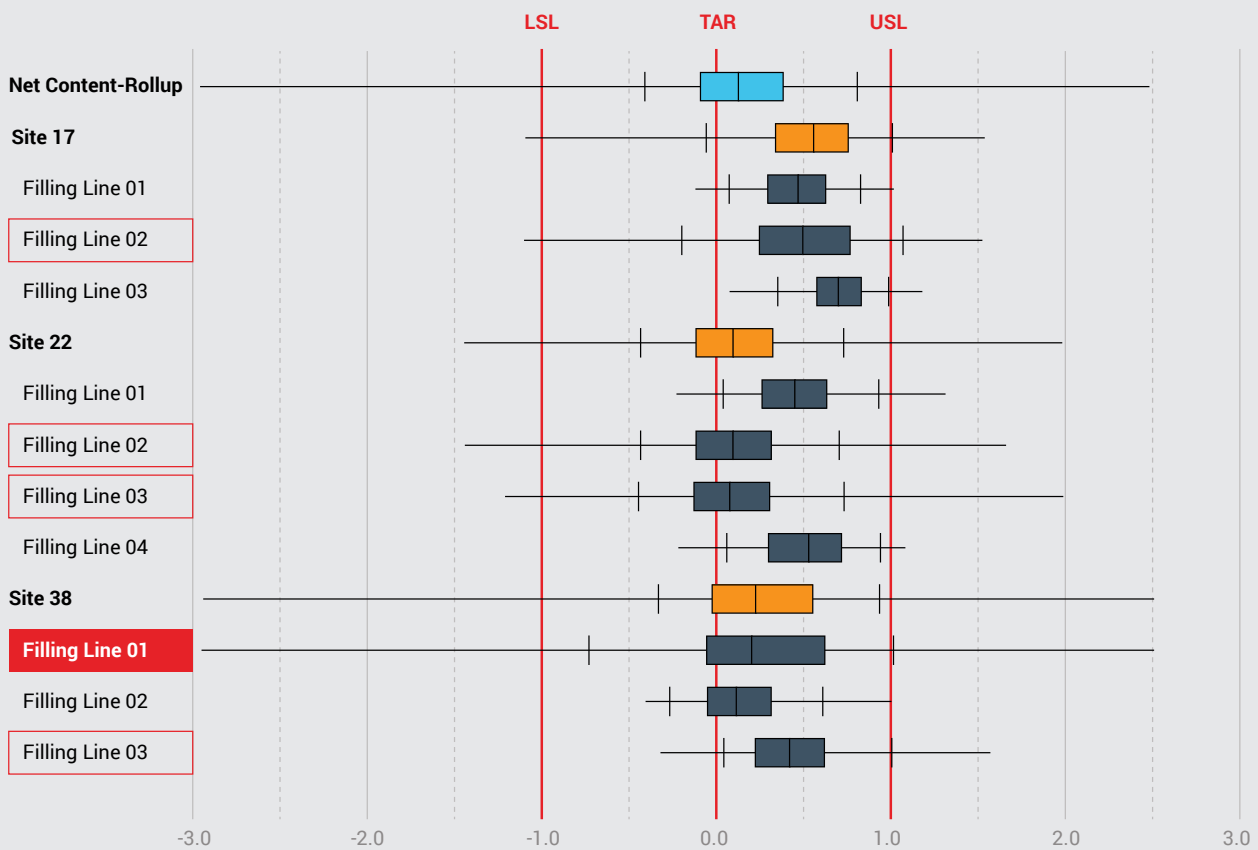
Visionary Success with Enterprise-Wide Visibility

Using diverse analytics tools in the InfinityQS solution, including box-and-whisker plots and Pareto charts, you can quickly isolate cost-saving opportunities across all of your manufacturing processes and facilities. By recording and comparing process variations, you can determine how to eliminate specific variations — enabling improved product quality and lower manufacturing costs at the same time.

In place of paper and clipboards are modern workstations, manager's laptops, and easy-to-use tablets, all sharing a standardized feature set. This software can be used even by people who don't regularly use computers — and it's configurable to all types of user roles. An intuitive interface and heavy use of graphics help users digest data and work across languages. And there's no more oil-stained paperwork or hard-to-maintain spreadsheets — the solution presents the most current real-time data as well as historical data, enabling users to both generate results immediately and track trends.

How does this new paradigm translate to actionable results? Consider the Food and Beverage or Pharmaceutical industries, in which filling operations are crucial. Regulatory and economic concerns mandate how much product must be put in each package. Underfilling results in regulatory issues, whereas overfilling means lost profit. A quality solution that provides true Manufacturing Intelligence gives you both real-time and historic visibility into all your filling lines, so that you can easily determine which lines present the most regulatory concerns and which lines are giving away the most product (see **Figure 4**).

Figure 4: Easily identify process variances.



This same principle of understanding — and thus reducing — variation applies to every industry. Gaining visibility into all your quality data and being able to access all that data from one location enables aggregation and analyses that you can use to improve not only your product quality, but your profitability. You can examine variances to determine where outliers present problems. You can also examine outstanding successes and determine how to replicate them across other lines or sites, boosting the performance of your entire enterprise.

For example, one major U.S. food manufacturer deployed the InfinityQS solution to streamline quality control, moving away from its cumbersome paper-based system. Hours were being wasted as employees manually recorded individual readings, calculated averages, plotted paper charts, and performed manual calculations — yet product was still being lost through overpacking. With InfinityQS, the manufacturer was able to identify opportunities to improve run capability and raw material use, resulting in increased cost savings and a higher-quality product. With the solution's Advanced Reporting Suite, the manufacturer can now run reports in seconds, down from as many as 10 hours previously.

Improve Your Outlook

If you're ready to expand your visibility into your manufacturing enterprise, then it's time to investigate real-time quality solutions that are quick to deploy and scale for your future needs, with plenty of functionality. SPC and Manufacturing Intelligence solutions such as those from InfinityQS can give you the insight you need to solve local quality problems and compare and improve production across many facilities. Don't hesitate to give this type of affordable, low-risk, quick-to-deploy solution a look.

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.

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