Future Proofing Your SPC Software

It might be time to rethink how you approach SPC.

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Statistical Process Control (SPC) has long been an industry-standard methodology for measuring and controlling quality during the manufacturing process. It is a key component to most quality systems because of its ability to improve productivity, ensure compliance with industry regulations and identify opportunities to reduce variability and scrap. You'll inevitably find an SPC system in many of the leading manufacturing facilities around the world.

Each of these facilities will probably also have a number of other systems within their technology infrastructure, each installed at a different time and serving its own purpose. Data collected on site is likely also housed on site and siloed in each of the corresponding systems—incoming inspection data in one place, process data in another and product specifications and characteristics in a third.

Quality personnel struggle to obtain all the necessary information from these disparate systems in order to effectively apply SPC methodologies and perform analysis for continuous movement. Because each system requires a series of unique, time-consuming steps to export the data, IT staff must be called upon to ensure the right data get to the right person at the right time.

TECH TIPS

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Suppliers can also easily be added to the cloud system through the same scalability options.

Similarly, when comparing data across numerous facilities, each with their own legacy systems and infrastructure, the time required for compilation is compounded exponentially for the IT teams. And there's no guarantee that each facility's data will assimilate with the others, resulting in roadblocks to enterprise-wide analyses. Top management has no way to determine which location is the top performer and which has the biggest opportunity to improve.

If data were consolidated into a single system or repository with SPC reporting and analysis capabilities, these obstacles would no longer exist. Cloud computing is opening up new opportunities for companies to rethink how they approach SPC and quality and is putting the complete product quality lifecycle and traceability data at every manufacturer's fingertips. Cloud-based systems create a much lighter footprint, require less up-front capital and necessitate fewer ongoing maintenance tasks than on-premise deployments. The cloud also enables internal IT resources to focus on strategic, high-value projects that can contribute to the bottom line of the organization.

Venturing into the Cloud

As cloud computing gains traction as an efficient, streamlined approach to doing business, manufacturers—especially larger, global organizations—are cautiously exploring the idea of moving site-based systems to a hosted alternative. There are a number of concerns about the security and cost of an outsourced IT solution. However, these misgivings are already being assuaged by industry innovators who have moved their technologies to the cloud and have proven the effectiveness of encryptions and security standards, as well as the convenience of operational expenses and tax benefits.

A cloud-based quality system utilizes one, centralized database from which a wide variety of professionals—quality and supply chain managers, operators, engineers, executives and more—can view and analyze data from across the enterprise and supply chain. This end-to-end visibility drives the use of standardized naming conventions, simplifies the process of identifying and implementing best practices, and sets into place clear accountability.

Many on-site SPC systems effectively address their original purpose for deployment, like reducing overfill or waste, but never reach their full potential due to time-constraints and limited resources to maintain the system. In the cloud, it is the provider that handles all upgrades and maintenance, with minimal effort to scale for plant expansions and additions. This shift of responsibility means that as better, faster and more robust versions are created, manufacturers reap the benefits of new features and don't have to worry about upgrades and licensing.

Cloud computing also extends the life of on-site hardware, reducing the cost of replacement, which can reach upwards of $1 million every five years for some manufacturers. Likewise, the high risk of upgrades also negatively affects end users as they experience downtime or technology glitches during the transition to new versions or methodologies. To minimize how much an upgrade affects users, manufacturers can leverage the rapid way cloud solutions deploy upgrades. Third-party cloud providers ensure systems are working properly—with the most current versions of software and the highest technology standards—before deploying them across the user base.

The agility and freedom afforded through a cloud solution allow internal staff to focus on operating the business. Plants, users and quality tests can be added to the centralized quality system without the necessity of significant IT resources, hardware or cost requirements. Suppliers can also easily be added to the cloud system through the same scalability options. Mobile technologies further enhance this convenience, offering simple browser-based log-ins and flexible data entry, from a wide variety of computing devices.

Elevating the Value of SPC

Despite decades of proven effectiveness and success, SPC practices can still result in a database full of unused information, much like the file cabinets of the past were full of idle reports. But, entry into the database does not have to be the death of data—they have a second life. Data from a single plant, multiple facilities or supplier locations that are stored in the cloud can be mined to reveal manufacturing intelligence. Extracting this information allows manufacturing professionals to make real-time, data-based decisions about processes, operations and procurement strategies that directly affect the bottom line.

The key to effective data-based decision making is careful planning before and during migration to the cloud. Here are a few things to consider:

Standardize Everything: As you pull data into a central repository, it is imperative to ensure naming conventions are standardized for all systems, such as ERP, MES and SPC, as well as across all plant locations. Though you can customize the information according to languages and regional preferences, the general rules should be applied across the enterprise.

Employ Rules of Engagement: The decision to employ a cloud-based system may not be everyone's choice, so you must identify internal champions and rule enforcers. These individuals will help to balance each location's need for autonomy and control, with the importance of standardization across the enterprise. Implementing a culture of quality that embraces opportunities for improvement and supports SPC methodologies promotes user adoption and encourages initiative.

Involve Key Players: Quality platforms and SPC systems provide insight to various departments, so invite key players from each to participate in the planning phase. These departmental representatives can offer guidance as to what data are most valuable and what format is most convenient to drive better decision making both upstream and downstream.

Set Proper Parameters: With automated data collection, manufacturers want to bring in more data automatically. For example, a checkweigher can weigh every single item at a very high speed and enter each weight into the database. But, this collection frequency doesn't allow time for process variation and will result in control charts that don't represent the process. These scenarios often lead people

to think that SPC "doesn't work for them" and may result in giving up what could otherwise be a successful use of powerful tools. Decide up front what data you want to collect and what frequency of collection is most effective in identifying overall trends for improvement.

Be Flexible: Even the best laid plans can run into problems. From unknown differences in products to discrepancies in how different sites or departments perform near identical procedures, many things will change during deployment. Make sure you look for alternatives instead of focusing on how something was done previously. In addition, you will likely discover additional ways to use the software or new projects to add to the schedule, which will delay the original timeline. Keep an open mind and remember that all the effort and hard work will pay off tenfold in the end.

With cloud-based SPC, it's possible to uncover hidden process personalities, instantly react to process changes and make real-time decisions on the shop floor. Quality managers can easily compile and run reports across all of the data, while the third-party cloud provider proactively future proofs the entire enterprise quality system. Shaking the status quo by implementing a cloud-based solution allows manufacturers to respond to the market better and faster with the confidence of data-backed manufacturing intelligence.

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