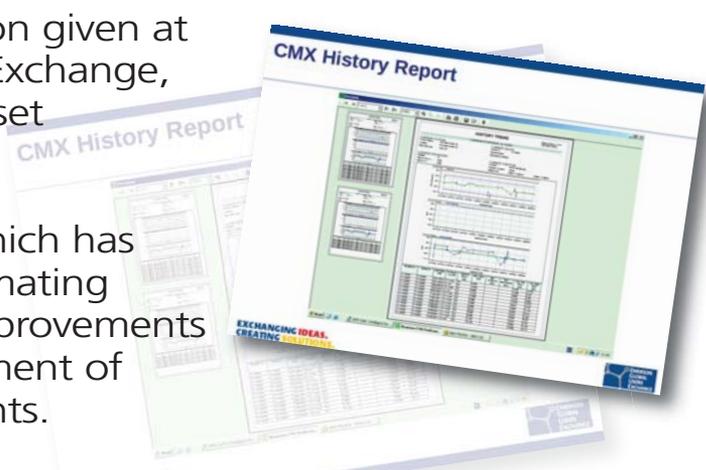


Smart technologies achieve calibration excellence

Suzanne Gill reports on a presentation given at the European Emerson Global User Exchange, which discussed a calibration and asset management solution, employed by GlaxoSmithKline at its Cork primary pharmaceutical production plant, which has succeeded in streamlining and automating calibration tasks, and has offered improvements in business operations and management of its regulatory compliance requirements.



There is an increasing need for companies to focus their resources. This includes making the best decisions possible about critical automation assets with no wasted effort. GlaxoSmithKline is no exception, as Alan Gray, instrument engineer, explained at the Emerson Global User Exchange.

Gray is responsible for global engineering standards and quality compliance within GlaxoSmithKline (GSK). He explained how a project to improve the company's business operations and manage its regulatory compliance requirements began. "In 2009 the GSK engineering department created the 'agile engineering group' to focus on transformational projects looking at ways to make our processes leaner. One area identified across the global manufacturing supply area was the high cost of calibration."

Calibration is rightly considered to be a necessary activity among highly regulated process industries, such as the pharmaceutical and food sectors, but the activity must be balanced to ensure that compliance is achieved in a cost-effective fashion. "Striving for leaner ways of working, we wanted to see how we could make the calibration process leaner, more cost-effective and more compliant," said Gray. Looking at the technologies that

would be able to deliver improvements to its calibration regime the group focussed on three areas:

Instrument diagnostics – Here the team looked at what instruments exist that are able to give usable information to enable a move from a scheduled to an on-demand system that could provide smart diagnostic information.

Paperless calibration – The team wanted to be able to remove the document transportation associated with the creation of calibration certificates. This would offer real benefits, in terms of sustainability and leaner processes.

Calibration analysis – For those instruments that are able to give their performance and measurement data, the team wanted to be able to analyse instrument performance and, where possible, extend calibration intervals.

Gray continues: "The GSK Cork facility includes a variety of instruments of around 4,000 instrument groups which include instruments from different manufacturers, connected in a variety of ways. We were looking for a solution that could focus on diagnostics, eliminate paper and offer calibration analysis. We made the decision to specify an integrated asset management and calibration solution from Emerson which combines its AMS Suite of predictive maintenance software

with Beamex CMX calibration software," said Gray.

Predictive intelligence

AMS Suite uses predictive intelligence to improve the availability and performance of key production assets, including mechanical equipment, electrical systems, process equipment, instruments, and valves. An integrated family of diagnostic software applications enables users to detect plant equipment problems before they occur. Richard Barnes, an AMS Suite consultant from Emerson, explained more about the solution: "Although AMS Device Manager does have a good integral calibration management capability, many highly regulated industries are seeking something that has even more power, capability and focus. We wanted to be able to offer end-users an integrated and powerful calibration management process and, to achieve this we partnered with Beamex to allow information to be shared between the two systems."

The solution is said to broaden the scope of assets that can be calibrated and includes customisable calibration reports to improve analysis and documentation of asset status, and enables manufacturers to comply with industry regulations such as ISO 9001:2000, 21 CFR Part 11, and IEC

61511. Utilising the AMS Suite Calibration Connector, AMS Device Manager populates the CMX Calibration Software with intelligent device data, which allows users to employ the diagnostic information from these assets on overall health, including whether calibration needs to be performed. Upon completion of calibration, the CMX software provides pass/fail information to AMS Device Manager, allowing it to update the device history.

For GSK this solution has offered real value for devices that have no quality, safety or environmental health or safety criticality. "If the device does not fall under this criteria and is used purely for business impact then we have been able to turn off the calibration of these devices. Instead, we wait for the device to use its embedded smart technology to tell us that something is wrong and that we need to calibrate it. The secondary benefit is that we are able to perform calibrations more effectively, in a leaner way. We have synchronicity between the instrument data and the CMX system and can use the instrument data to optimise the calibration frequencies for critical devices. All the information is being analysed on a daily basis," said Gray.

The diagnostic data can be captured from devices, by either polling or pushing from a host system. The conditions within the devices are categorised so that alerts from field devices are detected and displayed by the asset management system.

Discussing the benefits of this solution, Gray said: "This solution has offered us a range of benefits. We get compliance and sustainability benefits and also get some good business benefits and have actually improved the compliance of our system.

"It has given us the ability to 'lean out' our workflow. We have eliminated various calibration steps, there are verifications that have been omitted and some documentation has been eliminated. We have another system in place at the Cork facility which handles planning and scheduling and we are currently working on developing an interface for that too, so very soon the entire calibration process – end to end – will be truly paperless."

"So far we have already eliminated 21,000 sheets of paper per annum. We have leaned-out the workflow, eliminated any human error possibilities, such as transcription and calculation errors, and have achieved an 8% reduction in calibrations per annum."

In conclusion, Gray said: "We now have a system where, if a calibration has failed, a message can be sent to whoever owns the equipment and to whoever else we wish the e-mail to go to, giving us an effective system of alerting people to any undesirable events.

We have also succeeded in extending our calibration intervals. In one year we have eliminated 300 calibrations because we now have the ability to monitor, on a day-to-day basis, previous calibrations and send a message to say that a device can have its calibration interval extended."

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