

CUSTOMER CASE STUDY

Biogen uses AVEVA™ PI System™ to bring Alzheimer's drug within reach

Biogen - www.biogen.com

Industry - Pharmaceutical / Life Sciences

Challenge

- Deliver new Alzheimer's drug, Aducanumab, affordably to one million patients by 2020

Solution

- Integrating real-time operational data with process control in a next-generation manufacturing facility

Benefits

- Wait time for test results reduced by 50%
- Batch exceptions reduced by 70%

Millions of people around the world suffer from Alzheimer's disease, a debilitating condition that causes memory loss. To give patients hope, Biogen developed Aducanumab to potentially help mitigate the cognitive effects of Alzheimer's. To produce enough Aducanumab to treat one million more patients, the company had to manufacture more of the drug and make it more affordable. With a long-term goal of cutting costs from \$10,000 per gram to \$100-150 per gram, the team at Biogen's Solothurn, Switzerland production facility developed a next-generation manufacturing plan. Biogen used AVEVA PI System to integrate real-time operational data with a modular facility designed for expansion.

“Our goal with [AVEVA] PI System is to turn it into a central point of information driving some of our really key, data-rich applications and work processes.”

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Tim Alosi

Head of Global Data Analytics Team, Biogen

A multifaced production approach

With an ambitious cost reduction goal, Biogen needed to tackle multiple aspects of production. Optimizing the manufacturing process meant minimizing the screening time for raw materials without sacrificing quality, implementing process and quality controls, and developing predictive models for consistency assessment. Biogen needed the power to correct potential issues with processes before it reached the end product stage, and the key to making that happen was using real-time data to monitor and control processes as they were occurring.

Integrated testing during production

Advanced process control allows Biogen to make dramatic cuts in the time spent on product testing. No longer a discrete step at the end of the production line, testing is now an integral part of production on the plant floor.

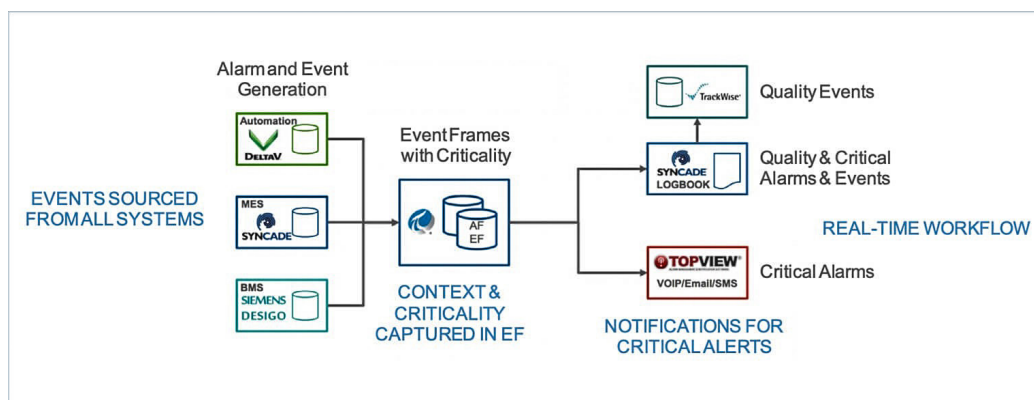
“If you have to wait two to three days for a lab result, then it’s really hard to have a positive impact on a purification process when three days later you’re two steps beyond where you were,” said Alosi. “How can we bring these sorts of technologies right down to the shop floor so that decisions can be made in real time to affect the process?”

Biogen met the challenge of integrating testing into the production line with its BES Integrated Solution. Comprised of 58 different interfaces, with AVEVA PI System as the data backbone of the project, the BES Integrated Solution is designed to provide the real-time visibility and context needed to implement advanced process controls and predictive modeling.

“The key element here is that context. It’s not just time-series data. It’s the time-series data coupled with the manufacturing context that enables these different applications.”

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Tim Alosi

Head of Global Data Analytics Team, Biogen



Real-time review: Using AVEVA PI System data, Biogen can review the manufacturing data and correct any errors or issues before moving on to the next stage

Real-time review by exception

Biogen's production monitoring system keeps data in context. Teams created an asset framework to contextualize data within AVEVA PI System and used event frames to capture critical event context, such as start and end times of processes. With contextualized and event-driven insights, Biogen managers can track important production metrics in the context of what is happening on the floor.

Events are created at a source system level, exposed, and stored in AVEVA PI System in real time. Other components of AVEVA PI System, alarms, and notifications generate real-time reports on quality or process issues and send workflows to supervisors.

Using these reports, Biogen can address issues before a batch moves to the next step, instead of scrapping an entire batch due to an error in the production process.

With real-time review by exception, Biogen can now adjust its manufacturing process in real time, allowing the company to reduce manufacturing costs, increase yield, expand production efforts – and ultimately put a life-changing drug into the hands of more patients worldwide.

For more information about AVEVA PI System, please [click here](#).