CUSTOMER CASE STUDY

Accessible anywhere: Pfizer uses AVEVA™ PI System™ for production analysis

Pfizer - www.pfizer.com
Industry - Pharmaceutical and life sciences
Partner - NECI & Tibco

Goal

- Create a single source of truth accessible across the organization

Challenge

- Data in multiple systems led to cumbersome manual processes and prevented collaboration

Results

- 50% faster compliance reporting
- 90% faster alarm resolution
- 50% reduction in BMS reporting

Solution

- AVEVA PI System

For over 170 years, Pfizer's breakthroughs in medicines, vaccines, and therapeutics have improved patients' lives around the world. While patients receive treatments in a simple form – a simple pill or injection – the process of discovering, developing, and manufacturing a drug is incredibly complex. The process requires not only rigorous research but also exacting process monitoring. Operations data for visibility during the process is critical to Pfizer's success. However, at Pfizer's Small Molecule Division in Groton, Connecticut, operations data was siloed and available only within the physical building, which increased manual work for operators.

These data silos also hindered collaboration and created data latency issues. To reach its goal of doubling the innovation success rate while decreasing time to market, Pfizer needed a new data strategy.

Using AVEVA PI System, Pfizer embarked on a journey to digitize the drug discovery process and create a single source of truth for self-service operational insights that are accessible anytime and anywhere.

A democratized data strategy

Pfizer, a longtime AVEVA PI System user with a newly signed Enterprise Agreement (EA), focused its initial digitalization efforts on its portable, continuous, miniature, and modular (PCMM) machine for oral solid doses. Pfizer's PCMM technology is a first-of-its-kind manufacturing system that accelerates the speed of tablet production. The highly automated machine contains over 2,000 tags that collect asset and process data into a local historian validated by the Good Manufacturing Practice (GMP) standard.

Previously, Pfizer engineers had to manually query data using AVEVA™ PI DataLink™, then move it into a raw CSV file before scrubbing it and exporting to Microsoft Excel. "We've got the PI System, we have the historian, but all the data was still really difficult to get to," said David Eisenberg, a manufacturing engineer at Pfizer.

To make real-time data accessible, Pfizer set up a digital-integration strategy based on three objectives: aggregating and contextualizing data, creating a collaborative enterprise environment, and implementing visualizations and analytics to empower decision makers. Leveraging expertise from NECI, the team designed a solution that would publish all data models from the local PI System in the Amazon Web Services (AWS) cloud. With the data models in the AWS cloud, users in any location could perform reporting and analysis in Tibco Spotfire.

First, NECI performed a front-end design study to understand group goals for operations data. NECI used this research to design a dynamic, robust solution that would leverage Spotfire reports for process data while also collecting building management system (BMS) data. Thanks to NECI's study, Pfizer was well on its way to a cloud-based solution, but success hinged on one element: context. "We all know data is only as good as the context we build around it," said Christopher Beaupre, manager of data integration services at NECI.

"By Pfizer already having an Enterprise Agreement, I am like a kid in a candy store. I can just use and install as many tags as I like in the PI System without any extra costs."

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David Rabon

Team Lead, Automation Services at Pfizer

The power of context

NECI deployed contextualized equipment-level and process-level data models within asset framework, the contextualization layer of AVEVA™ PI Server. This was necessary to satisfy all stakeholders – even building an asset framework structure for each production room. With the asset framework models adding rich context to the data, the team created a preliminary dashboard in AVEVA™ PI Vision™.

This floor plan dashboard overlaid all environmental and process data in one screen, allowing the process, automation, and facilities groups to see a hierarchical representation of each room. Coupling analysis with context, Pfizer leveraged analytics in asset framework to discover inefficiencies and build post-process entries into the models for the PCMM machine.

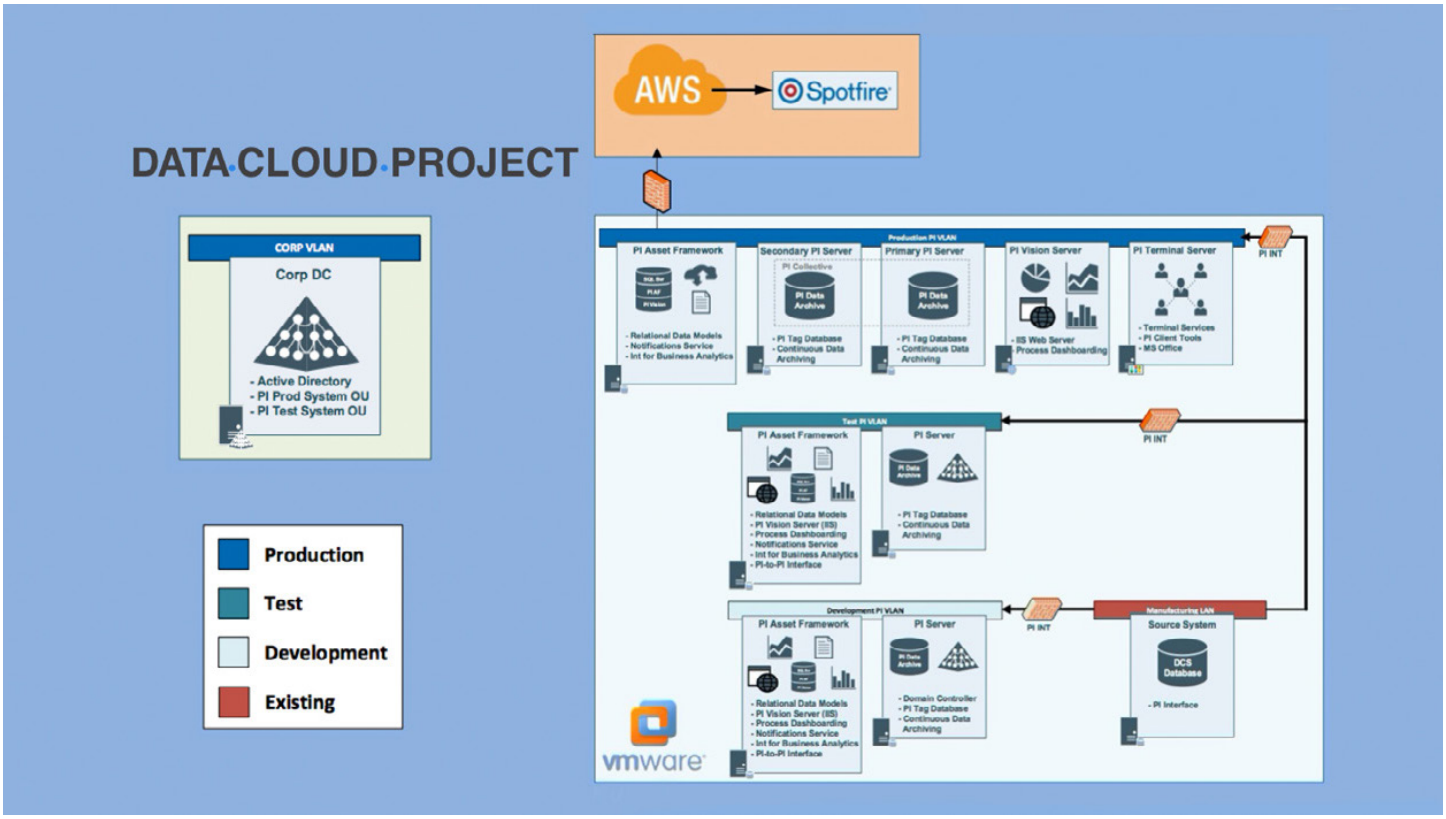
For example, with no equipment in place to calculate yield, a simple analytic was deployed to do so based on feeders and tablet-production speed. To provide batch context to the tablet-generation process, it also deployed an analytic that captured AVEVA PI Server's event frame snapshots of the start and end of each batch.

Taking it to the cloud

After setting up AVEVA PI System on the PCMM machine, Pfizer used AVEVA™ PI Integrator for Business Analytics™ to publish contextualized data models to AWS for visualization in Spotfire. Data is sent to the cloud using PI to PI Interface, enabling operators to perform ad hoc analysis and troubleshoot in the cloud.

Once Pfizer built a cloud-based infrastructure for the PCMM machine, the company deployed AVEVA PI System for the utilities and building automation group in Pfizer's Groton location. The facility had just built its own automation data lake, bringing together eight to 12 systems and historians, all of which were accessed using a virtual machine. However, time stamps varied between systems, so root cause analysis proved to be difficult.

In response, it built two AVEVA PI System servers that replicated the PCMM solution and were controlled by two quality-assurance groups. Now, GMP and non-GMP data, as well as Good Laboratory Practice (GLP) and Good Clinical Practice (GCP) data, are available on local AVEVA PI System servers.



A hierarchical overview of Pfizer's architecture that utilizes AVEVA PI System and the AWS cloud.

The results are in

Immediately, Pfizer saw a return on its AVEVA PI System investment and favorable licensing terms with the EA. Using AVEVA PI Vision, the utilities and building automation team can now drop multiple templates into one screen, decreasing the time it takes to perform root cause analysis.

Thanks to AVEVA PI System, Pfizer now spends less time on that analysis. Compliance reporting is 50% faster, subject-matter experts save five to 10 hours per week, and root cause analysis is 30% faster, all of which enables Pfizer to develop life-saving medications more quickly for patients around the world.

For more information about Pfizer and AVEVA PI System, watch the full presentation here.