

AN INFLUXDATA CASE STUDY

Algist Bruggeman's Digital Factory System Relies on InfluxDB for Mission-Critical Insights

Insights led to better product quality, more efficiently without paper and spreadsheets



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Company in brief

Founded in 1884 and located in Ghent, Belgium, Algist Bruggeman supplies fresh, liquid, and dried yeast to industrial, semi-artisanal, and artisanal bakeries, as well as to the beer, wine, and pharma industries. Algist Bruggeman is part of the Lesaffre Group, a key global player in fermentation for more than a century.

Case overview

Industrial operators at Algist Bruggeman sought greater insight into their production capabilities. They partnered with <u>Factry</u> to develop a 'digital factory', built with open source technologies, that replaced inefficient manual processes with automated ones. The company collects high resolution industrial data using dozens of PLCs, and stores and analyzes that data in InfluxDB. This solution provided the insights that Algist Bruggeman wanted, as well as several additional unexpected benefits that helped optimize the company's logistics and production capabilities.

The business challenge

Like many industrial manufacturers, Algist Bruggeman wanted to use data from its production processes to improve and optimize those processes. Algist Bruggeman wanted to be able to track specific fermentation processes, to compare recipes to results, to understand the impact that specific equipment had on the fermentation process, or even to determine whether a certain fermentation parameter follows the reference curve set out by its recipe. The challenge the company faced in answering these types of questions was that it needed an effective way for operational technologies, which evolve very slowly, to communicate with information technologies, which evolve very rapidly.

Technologies used: Grafana, InfluxDB, OPC-UA.

The technical challenge

Bridging the gap between Industry 3.0 OT systems and Industry 4.0 IT systems is a common need nowadays. At Algist Bruggeman, the data for its fermentation processes was scattered across many sources: they kept recipe data in Excel, fermentation progress data from the factory floor was recorded on paper and stored in files, while lab results lived in a Laboratory Information Management System (LIMS). This created a human-centric structure, where a person had to manually collect and analyze data.



At first, the Algist Bruggeman team tried to address this need with an 'industrial' solution, but it quickly became clear that this closed, proprietary software did not meet their requirements. So, in 2016, the company partnered with Factry to implement a new 'digital factory' system based on open-source technologies, including <u>OPC-UA logger</u> and InfluxDB.

The solution

The digital factory at Algist Bruggeman pulls fermentation batch data from its ERP system, using <u>B2MML</u>, and sends that data to the Factry Manufacturing Execution Systems (MES) on the factory floor.

With all the critical information in one place, once the fermentation process begins, the MES automatically loads that data into the SCADA so the PLCs know what to do in terms of controlling that process.

While the process runs, Algist Bruggeman collects high resolution data from the PLCs using OPC-UA. This data gets sent to InfluxDB for analysis and storage. Some newer PLCs have OPC-UA servers on board and can pipe data directly into InfluxDB, while others use the OPC-UA server located within the SCADA.

That data gets analyzed and processed within InfluxDB and then sent to Grafana dashboards for visualization.





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InfluxDB is so easy to install, it's so easy to implement and to use. The cost is low...Just try it and you will learn something, you will learn how to use it, and what benefit it can give to you...We are very, very confident in InfluxDB."

Ivo Lemmens, Project Manager Automations, Algist Bruggeman

Results

Algist Bruggeman kicked off this system tracking one measurement: temperature. To date, the company collects a wide array of measurements, leveraging approximately 50 PLCs, over 4,000 tags (meta data) for data that hits InfluxDB at a resolution of 1 Hz.

Being able to harness all this data provides Algist Bruggeman with greater observability into their production processes, deeper insights that drive optimization, and better quality control. In the latter case, they can use time series data to correlate raw materials from a specific order to the output of a specific recipe. As a result, they understand how the quality of raw materials affects the quality of the finished product. This helps the company optimize raw material ordering and, by extension, production quality.

In addition to the data and analysis Algist Bruggeman expected from its digital factory, the company noted several unexpected benefits as well. For example, having more insight into resource usage helps with material resource planning (MRP). Algist Bruggeman can accurately see when materials are in stock and predict when supplies will run out. This impacts the delivery of raw materials, so that Algist Bruggeman knows when to order certain materials and can ensure that drivers can completely unload their trucks when they arrive. It also helps to streamline logistical operations on the factory floor.

This system also provides insight into things like machine performance that they previously lacked. For example, the system can track how long it takes the valve on a machine to open or close. If the valve starts to exceed the average time in either direction, that is an indication that the valve may need maintenance or replacement.



The system's monitoring capabilities also help the company with anomaly detection. For example, the factory has a cold room with an automatic door. The company monitors the cold room temperature and team members noticed several random temperature spikes. As they reviewed the time windows for these events, they realized that the spikes occurred on the weekends when no one was working. It turned out that the cause was a faulty door sensor, but they would not have noticed the issue, let alone be able to diagnose and resolve it as quickly as they did without time series data.

The Algist Bruggeman team also created infrastructure monitoring dashboards that track the performance of the 'digital factory' itself, too. This provides better observability of their systems and generates alerts in real time when errors occur. This allows them to quickly resolve issues to keep production schedules running smoothly.

With the help of InfluxDB, Algist Bruggeman moved away from manual processes and embraced the insights and advantages of the digital factory.

About InfluxData

InfluxData is the creator of InfluxDB, the leading time series platform. We empower developers and organizations, such as Cisco, IBM, Lego, Siemens, and Tesla, to build transformative IoT, analytics and monitoring applications. Our technology is purpose-built to handle the massive volumes of time-stamped data produced by sensors, applications and computer infrastructure. Easy to start and scale, InfluxDB gives developers time to focus on the features and functionalities that give their apps a competitive edge. InfluxData is headquartered in San Francisco, with a workforce distributed throughout the U.S. and across Europe. For more information, visit <u>influxdata.com</u> and follow us <u>@InfluxDB</u>.

