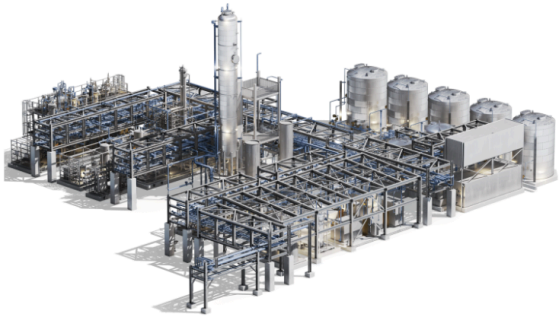
10x Sample Throughput via Integration for **Analytical Chemistry**

Ganymede

Solugen

Introduction

The chemicals sector is a $5 trillion market that affects all aspects of the modern economy, from agriculture, to building materials, to oil & gas. The industry relies heavily on fossil fuels for manufacturing, but thanks to rising biomanufacturing companies like Solugen, the chemicals industry is on the path to rapidly become more sustainable.



Solugen's Bioforge™

Being a pioneer in an emerging sector means generating huge amounts of R&D and Process Engineering data, and with that comes data inefficiencies that become a bottleneck for Solugen in developing and scaling their manufacturing capabilities. Enter Ganymede.

Among various groups, the Analytical Chemistry team has been leveraging Ganymede's Scientific Data Cloud to automate their instrument data capture and analysis, saving significant time, improving throughput, and giving new insights into how to accelerate their process development.

10x
Increased Sample Throughput via Automation

>2500 hours
Scientist Time Saved Annually

3x ROI
Measured value to Ganymede costs

"We 10x'd our sample throughput with Ganymede's integration"
- Danielle Crouther Fair, Director of Process Chemistry & Analytics

Solugen's Challenges

Manual movement from instrument to ELN

- Before bringing on Ganymede, data was entered into Solugen's ELN manually, and would sometimes take days or weeks to get entered, leading to missed data.
- Teams had to enter dozens of request results into their ELN per day, creating a large burden of data entry as well - scientists could spend hours filling out experiments.

Limited ability to compare historical data

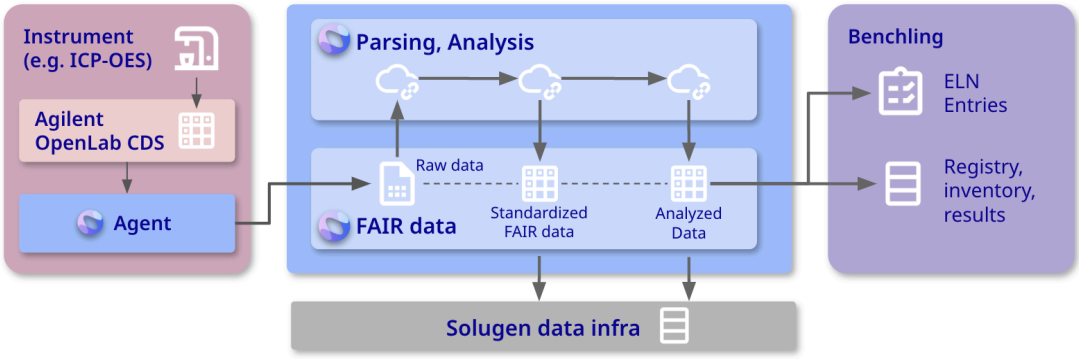
- There was no easy way to compile historical data to identify trends. This was done by manually searching through ELN entries and copy pasting data into a spreadsheet.
- This also prevented Solugen from building up a centralized data store for future AI or machine learning analytics on their historical data

Data integrity

- Each scientist was manually performing repetitive statistical analysis on their optical spectrometry data and photometric data
- Analysis traceability was lost - whose Excel sheet calculated what?

Solution

- Ganymede installed its agents on Solugen's instrument PCs to capture data automatically - no human input required
- Ganymede parses the instrument data into a standardized, instrument-agnostic form
- Ganymede automatically calculates some of Solugen's scientific analyses
- Finally, Ganymede automates data entry into Benchling



Using Solugen's ICP-OES spectroscopy system as an example:

- When a request comes in and an entity is registered in Benchling, Ganymede logs this
- Now, when the user runs analysis, Ganymede associates the request with analysis results
- Ganymede also automates the Area Under the Curve analysis that was previously manual
- Additionally, Ganymede greatly reduces time spent curating the data by automating data cleaning and automatically creating data views the scientists were manually compiling

Outcomes

- **Automated analysis and entry**
  - Ganymede's agents automated data capture for spectroscopy and discrete analyzer instruments. Data was automatically analyzed for scientists and uploaded into their ELN system, **saving several hours per instrument run.**
- **Harmonized data set**
  - The Analytical Chemistry team can now compile a harmonized cross-run historical data set in minutes to generate dashboards and derive insights from Ganymede.
- **Improved Data Integrity**
  - All data is captured by default and scientists' reports are now generated automatically, instead of needing a data engineer to process the data each time
- **Data Breadth**
  - By ensuring that data is automatically captured and structured uniformly, Solugen's deployment of Ganymede ensured 100% data quality and compliance for every instrument run. Solugen was also able to capture more fields of structured data without burdening scientists with manually recording it.

Key Value Results

10x Sample Throughput

Spectroscopy integration saved 22 FTE hours per week, doubled data capture rate, and ultimately enabled 10x higher throughput via automating data movement and Excel analysis

Improved Data Integrity

Calorimeter integrations saved 35 FTE hours per week and drove 6x increase in data capture. "We went from collecting 10% of data to 95% in Benchling."

Large and Fast ROI

Hundreds of thousands of dollars saved through time and throughput improvements, providing easily 3x or more value over Ganymede's cost

Curious to learn more or see how Ganymede could help your science? Email hello@ganymede.bio to reach out any time, or visit us at www.ganymede.bio to learn more.