



Signals DLX Case Study: Integration of Instruments, Signals Notebook and Data Lake

Objective

The primary goal of the global science and technology company is to reduce time to market or be first to market with new technologies by accelerating innovation. The company evaluated Signals DLX powered by Scitara for an R&D testing laboratory to deliver on connectivity requirements and yield value in the following areas

- Analysis of workflow efficiency
- Data Integrity
- Scalability
- Data aggregation

The company evaluated the integration of eight (8) instruments, Revvity Signals' Signals Notebook (ELN), and Snowflake data lake with the Signals DLX platform. The instruments included gas chromatographs, spectrometers, and semiconductor analysis equipment.

Current State (As-Is)

The focus of the integration for this collection of eight instruments was the automation of results entry.

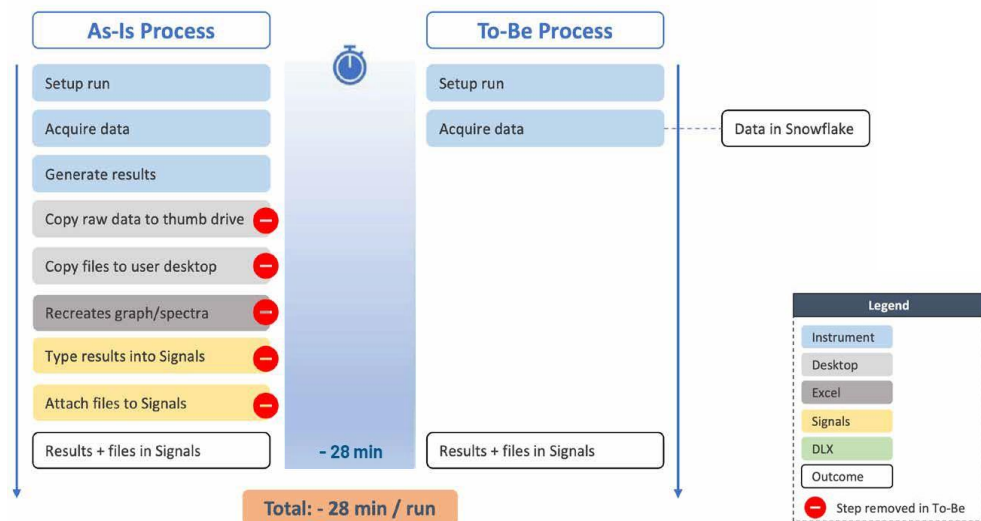
The current process is highly manual involving copying data to thumb drives, manual data entry into Signals Notebook, manually attaching results to Signals Notebook records, and use of Excel for logging events, calculations, and plotting.

The Solution: Signals DLX (To-Be)

Signals DLX, the iPaaS for Science, facilitates data mobility in a laboratory environment. Signals DLX was deployed to automate the exchange of data from the eight instruments to the ELN and data lake, eliminating all manual data entry steps. The eight instruments were connected to Signals DLX using the Windows File Connector. Signals Notebook was connected to Signals DLX using the Signals Connector. The data lake was connected to Signals DLX using the DLX Snowflake Connector. These connections and the orchestration capability of DLX allowed for the automated flow of data from the instruments to Signals Notebook and the data lake. As soon as the instrument acquires data, an orchestration via Signals DLX automatically captures and parses the data files and subsequently uploads the desired results into Signals Notebook and data lake.



Figure 1: General As-Is and To-Be process for all eight instruments.



Value

The company discovered the value of the Signals DLX solution in four distinct areas :

1) Analysis Workflow Efficiency

Laboratory subject matter experts estimated the time savings for each workflow, yielding an average savings of 28 min/run. Assuming 13 analysts and an average of eight (8) runs/week for each of the instruments yields a total savings of 188 days/year or 8% savings in time and cost for this collection of eight instruments.



2) Data Integrity

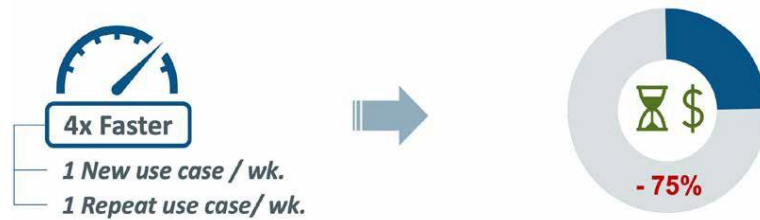
Value discovery focused on elimination of errors made from manual data entry and transcriptions. Only two of the As-Is workflows require significant data entry. Each run includes 53 and 43 manual entries, respectively, yielding 39,200 manual entries/week, assuming the industry acceptance error rate of 4% yields 1,568 potential errors/year.

The analysis does not account for the significant time and cost avoidance value derived from eliminating the need to file a report and investigate a subset of the errors.



3) Scalability

The customer team shared that deployment of past integration solutions required 1 month to gather requirements and deploy the equivalent of Signals DLX orchestrations. Based on the experience gained from the project, we anticipate being able to deploy one new use case four (4) times faster, yielding an efficiency of >75%



4) Data Aggregation

The consistent aggregation of data into Snowflake will enable the data insights to contribute to reduced discovery and development time, all leading to accelerating innovation.



Conclusion

Deploying Signals DLX powered by Scitara for this collection of eight (8) instruments yielded value beyond the analysis workflow. Faster scalability and the insights gained through consistent data aggregation also present impactful value to accelerate innovation.

