



# Data Migration in LabVantage LIMS for a Biotechnology Company

## CASE STUDY

### PROJECT AT A GLANCE

**Business Sector:**

- Biotechnology
- Genetics

**Informatics Systems**

- LabVantage LIMS 8.7.2

**Service Offering**

- Implementation
- Data Migration

**Elements:**

- 2 Sites
- 7 Testing labs
- 27 Months
- 1 CSols Team Member

A genetics and biotechnology company needed to implement unified, full-service LIMS functionality across their organization. To that end, the client is implementing a continuing rollout of LabVantage LIMS into new departments. This project is ongoing with the full go-live still some months in the future at the time of this writing.

The existing production LabCollector LIMS system for the cell line development department had been performing below the desired speed and efficiency thresholds and lacked modern LIMS features. The piece of the project described here was to migrate historical and current cell line development batch data from the legacy system to the new, configured LabVantage system.

### Objectives and Challenges

The client's goal was to lean their processes while simultaneously retaining legacy LIMS data in the future-state new LIMS. Achieving these goals faced a number of challenges.

The legacy system database integrity was compromised or missing, on multiple levels. The system customizations lacked referential integrity; master data was inconsistent and uncontrolled across the legacy system with little to no interface validation; and because the legacy data

was in a non-GxP system, documented processes did not exist.

To remedy this situation, significant work was required by the business in liaison with the CSols Data Migration Lead to identify the data and its requirements, then to clean and conform the data so that it was integral and acceptable in the new GxP-compliant LabVantage system. The challenges of this work included the following:

- The legacy database was a MySQL database with poor data integrity and limited tools.
- Inflight data was included in the migration scope, although many data migration projects only migrate legacy data.
- Master data was changing right up until the migration go-live.

Scope creep and constant changes to the requirements within the data migration and larger implementation project caused timelines to be pushed out further than initially expected, by at least one year. Timelines and deadlines were updated as the business added to the scope.

Despite a very basic level of extract-transform-load (ETL) tools, no database-to-database connectivity, and limited support from the client's IT staff, the CSols Data Migration Lead was able to work around the issues.

## CSols's Role in the Solution

The technical details and ability to develop the solution are where the complexity lies in this kind of project. This project required expert SQL and JavaScript skills, by someone who knew the LabVantage product and could analyze the legacy database effectively. This combination of product interface and database skills is rare. CSols was trusted by LabVantage to provide the expert resource to develop the data migration analysis and code the migration solution with proper validation.

The CSols Data Migration Lead accomplished the following tasks:

- Analysis of legacy data for conformance with business rules and alignment with new LIMS use:
  - Analyze legacy data and provide BA requirements gathering
  - Align with LabVantage vendor development
  - Develop and document Migration Plan and functional requirement specifications (FRS) business requirements
  - Author the migration project validation deliverable documentation including the Migration Plan, FRS, IQ, and OQ/PQ Master Data acceptance testing
- ETL processes to move the data from the legacy database into the new LabVantage LIMS:
  - Design, develop, and test all JavaScript-based upload code, via Data File Definition (DFD) and Server-side actions
  - Extraction from the legacy database client into CSV files or PDF
  - Design, develop, and test all SQL extraction code
  - Data conformance performed in the legacy database or via the extraction SQL code
  - Leverage out-of-the-box LabVantage tools for additional upload features and further data conformance
  - Identify and resolve all technical access and solution issues
  - Uploaded data defaults were provided in alignment with overall LabVantage design

The Data Migration Lead contributed to other aspects of the project, providing additional benefits:

- Development system upgrade from LabVantage 8.3 to 8.7 mid project
- Master data migration and deployment
- Guide the business on data management practices, data conformance, and cleanup for the most efficient solution available
- Design and Build Storage inventory solution
- Work around product limitations and requirements to ensure all migrated data is available and workable in the new system
- Provide development-level troubleshooting and solutions during closely integrated development process
- Monitor and correct legacy data falling out of conformance with FRS; update the FRS to maintain alignment
- Business analysis and development



- Client advocacy and liaison between LabVantage vendor development and the business to ensure system compatibility

## Benefits

The client will realize multiple benefits from the work of the CSols Data Migration Lead on the updated LabVantage 8.7, including the following:

- Gain features to meet business needs and process flows more effectively and efficiently
- Retain decades worth of data for reference
- Retain attachments, Result data, and Cell Bank and Cell Line genealogy data
- Allow more advanced storage inventory management
- Consolidated ELN features into one system rather than the existing two, which were LabCollector and Waters ELN

The client will have all desired data available in the new system, per requirements. The goals and objectives were met as measured with respect to the validation acceptance criteria.

A short-term benefit was the availability of an additional LabVantage development subject-matter expert.

A long-term benefit will be the retention of the client's decades of legacy data.