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Where data means more

Seamless Data Migration to Benchling: A Case Study in Biotech Innovation

Transforming Target Discovery Data into Actionable Insights

Client's Challenge and Goal

An EU-based mid-sized pharmaceutical company that specializes in research and development, prides itself on its commitment to innovation and excellence in scientific endeavours.

Their goal was to streamline data management and analysis processes by centralizing target discovery data on Benchling, aiming for improved efficiency and accuracy in research activities.

However, they faced hurdles in consolidating data from excel and databases into Benchling, mapping it with inventory, crafting a meticulous migration plan, and ensuring rigorous data tracking, leading to potential delays and disruptions in ongoing research activities.

Consequently, the company experienced hindered productivity, increased costs associated with manual efforts, and accuracy concerns, impacting their ability to effectively leverage their data for research and development initiatives.

Our Client

Company type: EU-based Mid Pharma company

Excelra/BISC products/services used: ELN/LIMS, Product design and development, and Cloud enablement.

Our Approach

Recognizing our proven ability in biotech data solutions and innovative approach, the client partnered with us to overcome these challenges. Our proposal involved comprehensive approach:

Stakeholder Engagement: Thoroughly gathering requirements from key stakeholders across the client's organization.

ETL Plan Design: Crafting a detailed Extract, Transform, Load (ETL) plan for efficient data migration.

System-Specific Migration Plans: Defining customized migration plans for both legacy and Benchling systems.

Risk Mitigation Planning: Development of mitigation plan to address potential data quality issues.

Progress Tracking & Monitoring: Proving a robust progress tracker for meticulous monitoring and reporting throughout the migration process.

The implementation process involved a two-phase approach to ensure a smooth and accurate data migration:
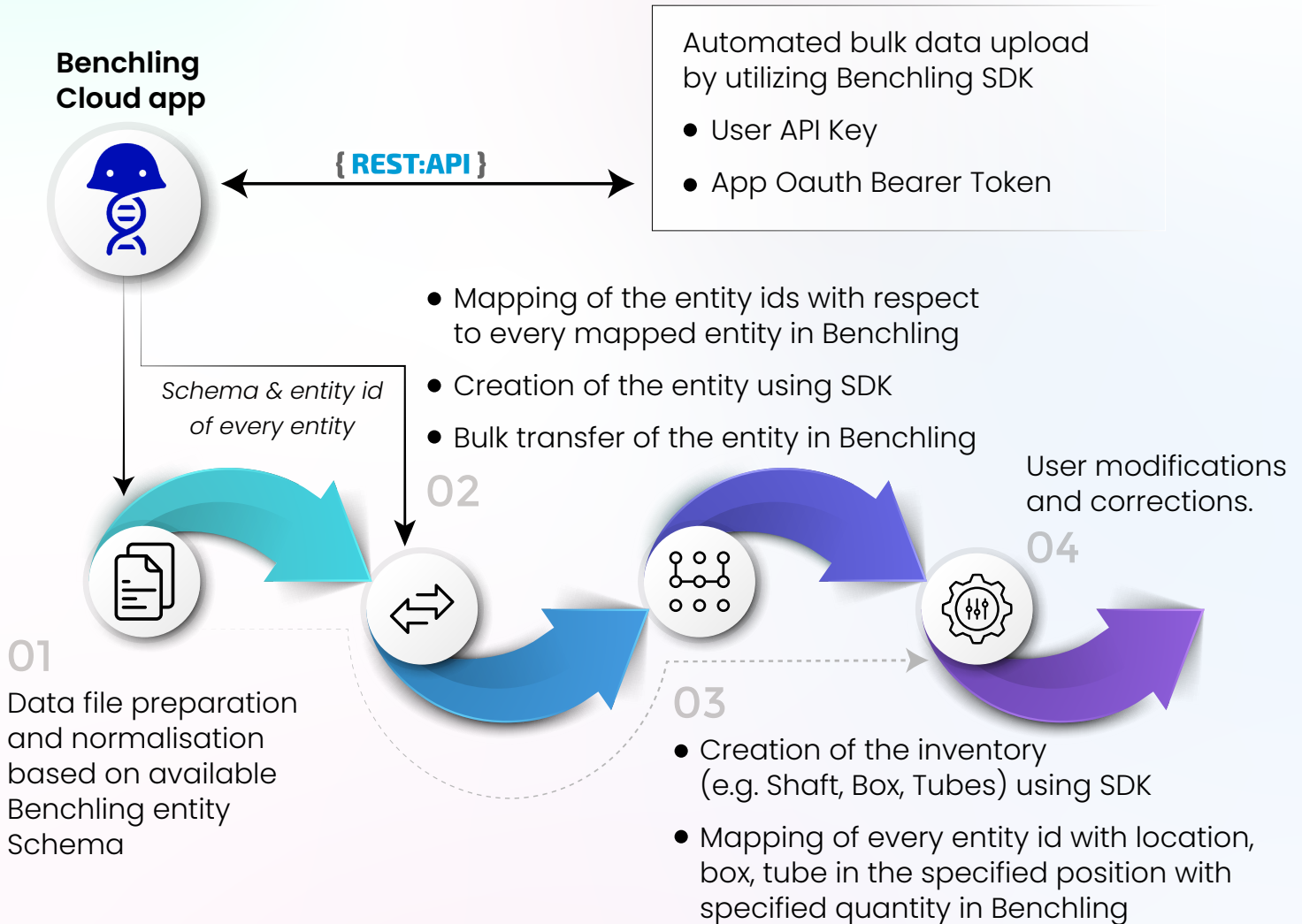
Phase 1: Data Validation and Preparation

1. **Data Completeness & Accuracy Validation:** Rigorously validating data completeness and accuracy between databases and Excel sheets using unique identifiers.

2. **Data Ambiguity Resolution:** Identifying and retransforming ambiguous data using client's database and scientific resources.

3. **Data Visualization:** Generating essential plots and visualizations to gain insights into the data.

Phase 2: Data Migration to Benchling

1. **Data Normalization & Schema Mapping:** Creating normalized data files aligned with Benchling's entity schema and mapping entity IDs to corresponding Benchling entities.

2. **Entity Creation and Bulk Upload:** Creation of entities and automated bulk data upload utilizing Benchling SDK

3. **Inventory Creation:** Employing Benchling SDK to create inventory entities like shafts, boxes, and tubes.

4. **Entity & Inventory Mapping:** Precisely mapping entity IDs with their respective locations, boxes, and tubes with specified quantities in Benchling.

5. **Entity and Inventory Mapping:** Automated bulk data upload using Benchling SDK, API keys, and OAuth tokens.

6. **User Modifications & Corrections:** Facilitating user reviews and modifications to ensure data accuracy.

Benchling Cloud app

{ **REST:API** }

Automated bulk data upload by utilizing Benchling SDK

- User API Key
- App Oauth Bearer Token

Schema & entity id of every entity

- Mapping of the entity ids with respect to every mapped entity in Benchling
- Creation of the entity using SDK
- Bulk transfer of the entity in Benchling

User modifications and corrections.

02

04

01

Data file preparation and normalisation based on available Benchling entity Schema

03

- Creation of the inventory (e.g. Shaft, Box, Tubes) using SDK
- Mapping of every entity id with location, box, tube in the specified position with specified quantity in Benchling

Our Solution

Through successful completion of both phases, we achieved significant outcomes:

Phase I: Validated and generated all required plots for the historical database.

Phase II: Successfully normalized and processed various data types, including Benchling Labware, tissue, tissue samples, plasmids, plasmid samples, viruses, and virus samples.

SDK Pipeline Development: Built and implemented SDK pipelines for seamless transfer of virus and plasmid sample data to Benchling, including mapping these entities to inventories.

Conclusion

This project was successful because of our expertise in implementing visualization platforms across various cloud providers and our profound understanding of life science data management. We were uniquely positioned to assist the client in migrating their target discovery data to Benchling, enabling them to accelerate research and foster innovation.

Our portfolio includes a range of products and services aligned with life science data management, such as data integration solutions, laboratory information management systems (LIMS), and custom software development for scientific research.

To learn more about our offerings and how we can assist with similar projects, readers can visit our website or contact us directly via email or phone.

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