

How DynaTech Helped a Global **Biopharmaceutical Company** Optimize Supply Chain Planning and **Reduce Production Waste**

About the Company

A leading biotechnology and pharmaceutical manufacturer specializing in vaccines and biologics with global operations across the U.S. and Europe. The organization produces drug substances and partners with contract manufacturers for drug product formulation and distribution.

Industry

Biotechnology & Pharmaceuticals

Workforce **350+**

Presence: United States, Germany

Service



Supply Chain Planning Optimization



Data Integration



Advanced Analytics



Custom Excel Add-in Development



Optimization Engine Implementation

Solution

Automated Supply Chain Allocation

01

Developed a VSTO-based Excel Add-in integrated with Google OR-Tools CP-SAT Solver to automate the allocation of Drug Substance (HBsAg) bottles to Drug Product (HEPLISAV-B®) manufacturing batches, replacing manual Excel-based planning.

Rule-Based Optimization Engine

02

Encoded complex allocation constraints—lot limits, yield variability, staging rules, and lead time checks—into an optimization model that minimizes waste and ensures compliance.

Scenario Planning & Real-Time Analysis

03

Enabled planners to simulate multiple production and demand scenarios with instant results (under 90 seconds) for agile decision-making.

Reporting & Visualization

04

Integrated Excel-based results with Power BI dashboards for tracking Drug Substance, Drug Product, and commercial demand alignment.

Seamless Deployment & Access

05

Implemented ClickOnce deployment for automatic Add-in updates and Entra ID-based secure access for global teams

Transparency & Collaboration

06

Delivered a self-service platform that enhanced visibility for brokers and improved collaboration between finance, sales, and broker teams.

Results and Outcomes

- 15–20% reduction in material waste through optimized allocation logic.
- 40% decrease in manual errors by automating data entry and allocation validation.
- Faster scenario planning — allocation results generated in under 90 seconds.
- Improved supply reliability, maintaining ≥4 months of safety stock with 10% production buffer.
- Increased planner productivity through Excel-native automation and real-time feasibility checks.
- Higher visibility and control with integrated Power BI reporting and automated feasibility validation.