

Competitive Analytics

Toyota's Data Blending Dilemma

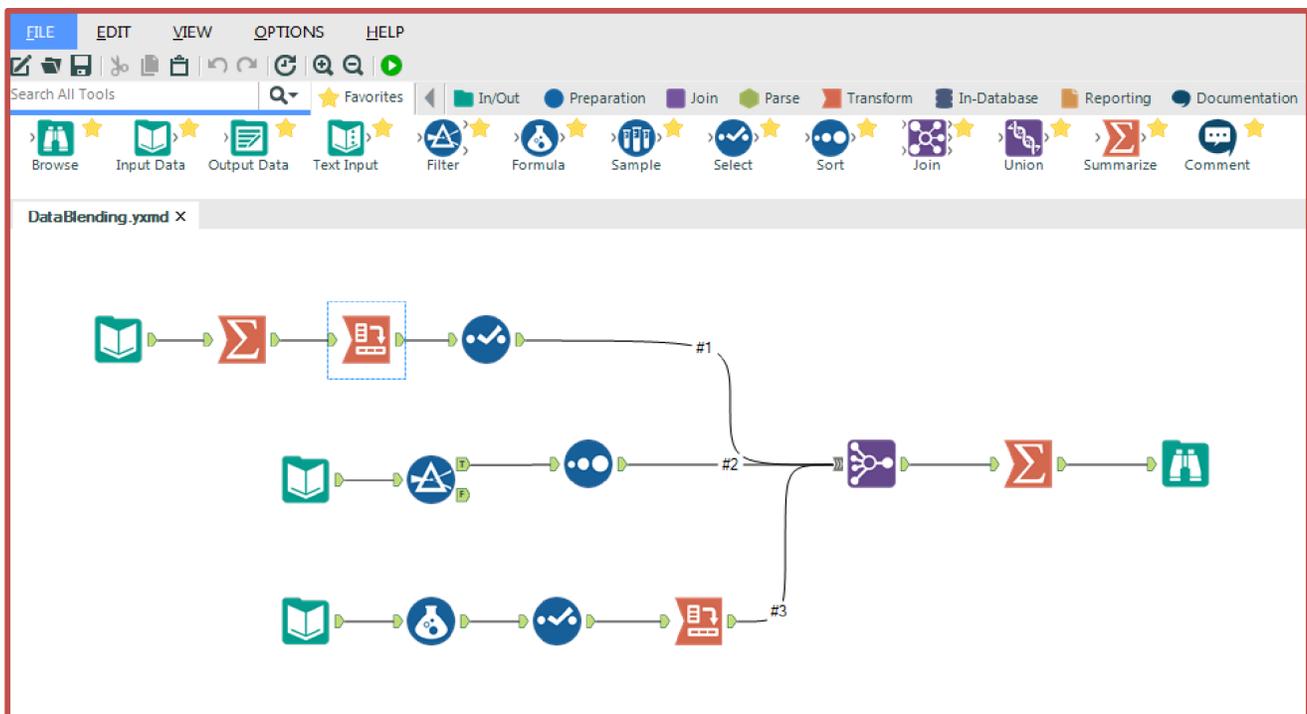


Toyota's data blending process was labor intensive, error prone, and inefficient.

Toyota's North American Parts Operation (NAPO) distributes parts to 1,250+ Toyota dealers, Lexus dealers, and private distributors. Their entire supply chain ships and receives 350,000+ parts every day. The company holds numerous, disparate datasets across various IT systems that they used to make decisions about operations. However, the company's process for blending and preparing data was labor intensive, error prone, and inefficient.

Competitive Analytics blended over 140 datasets.

Competitive Analytics was hired to develop an automated labor forecast that incorporated over 140 datasets. Toyota's labor database held a large number of disjointed datasets, such as employee work hours, facilities, labor tasks, shipping, receiving, and expenditures. These datasets were stored across Oracle and SQL databases and were inefficiently assessed using Excel. To ensure that external economic drivers were accounted for, we leveraged our DECIPHER™ data library and blended it with the company's data. Using the DECHIPER™ data library, we were able improve accuracy and insights by including indicators sourced from numerous public data sources related to factors such as job growth, unemployment, changes in disposable income, and other demographic data.



In 2-3 days, approximately 2.3 billion records were integrated into a “big data” automation system

Competitive Analytics developed custom processes to automate data processing, which included blending data from different sources in various formats and preparing it for analysis (i.e. joining, parsing, cross-tabulating, interpolating, extrapolating, scraping, downloading, mining, wrangling, etc.). Once the datasets were received from Toyota, the initial data blending process was completed in 2-3 days.

Properly blended data enabled robust, automated forecasting and reporting

To develop a robust and highly accurate forecast to answer Toyota's strategic labor planning questions, Competitive Analytics needed as much relevant, high quality internal and external data as possible. Our data blending process ensured that data could be quickly harvested from all the disparate data sources available and then properly prepared. The automated data blending and preparation process developed and maintained by Competitive Analytics was key to automating the labor forecast model, built using sophisticated predictive analytics and delivered to Toyota via automated real-time interactive visualization dashboard reports.

We enabled Toyota to make better decisions more efficiently

The automated data blending and preparation process Competitive Analytics developed ensured that Toyota was able to conduct labor planning more effectively (hiring, scheduling, overtime, productivity, etc.). The key improvements our data blending services achieved include:

- **Time Savings:** Significantly decreased number of hours (120+ per quarter; 480 per year) to conduct quarterly budget process. It now takes about 3 hours per quarter, or 12 hours per year.
- **Error Reduction:** Eliminated a significant number of reoccurring calculation errors and reference errors.
- **Accurate Forecasts:** Significantly improved facility forecasts by 2.8X to 7.6X, which is now driving better, faster, and more cost-effective decisions

“Thanks for the refreshing view of data, showing us a new way of thinking about our data. ...The additional detail you added really adds a new level of credibility to the information. I hope we have the opportunity to work together in the future.”

– Doug Vos, Facility Manager

We continue to work on analytical initiatives for various divisions within Toyota (including logistics, supply chain, and operations teams) to support their parts distribution operations. Our most recent project is a Carrier Analytics project (i.e. trucking logistics).