Integrating Demand Planning and Production Optimization in a Cloud Service

Case Study

Problem

A world leader company in Hair and Body care needs to implement a demand planning process, based on historical data and marketing trends integrated with the capabilities of developing an optimized production plan, that allow them to have the picture of the next 18 months and that they can re-run on a monthly basis, for different production capacities scenarios.

They deal with two types of productions, Make to order for their B2C market, with more than 6000 different possible SKU´s and Make to Stock for Retail with around 60 SKU´s.

Additional Challenges:

Have all the process up and running in four months and with no capital investment.
Have a projection of Raw materials requirements that due to the uncertainty of B2C demand plan profile is difficult to accomplish.
Keep the inventory in the minimum WOS an always above safety stock, optimizing labor and capacities.

The Solution

We propose to integrate Demand planning process and Supply planning in Sap Analytic cloud environment, using a simulation/optimization model to find the best production plan for the following 12 months, according to capacities constrains.

Sap Analytic Cloud allowed to build a single point of truth, where all actuals and master data are loaded and maintained. Additionally any new product to be launched is created in this environment as well as it´s BOM.

Data structure was divided between SKU´s made to order and SKU´s made to stock, due to the difference in production plan goals. Digital Twin modelling also include a process representation of make to stock flow and another make to order.

With predictive Analytics user can run the forecast for the next 12 months and have several functions that allow the demand planner to adjust the monthly demand plan. The solution keeps track of all the changes that users do in their forecasts. Mape, outliers and trends are calculated and shown.
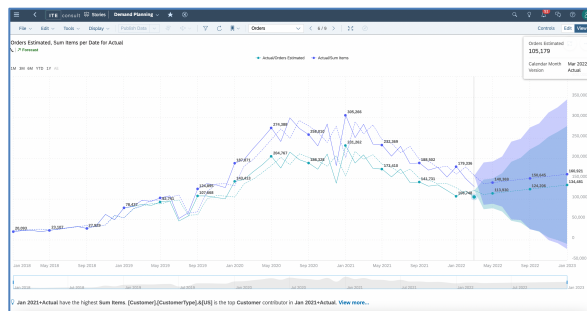

Once the demand plan is fulfilled, these data is used to prepare the production plan. To do so, the use of a solver integrated with a digital twin of the production process allows to find the best possible plan. User defines constrains, OEE, shifts, machines schedules and min and max WOS, along with any raw material availability restrictions.

Running production plans with alternatives demands, and with restricted productive scenarios deliver outputs that allow to evaluate eventual risks and take the best decisions accordingly.
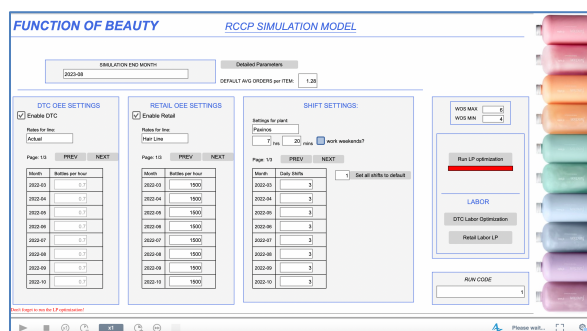
The company runs the S&OP process cycle, demand planning in week 2 and supply planning in week 3, arriving to consensus meeting at the end of week three. Outputs and dashboards are in Sap Analytics cloud, all completely integrated with rest services.
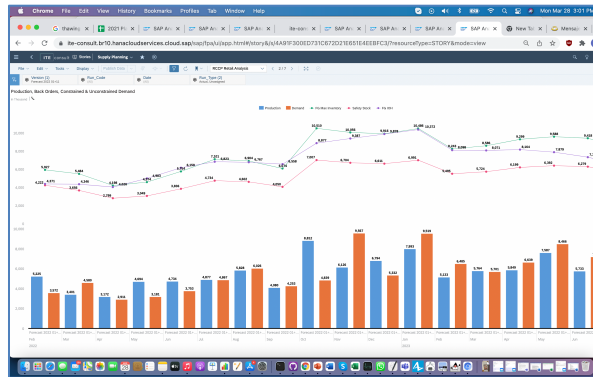
The company was able to have a

- Reduction of Supply Chain & Production Costs of 5-10% due to
    - Reduced Material costs
    - Reduced Freight/Distribution costs
    - Reduced Labor costs
    - Optimized Manufacturing Expense
- Improved Working Capital of 20 to 30% due to
    - Reduced Finished Goods Inventory
    - Reduced Raw Material Inventory
    - Reduced WIP

The use of this tool

- Provides the results from above by removing business communication complexity & confusion as companies grow:
- It eliminates inefficient allocation of resources (both people & material).
- It eliminates varying forecast methodologies that occur across each business function.
- It allows for timely, **actionable** information to be shared across growing companies.
- It ensures **accuracy AND traceability** of information used to run the business.