SupplyChainDigest™
Your First Stop for Supply Chain Information

The Eight Steps of the Forecasting Process Using Demand Planning Software

It Ends, Hopefully, with a Single, Consensus Forecast; Technology Advances are Improving the Process

SCDigest Editorial Staff

Forecasting has been around almost as long as business itself, but over the past decade or more the supply chain industry has seen the rise of Demand Planning software to provide support for both quantitative number crunching as well as managing the "work flow" associated with the forecasting process.

In the most recent issue of ***The Journal of Business Forecasting*** from The Institute for Business Forecasting and Planning, **Rajiv Urs**, a consultant with IBM Global Services, identifies what he sees as the eight steps of the forecasting process when using a Demand Planning software solution.

1. **Load Historical Data and Create Master Data for Planning**: The first step is to define the "planning objects" – what are the key data elements and fields that need to be considered and/or forecast – as well as the time horizons that will be part of the forecasting process. It is also necessary to determine the various hierarchies that will be used (e.g., what individual SKUs are part of which product families or other groupings, etc.). This data is normally loaded into a data warehouse or more focused "data mart," and then transferred into the working model of the Demand Planning system itself.

These models and hierarchies are often hard to change later, so significant effort should be placed on thinking them through upfront, obtaining feedback from many individuals within the company as part of the effort.

2. **Clean the Historical Data**: Unfortunately, there are usually problems with the quality and completeness of the data that is loaded into the system. For example, what is listed as "demand" may not be true demand, because the data in the system is taken from sales, and does not consider the impact of stock-outs. Or it may not have captured the promotions that were used during a given period.

A good Demand Planning system should also be able to consider the potential cannibalization effect of promotions – a promotion for a given product or family could have a negative effect on sales in another product area.

Companies should also look at various structural changes that may have occurred at their organizations or within the industry. For example, when did new production capacity come on line, or when did a competitor enter or leave the market?

The bottom line is the original data needs to be enriched to account for these factors – not an easy task. However, many Demand Planning systems include functionality for making these changes or ignoring "outliers" in the data much easier.

3. **Generate a Statistical Forecast:** The Demand Planning software looks at the historical data and tries to find a "best fit" model for individual

The Eight Steps of the Forecasting Process Using Demand Planning Software (Con't)

SKUs or SKU families. This will vary from company to company and even SKUs within a company. Most Demand Planning software can select from several statistical methods to identify the best forecast approach for each SKU.

4. **Prepare Forecasts for New Product Introductions:** Plans and relationships for new products must be created in the system (e.g. what customers will buy them), and then forecast. Demand Planning systems will enable a forecaster to choose a product thought to have a sales trajectory similar to the new product to use as the starting point, and some systems allow users to combine profiles of two SKUs to create the new one.

5. **Override the Statistical Forecast with Judgmental Input**: Insight from a variety of sources might be used to change the statistical forecast generated by the Demand Planning system. For example, strong input from sales channels, or changes in market conditions, might affect the statistical view. Tweaks might also be necessary to account for different time periods in the forecast horizon (e.g., number of sales days this year).

The result of these changes is the "baseline forecast," which is equal to the statistical forecast plus or minus these adjustments.

6. **Adjust the Baseline Forecast for Promotions:** In many industries, especially consumer goods, promotions have a huge impact on sales volumes, and obviously need to be factored in for changes to the baseline forecast. Specific trade promotions with retail channels can be uniquely identified within the system and used to adjust forecast numbers.

Often, planners like to communicate both a forecast with promotional effects and one without to various stakeholders.

A good Demand Planning system should also be able to consider the potential cannibalization effect of promotions – a promotion for a given product or family could have a negative effect on sales in another product area.

7. **Manage VMI and CPFR Processes**: If the company is involved with Vendor Managed Inventory (VMI) programs, or is using Collaborative Planning, Forecasting and Replenishment (CPFR) with its customers, there is another step to communicate that data to both customers and internal managers responsible for these programs.

Customers may share data through the CPFR process, for example, that causes the current forecast to be raised or lowered.

8. **Generate a "One Number" Forecast**: Increasingly, the first seven steps are used to provide data for a Sales and Operations Planning process (S&OP) that brings together executives from key areas of the company to ultimately agree on a single forecast number and an execution plan that will drive both the demand and supply sides of the enterprise.

Urs also sees the development of web-enabled Demand Planning systems as having big benefits to the process, such as enabling data to be more easily shared and received from customers and sales channels, and in enabling sales reps to enter data and information for example through a cell phone interface.

He also says that most Demand Planning system deployments today are based on a 5-tiered technical architecture:

1. The User Interface
2. Web Services
3. Business Logic
4. Memory Resident Databases
5. Databases/Data Warehouses