

AKCELL Demand Forecasting (White Paper)

All other aspects of the Value Chain from finance, profit, revenue, and supply chain to logistics are dependent on the forecast. If the forecast is wrong, you will build the incorrect size warehouses and make or buy the wrong product. Many forecasts have very low accuracies, in the range of 50 to 65 percent. However, forecasts as high as 85 to 90 percent can be achieved if properly trained people, organization processes, and systems are in place. The cost of forecast error includes:

- ⇒ Capital
- ⇒ Marketing
- ⇒ Operational overhead
- ⇒ Warehousing
- ⇒ Transportation
- ⇒ Customer service
- ⇒ Wasted products
- ⇒ Write-offs
- ⇒ Disposal costs

Minimizing poor forecasts should be a focus at every company. Forecasts affect what we make, build, buy, store, move, and dispose of. One of the fastest ways to reduce costs is to increase forecast accuracy. Forecasting starts with marketing and sales in manufacturing environments and with marketing, store operations, merchants, and replenishment in retailing. In both cases, access to point of sale information benefits and allows the organization to make better and wiser decisions. The ultimate in forecast improvement, however, is to eliminate forecasts by turning instead to one of the three types of demand listed below.

Build to demand is used by manufacturers building specific equipment. However, it can be utilized and refined to a much greater degree with the tools we have today. Look at www.Deere.com, where you can select and adjust online the components for your equipment.

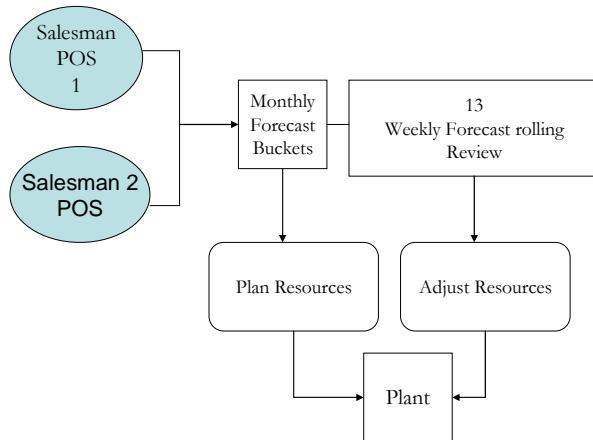
Ship to demand is what we do with Ecom businesses, where the product is shipped based on confirmed orders.

Pick up on demand.

As we said earlier, industry has the capability to do all three processes, especially the last two given Web tools available today. The standard process is shown below:

Table 30

Simplified Classical Manufacturing Forecasting



The most important aspect of any part of forecasting is the forecast for independent demand (demand for products or resources from outside a company), and dependent demand (components that are a sub-set of another item).

Forecasting is affected by the following variability factors:

- ⇒ Resource availability
- ⇒ Manufacturing Production Time
- ⇒ Transportation Lead Time
- ⇒ Variation in Dependent Demand
- ⇒ Variation in independent Demand across all child products
- ⇒ Seasonality
- ⇒ Temperature Changes
- ⇒ Competitive products
- ⇒ Prior historical fill rates
- ⇒ Lumpy Demand
- ⇒ Trends

To increase the accuracy of your forecasts you need to look at the granularity of the data level and at the location nodes from which you are generating the forecast baseline

Level

- ⇒ Country
- ⇒ Region
- ⇒ Company type
- ⇒ Company
- ⇒ Customer Point of Sale Information by Store by item
- ⇒ Point of Sale by category
- ⇒ Item versus pack vs. case
- ⇒ Item category

Types of Nodes

- ⇒ Shelf
- ⇒ Area within a store
- ⇒ Stores
- ⇒ Route
- ⇒ Distribution Center
- ⇒ Manufacturing Plant

A sensitivity analysis needs to be conducted on forecast data prior to deciding what level and at what nodal points the forecast will be created at. The sensitivity analysis also needs to relate to the statistical model applied against the numbers. Statistics models can include:

- ⇒ Moving Averages
- ⇒ Exponential Smoothing
- ⇒ Triangular moving average
- ⇒ Holt's Winter Additive
- ⇒ Additive Decomposition
- ⇒ Multiplicative Decomposition

There are many other statistics models however the key to forecasting is the application of the statistical technique to the data set and the applicable decision based on the sensitivity analysis of that application. The internal business process has a tremendous impact in this as in the majority of cases the algorithms are now already in the ERP systems forecasting model and can be preset or selected by the program itself based on parameters and the forecast data pattern.

To learn more about Demand Forecast Management please contact AKCELL Consulting Inc.