Predicting Demand In an Uncertain World

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THANKS to global competition, demand situation in the economy is no longer certain. Gone are the days of certainty, longer product life cycles and the low competitive intensity. The overall environment has become dynamic. Demand has become uncertain, product life cycles have shortened, and competition has intensified. In such a situation, firms are increasingly realising that understanding demand, planning demand and linking supply with demand pays.

Forecast of future demand is essential for all strategic decisions in the supply chain. If the supply chain begins with a forecast that is substantially in error, in terms of timing or quantity, the ramification will be felt throughout the entire process. This is why forecasting has assumed significant importance and commitment to it seems to be increasing day by day.

Forecasting practices are characterised by some interesting insights into changes in techniques. Research indicates that during the 1980s, despite the growing availability of computer-based forecasting systems, companies continued to rely predominantly on subjective techniques. Since the mid-90s, companies have started using computer-based forecasting systems. What is surprising is that even among the community of those who use these models, forecast accuracy has not increased.

Why has demand forecasting acquired such a significant place today? Are forecasts reviewed and agreed upon by key departments in the organisation? Are right statistical methods used in forecasting the demand for the product? What horizons and time periods are used for long-term and short-term forecasting? How are statistical and judgmental considerations to be combined? These are a few questions which need to be answered in order to understand the state of forecasting in Indian companies.

In a study conducted by the Great Lakes Institute of Management, Chennai, to understand the practice of forecasting in Indian industries today, we found that the most widely used method is the sales force composite method. Causal and time series models have given way to rolling plans. With the changing nature of businesses and increasing complexity due to the changing nature of demand, this shift from quantitative to qualitative models is understandable. But what we found surprising was that even where causal and time series models would have been appropriate, information technology-based sales force composites were used blindly. Forecasting is not owned as yet by any department, and thus a consensual approach is yet to be evolved leading to a budget-driven demand planning.

What these companies probably forget is that not all demand has become unpredictable; there are situations where demand follows a detectable and a predictable pattern. While auditing the forecasting processes of a lifestyle major, I found that for its vacuum cleaners and spare part requirements, the company used the time series technique. The forecast error used to be so high that they gave up forecasting for an ERP system where sales force composite was converted into rolling forecast, without much success.

To nail the problem we used data from the Colaba market in Mumbai and found that the consumption data shows a strong seasonality; unless we correct for seasonal trends and use the appropriate time
series technique, we will not be able to forecast demand. Even investment in information system will be of not much help.

Similarly, another company for which we designed a forecasting model, a tractor major, has given up the causal method of forecasting and embraced sales force composite as the only method even though the accuracy of forecast still remains a major worry. Tractor demand is closely related to what happens to agriculture. We had identified a causal model which was based on drivers of demand for tractors and provided a fair guide in planning sales. The company did not know how to convert causal forecast into short-term forecasts for better operational planning and thus gave up scientific forecasting for judgmental methods.

On the other hand, Bayer and Syngenta crop sciences have tried to make a difference. Along with their rolling plan it also forecasts the crop scenario for various regions. It intelligently uses the sales force to track the changes in the cropping pattern, area under different crops, procurement prices and rainfall. They get disaggregate data for their regional markets. All this information is then used to forecast sales. These quarterly forecasts are then broken into months by applying seasonal factors computed from the monthly rolling plans. Syngenta and Bayer have been able to minimise inventory in comparison to other players in the industry. These firms have been able to use causal variable to create a sales force-based forecast which is a good operational forecast.

Forecasting methods and models needs to be applied intelligently today to make forecast business significant. Indian firms seem to have lost their direction. Their forecasting methods seem to be dictated by supply chain requirements and the technology with little understanding of when, where and what to forecast and how to forecast. The appropriate choice of a technique depends upon the inherent uncertainty in the business environment and the factors which cause this uncertainty.

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