Forecasting
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Forecasting is the process of making statements/estimates about events whose actual outcomes (typically) have not yet been observed. Risk and uncertainty are central to forecasting and prediction; it is generally considered good practice to indicate the degree of uncertainty attaching to forecasts. The steps followed in forecasting are:

1. Determine the use of the forecast – what objectives are we trying to attain
2. Select the items or quantities to be forecasted.
3. Determine the time horizon of the forecast
4. Select the forecasting model or models
5. Gather the data needed to make the forecast
6. Validate the forecasting model
7. Make the forecast
8. Implement the results

The three categories of forecasting models are: Qualitative Models, Time Series Methods and Causal Methods.

Qualitative Models

These models attempt to incorporate judgmental or subjective factors into the forecasting. Some important qualitative forecasting models are:

Delphi Method: In this method, group members are asked to make individual assessment about a forecast. These assessments are compiled and then fed back to the members so that they get the opportunity to compare their judgment with others. They are then given an option to revise their forecasts. After, three or four rounds, group member reach a consensus on the forecast. There are three types of group members: decision makers who are experts, staff personnel and respondents.

Jury of Executive Opinion (Expert Opinion): This method takes the opinion of a small group of high-level managers/experts, often in combination with statistical models, and results in a group estimate of demand.

Sales Force Composite: In this approach, each salesperson estimates what sales will be in his or her region; these forecasts are reviewed to ensure that they are realistic and are then combined at the district and national levels to reach an overall forecast.

Consumer Market Survey: This method solicits input from customers or potential customers regarding their future purchasing plans. It can help not only in preparing forecast but also in improving product design and planning for new products. The customers are tried to be selected in a representative manner.

Historical Analogy: This method is applied when a new product is to be introduced in the market. The method attempts to forecast sales for a new product based on the performance of related or similar products in the market place.

Time Series Models

These models attempt to predict the future by using historical data. An assumption is made that whatever happened in the past will determine what is going to happen in the future. The various time series models are moving average, exponential smoothing, trend projections and decomposition.

Time series are a series of observations that are taken at regular intervals of time. It is made up of four components: Trend (T) representing the long term behavior of the time series, Seasonal Variation (S) representing variation caused by seasons, Cyclical Variation (C) representing the typical business cycles that occur sporadically in several years and Radom Variation (R) representing irregular variations that occur by chance having no assignable cause.

Causal Models

These models incorporate the variables or factors that might influence the quantity being forecasted into the forecasting model. These models may rely on historical data like time series models but include other factors as well. The most common causal model is regression analysis which includes simple regression and multiple regression.

References
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- Vishwanathan P K (2003), *Business Statistics – An Applied Orientation*, Pearson Education, New Delhi