Forecasting

Forecasting is the process of predicting changing conditions and future events that may significantly affect the business of an organization.

1. Forecasting is important to both planning and decision making.
2. Forecasting is used in a variety of areas such as: production planning, budgeting, strategic planning, sales analysis, inventory control, marketing planning, logistics, planning and purchasing among others.

It's important to look at forecasting effectiveness. Forecasting techniques are most accurate when the environment is not rapidly changing.

Some suggestions for improving forecasting effectiveness are as follows:

1) Use simple forecasting techniques.
2) Compare every forecast with "no change."
3) Don't rely on a single forecasting method.
4) Don't assume that you can accurately identify turning points in a trend.
5) Shorten the length of the forecasts.
6) Forecasting is a managerial skill and can be practiced and improved.

Methods of Forecasting:

A). Quantitative forecasting relies on numerical data and mathematical model to predict future conditions. There are two types of quantitative forecasting most frequently used.

1). Time-series methods used historical data to develop forecasts of the future.

- The underlying assumption is that patterns exist and that the future will resemble the past.
- Time-series methods do not in themselves predict the impact of present or future actions that managers might take to bring about change.
- A trend reflects a long-range general movement is either an upward or a downward direction.
- A seasonal pattern indicates upward or downward changes that coincide with particular points within a given year.
- A cyclical pattern involves changes at particular points in time that span longer than a year.

- Time-series are more valuable for predicting broad environmental factors than in predicting the impact of present or future actions.
- Because time-series rely on past trends there can be a danger in their use if environmental changes are disregarded.

2). Explanatory or **causal models** attempt to identify the major variables that are related to or have caused particular past conditions and then use current measures of those variables (predictors) to predict future conditions.

- Explanatory models allow managers to assess the probable impact of changes in the predictors.
- **Regression models** are equations that express the fluctuations in the variable being forecasted in terms of fluctuations among one or more other variables.
- **Econometric models** are systems of simultaneous multiple regression equations involving several predictor variables used to identify and measure relationships or interrelationships that exist in the economy.
- **Leading indicators** are variables that tend to be correlate with the phenomenon of major interest but also tend to occur in advance of the phenomenon.

B). Technological or **Qualitative Forecasting** is aimed primarily at predicting long-term trends in technology and other important aspects of the environment
The focus is upon longer-term issues that are less amenable to numerical analysis as quantitative approaches.
The Delphi method and Scenario analysis can be used as techniques**.**

C). Judgmental Forecasting relies mainly on individual judgments or committee agreements regarding future conditions.

1. Judgmental forecasting methods are highly susceptible to bias.
2. The **jury of executive opinion** is one of the two judgmental forecasting model. It is a means of forecasting in which organization executives hold a meeting and estimate, as a group, a forecast for a particular item.
3. The **Sales-force composite** is a means of forecasting that is used mainly to predict future sales and typically involves obtaining the views of various salespeople, sales managers, and/or distributors regarding the sales outlook.

The choice of which forecasting method to use depends upon the needs within particular forecasting situations.

1. **Quantitative forecasting** methods:
    - have a short-to-medium time horizon
    - require a short period of time if a method is developed
    - often have high development costs
    - are high in accuracy in identifying patterns
    - Are low in accuracy in predicting turning points for time series, but medium for other methods.
    - Are difficult to understand

2. **Technological forecasting** methods:
    - have a medium-to-long time horizon
    - require a medium-to-long time
    - have medium development costs
    - are of medium accuracy in identifying patterns
    - are of medium accuracy in predicting turning points
    - Are easily understood.

3. **Judgmental forecasting** methods:
    - have a short-to-long time horizon
    - require a short time
    - have low development costs
    - are of medium-to-high accuracy in identifying patterns
    - are of low accuracy in predicting turning points
    - are easily understood