CH2404 Process Economics

Unit – III

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Forecasting Sales

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Introduction

- Forecasting implies predicting the future after studying and analysing the past and present data.
- Forecasting is of special importance in industries, where important strategic decisions need to be taken to optimize the efficiency of the resources and hence maximize the profits.
- Sales forecasts are common and essential tools used for business planning, marketing, and general management decision making. A sales forecast is a projection of the expected customer demand for products or services at a specific company, for a specific time horizon, and with certain underlying assumptions.
- Forecasting involves more uncertainties than most other management activities. For instance, while management exerts a good deal of control over expenditures, it has little ability to direct the buying habits of its customers.

Uses of Sales Forecasting

The forecasting of sales is one of the most important information tools for every management. In a company lot of units use the sales forecast for example top management, finance, production, human resources, purchasing and marketing units:

- *Top management unit* allocates resources among functional areas and to control operations inside and outside of the company by using the sales forecast.
- *The company's finance unit* uses the sales forecasting to decide on capital appropriation, to project cash flows, and to establish operating budgets.
- *Production unit* uses it to decide how much the company has to produce and in what time and to control inventories.
- *Human resource unit* uses the sales forecasting to plan personnel requirements and also as an input in collective bargaining.
- *Purchasing unit* uses it to plan how much materials the company needs and in which part of the year/month/week or even day.
- *Marketing unit* uses it to plan marketing and sales programs and to allocate resources among the various marketing activities.

Forecasting Process

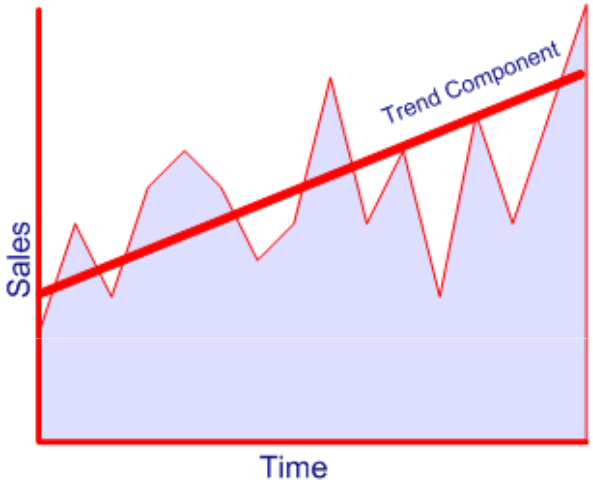
Forecasting process in general and can be divided into three stages:

- Analyse the past to try and spot trends and patterns in the data.
- Project these trends and patterns in to the future (extrapolative forecasting).
- Modify the projected data based on our own experience and judgement (qualitative forecasting).

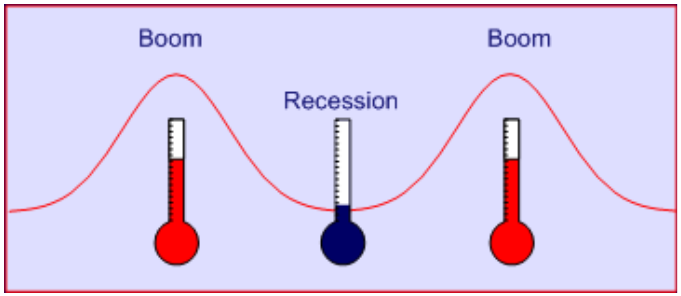
Extrapolative Forecasting

Using time-series analysis its possible to extracts trends from your past sales data, breaking it down into four principle components:

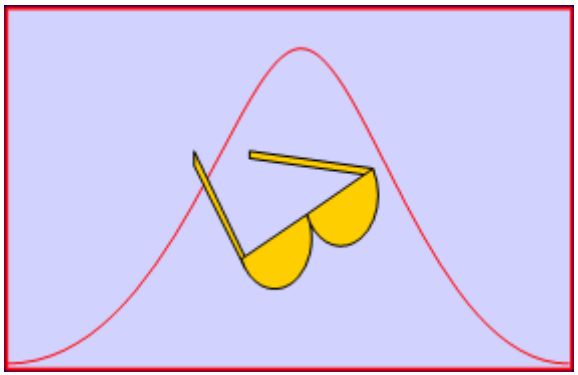
1. The Trend Component: Regardless of other fluctuations, there is generally an overall sales trend. Over a period of time, sales may be increasing, decreasing or remain static. Typically, changes in sales growth rates are caused by new technologies, population dynamics, changes in tastes, changes in the firm's marketing strategies or more or less competition in the market place.



2. The Cyclical Component: Sales are often effected by swings in general economic activity as consumers have more or less disposable income available. These fluctuations normally follow a wave-like pattern being at a crest when the economy is booming and a trough in times of recession.



3. The Seasonal Component: During the year, whether it's on an hourly, weekly, monthly or quarterly basis, there is normally a distinguished pattern to sales. The Seasonal Component is generally effected by such things as the weather, holidays, local customs and general consumer behaviour.



4. Erratic Events: Having extracted the three components above, what's left over is data that cannot be accurately predicted, such as strikes, floods, fads, riots, fires, etc. These events are generally random in nature and are difficult to forecast using statistical methods.

Qualitative Forecasting

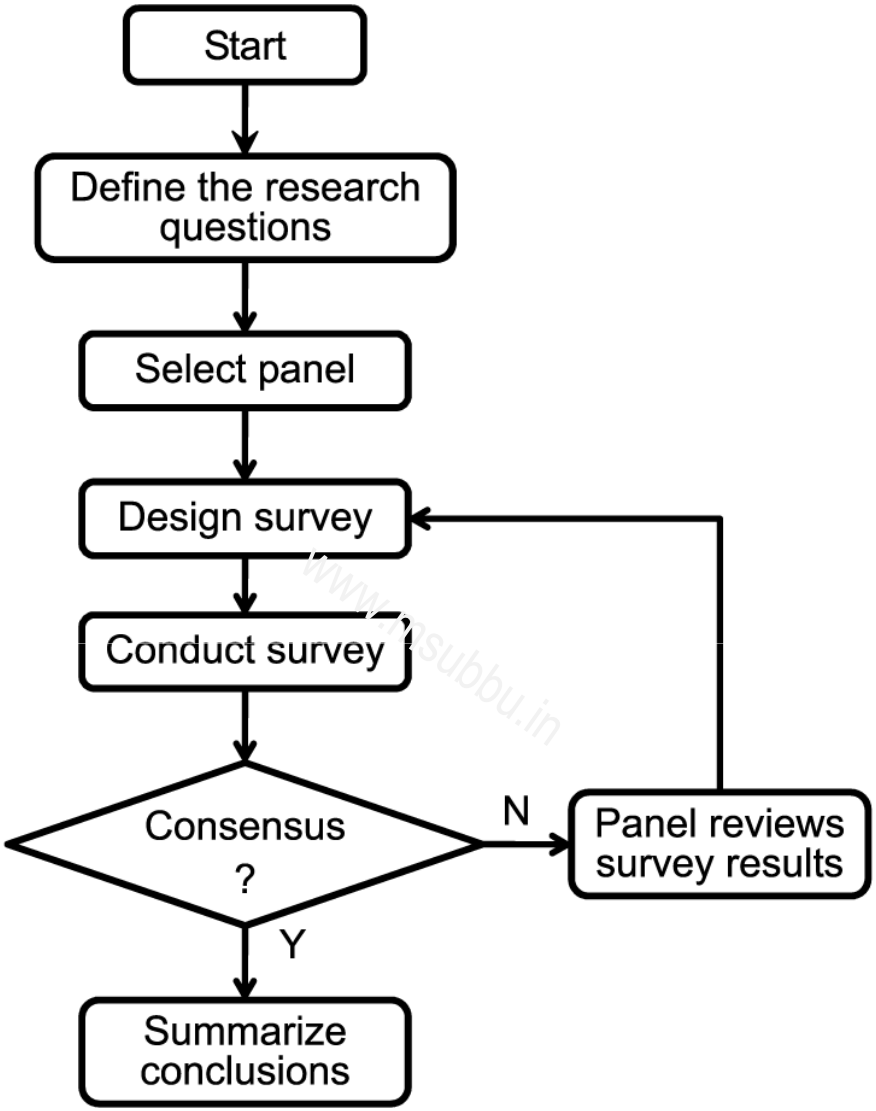
- Your forecasts shouldn't rely on statistical methods alone. While they can give you a useful insight into what might happen in the future, there are no guarantees that past trends will continue. New technologies, markets, products, competitors and changes in marketing strategies or in the economic or political environment can all effect future sales. Furthermore, new business will inevitably have insufficient historical data for extrapolative forecasting to be effective.

- There are various qualitative forecasting techniques that, when combined with extrapolative forecasting, can improve the accuracy of your sales forecasts. They include: Visionary Forecasting, Panel Consensus, The Delphi Technique, and Historical Analogy

- Visionary Forecasting: This method uses personal insight, judgment and when possible facts about future events. It is characterised by subjective guesswork and imagination. If used alone, this method is generally inaccurate, but if used to adjust forecasts based on statistical methods, it can be relatively effective.

- Panel Consensus: This technique is based on the assumption that several minds are better than one. Groups of people who can give sensible estimates of sales, such as sales representatives and brand managers, discuss sales expectations and arrive at some consensus on which to base the forecast.

- The Delphi Technique: It is similar to Panel Consensus, but rather than meeting together to debate future sales, the experts are kept apart so their judgment isn't influenced by social pressure and the negative aspects of small group behaviour. Delphi is based on iterative approach and it uses anonymous repeated feedback. The people involved in the feedback give their own forecast about the subject and the feedbacks are gathered into a summary. The statistical summaries enable the experts to re-evaluate their opinions in the light of the general consensus, thus gradually narrowing the range of estimates until an acceptable consensus is reached.



The Delphi Technique

- Historical Analogy: Similar products and markets often display similar growth patterns or life cycles on which you can base your forecast. The S-shaped product life cycle is a typical example. It is generally divided into four stages:
  - *Introduction* - a period of slow growth while the product is introduced onto the market.
  - *Growth* - sales rapidly increase at an increasing growth rate as the market accepts the product.
  - *Maturity* - sales increase slowly but with a decreasing growth rate. The product has now been accepted by the majority of the people that are likely to buy it.
  - *Decline* - a decline in sales caused by changes in tastes, increased competition or a shift away from your product towards a new or improved product.