

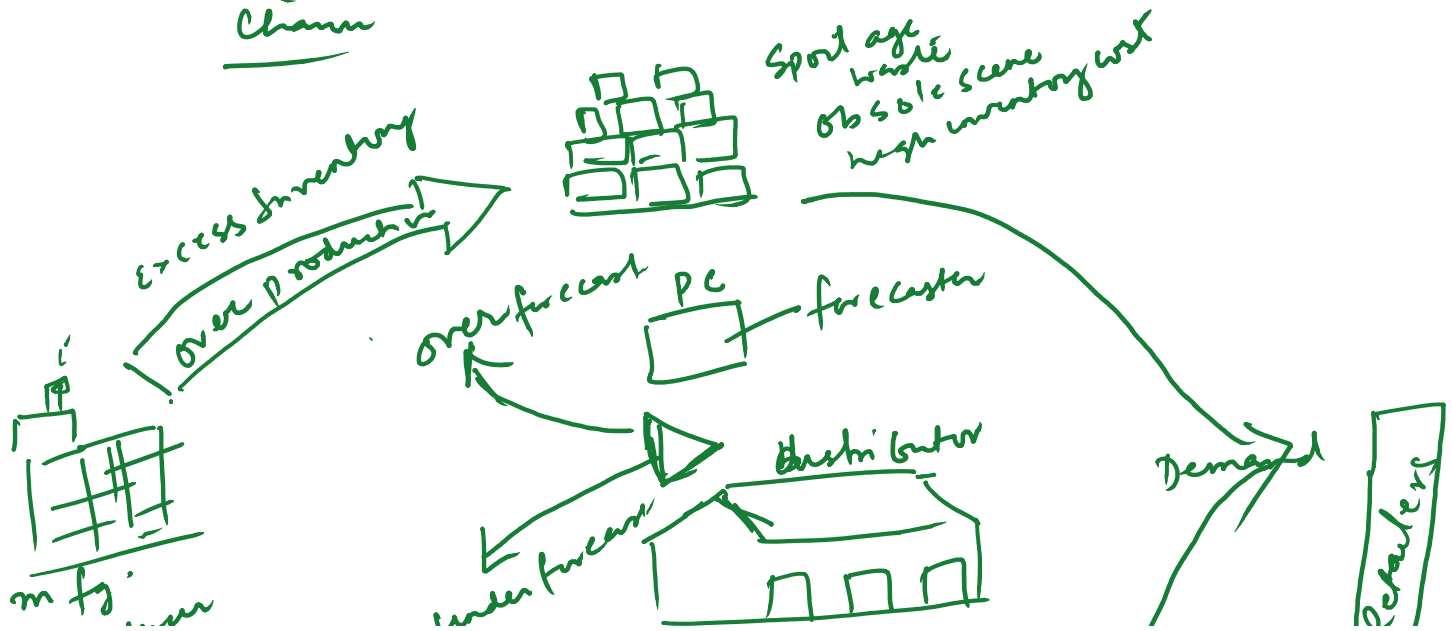
forecasting: is a prediction of what will occur in future.

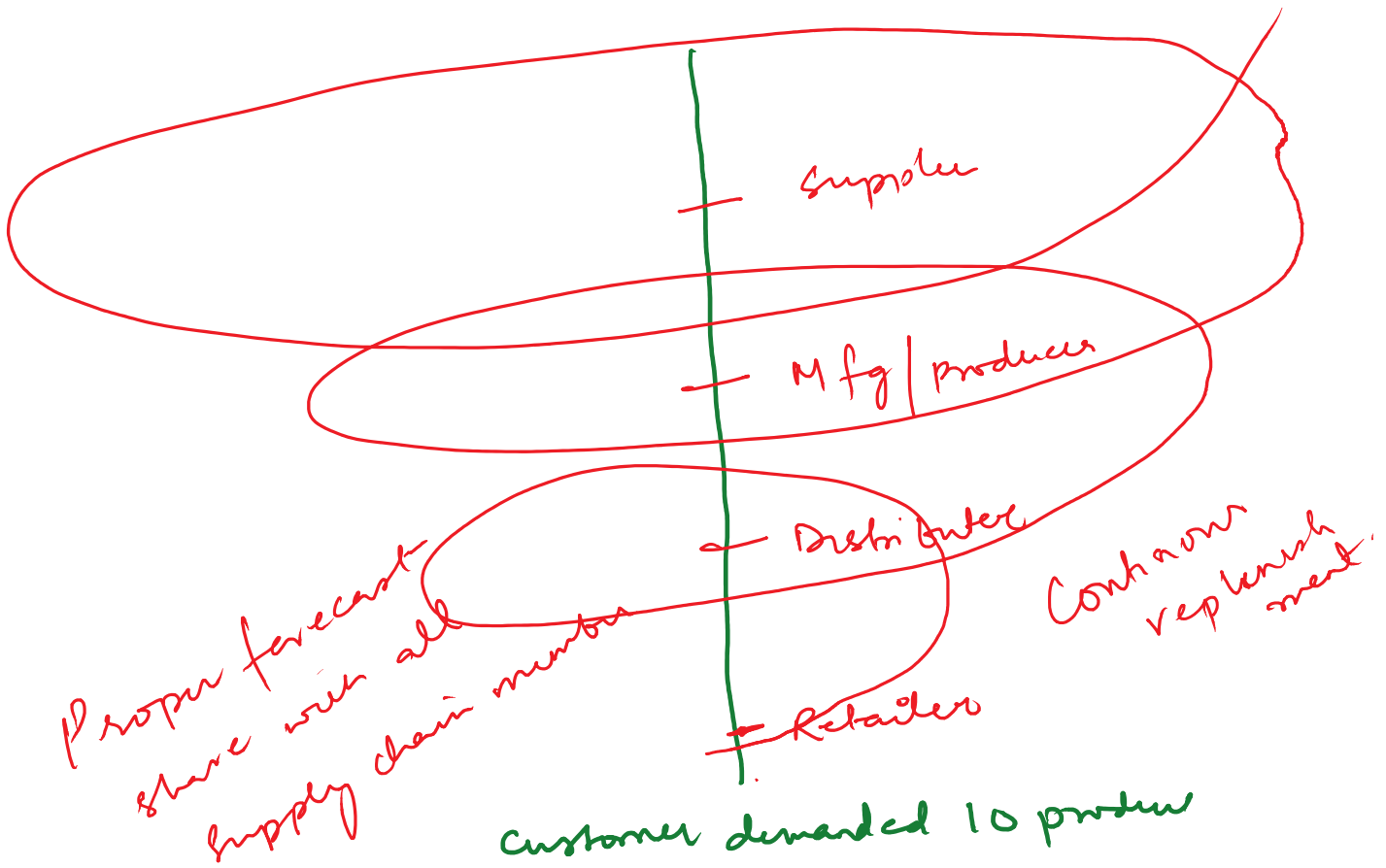
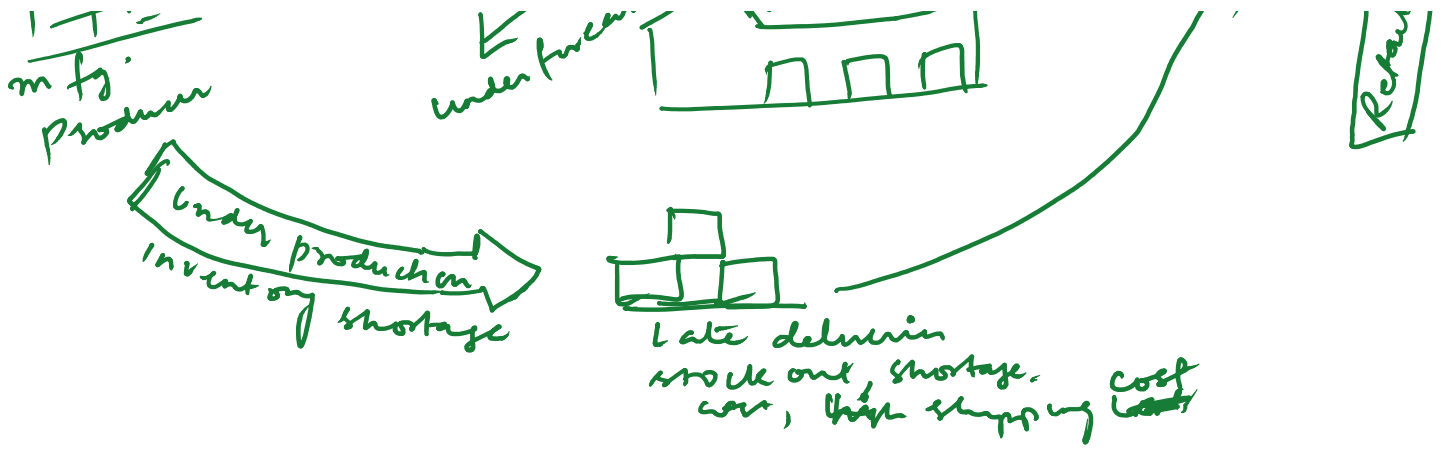
- for eg -
- Meteorologist forecast weather
 - Gambler predict the winner of cricket / football

Two methods of forecasting:

1. Qualitative method: based on judgement, opinion, past experience of experts or Top management to make forecast.
2. Quantitative method: based on mathematical formulae to aid management in making planning decision.
Time series analysis & Regression.

Strategic Role of forecasting in Supply Chain





Quality Management :

↓

Accurate forecast to provide high customer service

Components of forecasting Demand

1. Time frame of the forecast.

2. Behavior of demand.

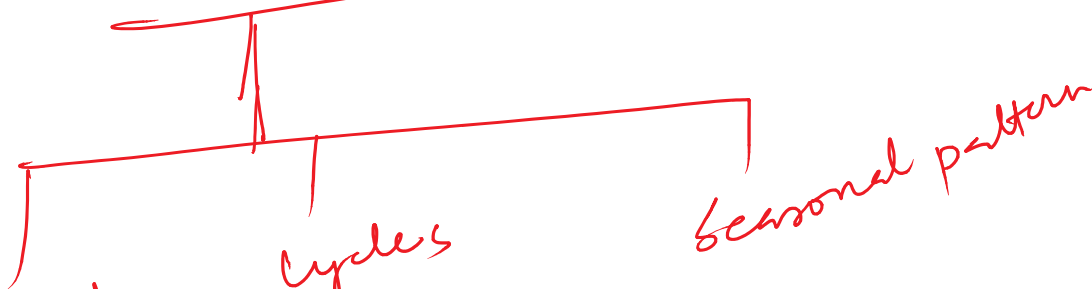
(trends, seasonality & so on)
and the causes of demand behavior.

Time frame forecast for either short - to -
mid range, or long range.

long range forecast : usually used for strategic planning

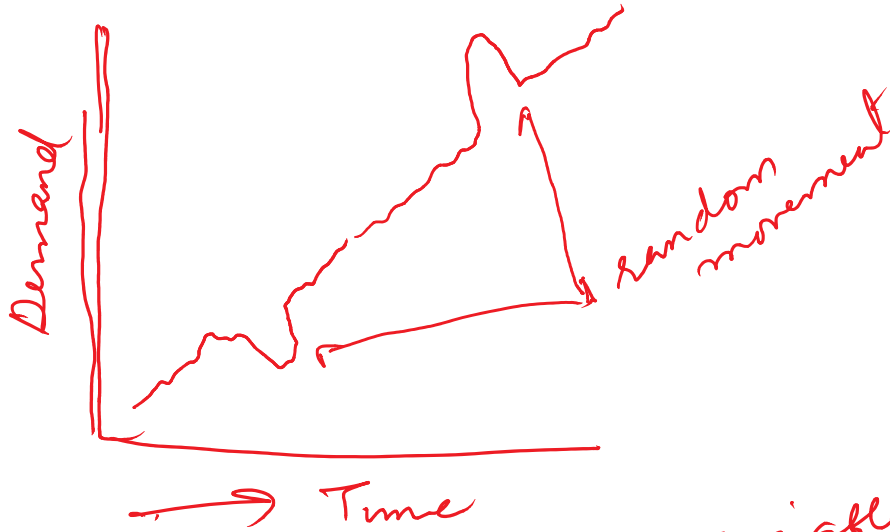
- to establish long term goal.
- plan new product for changing market
- enter into new market
- develop new facilities
- develop new technology.
- design entirely new supply chain network
- implement strategic programme.

Demand behavior



Trends cycles season

1. Trends :



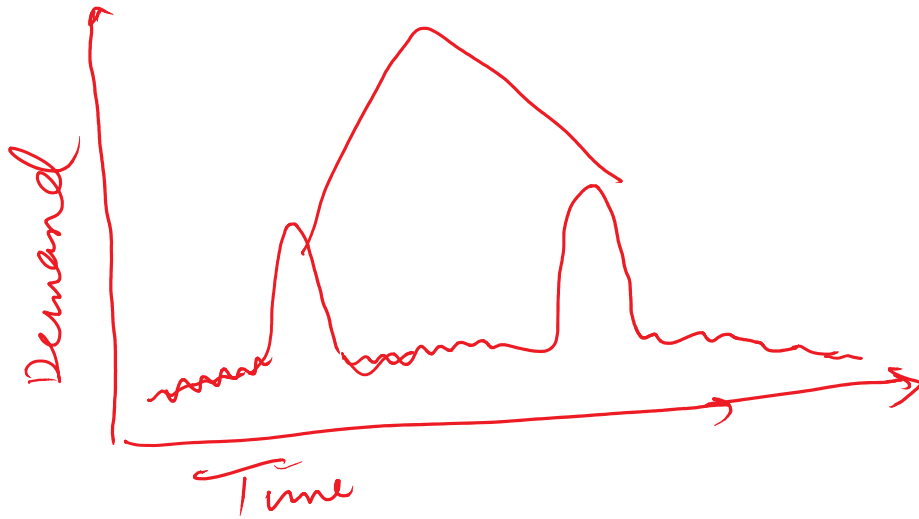
random movement are the variable random movement that are not predictable and follow no pattern. They are routine variation that have no assignable cause.

2. cycle



3. Seasonal pattern

3. seasonal



4) Trends with seasonal pattern



Forecasting method

Qualitative method
(Delphi method)

Quantitative method
(Time series
Regression)

C^{rr} Delphi

Delphi Method

C^{rr} Repro

↳ Moving Average method
is good for stable demand with no pronounced behavioural pattern.

Q, Clarke's ~~produce~~ sells & deliver fresh & meat to restaurant & catering services within 100 km radius of its warehouse. Food delivery / supply business is competitive & the ability to deliver order promptly is a factor of getting new customers & keeping old customer. The manager of Clarke's wants to ensure enough driver & vehicle are available to deliver order promptly & they have adequate inventory in stock. ∴ The manager wants to be able to forecast the no. of order that will occur during the next month (to forecast the demand for deliveries) ∴

Solve the problem with excel

Solve the problem

② Regression Method (Linear trend line)

* Demand is dependent variable
to one independent variable is time

Demand is dependent
Time is independent

in the formation of linear eqn

Demand $y = a + b(x)$ - independent
 $y =$ forecast for demand for period x

$a =$ intercept at period 0

$b =$ slope of the line

$x =$ the time period

$$b = \frac{\sum xy - n \bar{x} \bar{y}}{\sum x^2 - n \bar{x}^2}$$

$$a = \bar{y} - b \bar{x}$$