



IIT ROORKEE



NPTEL ONLINE
CERTIFICATION COURSE

SUPPLY CHAIN ANALYTICS

Demand forecasting in Supply Chain

DR. RAJAT AGRAWAL
DEPARTMENT OF MANAGEMENT STUDIES
IIT ROORKEE



Outline

- The role of forecasting in a supply chain
- Characteristics of forecasts
- Components of forecasts and forecasting methods
- Basic approach to demand forecasting
- Time series forecasting methods
- Measures of forecast error
- Forecasting demand at Tahoe Salt
- Forecasting in practice



Role of Forecasting in a Supply Chain

- The basis for all strategic and planning decisions in a supply chain
- Used for both push and pull processes
- Examples:
 - Production: scheduling, inventory, aggregate planning
 - Marketing: sales force allocation, promotions, new production introduction
 - Finance: plant/equipment investment, budgetary planning
 - Personnel: workforce planning, hiring, layoffs
- All of these decisions are interrelated

Characteristics of Forecasts

- Forecasts are always wrong. Should include expected value and measure of error.
- Long-term forecasts are less accurate than short-term forecasts (forecast horizon is important)
- Aggregate forecasts are more accurate than disaggregate forecasts



Forecasting Methods

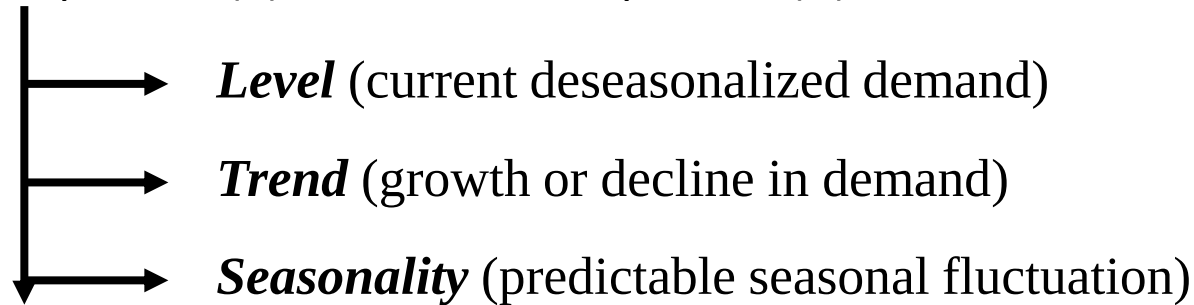
- Qualitative: primarily subjective; rely on judgment and opinion
- Time Series: use historical demand only
- Static
- Adaptive
- Causal: use the relationship between demand and some other factor to develop forecast
- Simulation
 - Imitate consumer choices that give rise to demand
 - Can combine time series and causal methods



Components of an Observation

Observed demand (O) =

Systematic component (S) + Random component (R)



- Systematic component: Expected value of demand
- Random component: The part of the forecast that deviates from the systematic component
- Forecast error: difference between forecast and actual demand

THANK YOU

